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15th NEU-KKU INTERNATIONAL CONFERENCE
SOCIO-ECONOMIC AND ENVIRONMENTAL
ISSUES IN DEVELOPMENT

2022
Proceedings



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**PART 1:
ECONOMIC DEVELOPMENT
AND INTEGRATION**

ARE BIG DIFFERENCES AMONG VALUE ADDED TAX OF VIETNAM, THAILAND AND CHINA?

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Abstract

This study was conducted to show the specific differences between value added taxes between countries and illustrate the differences between the environments in Vietnam, Thailand and China. The secondary data collected is the legal framework for value added tax of Vietnam, Thailand and China. Based on this secondary data, we synthesize, compare, analyze and evaluate to determine if there is a significant difference in value added tax of Vietnam, Thailand and China. The results show that there are still many gaps between the understanding, calculation, measurement and recognition of value added tax. This is the basis for reference for individuals, organizations or tax legislators in Vietnam, contributing to the value-added tax in accordance with international practices.

Keywords: *value added tax, Vietnam, Thailand, China, tax framework*

1. Introduction

Vietnam is one of the fastest growing countries in the world. Contributing to those conditions, it is undeniable that tax is a large source of revenue for the State, especially

value-added tax. However, each country has different policies regarding this tax. Given the economic conditions of our country, all economic sectors are entitled to freedom of business and in law. Value-added tax is an indirect tax, calculated on the added value of products, goods and services from the process of production, circulation and to consumers. Value-added tax has the effect of regulating the income of organizations and individuals consuming goods and services subject to value-added tax. Value added incentives, export of goods. Promote the accounting, accounting, use of invoices and vouchers and payment via banks.

In this paper, the authors want to conduct an in-depth study of the value-added tax being applied in Vietnam, Thailand and China. At the outset, the main content of this tax for each country will be explained in detail. The author then wants to do some comparisons between the three countries to show the differences.

2. Framework of value added tax of Vietnam

VAT is an indirect tax, the cost of which ultimately falls on the consumer.

Taxpayers

The majority of transactions involving the supply of goods, the provision of services and imports will be subject to this tax. Broadly, VAT is levied on the value added at each stage of the production and distribution supply chain. Registered businesses act as collection points for the Value Added Tax department.

Tax rates

The standard rate is ten percent (10%). In addition, there are other rates of 5% and 0% and VAT exemption, as below:

0%: This rate applies to exported goods/services including goods/services sold to overseas/non-tariff areas and consumed outside Vietnam/in the non-tariff areas, goods processed for export or in-country export (subject to conditions), goods sold to duty free shops, certain exported services, construction and installation carried out for export processing enterprises, aviation, marine and international transportation services.

5%: This rate applies generally to areas of the economy concerned with the provision of essential goods and services. These include clean water; teaching aids; books; unprocessed foodstuffs; medicine and medical equipment; various agricultural products and services; technical/scientific services; rubber latex; sugar and its by-products; certain cultural, artistic, sport services/products and social housing.

Exemptions

Under this treatment, no output VAT shall be charged and the input VAT shall be uncreditable, but considered as deductible expenses for CIT purposes, comprising the following: Certain agricultural products; Supply of fertilizer, feed for livestock, poultry, seafood and other animals; Goods/services provided by individuals having annual revenue of VND 100 million or below; Imported or leased drilling rigs, airplanes and ships of a type which cannot be produced in Vietnam; Transfer of land use rights (subject to limitations); Financial derivatives and credit services (including credit card issuance, finance leasing and factoring); sale of VAT able mortgaged assets by the borrower under the lender's

authorization in order to settle a guaranteed loan and provision of credit information; Various securities activities including fund management; Capital assignment; Foreign currency trading; Debt factoring; Certain insurance services (including life insurance, health insurance, agricultural insurance and reinsurance); Medical services; Teaching and training; Printing and publishing of newspapers, magazines and certain types of books; Passenger transport by public buses; Transfer of technology, software and software services except exported software which is entitled to 0% rate; Gold imported in pieces which have not been processed into jewellery; Exported unprocessed mineral products such as crude oil, rock, sand, rare soil, rare stones, etc.; Imports of machinery, equipment and materials which cannot be produced in Vietnam for direct use in science research and technology development activities; Equipment, machinery, spare parts, specialized means of transport and necessary materials which cannot be produced in Vietnam for prospecting, exploration and development of oil and gas fields; Goods imported in the following cases: international non-refundable aid, including from Official Development Aid, foreign donations to government bodies and to individuals (subject to limitations).

In addition, there are regulated cases that goods and services are not required to declare and pay VAT, it means that no output VAT has to be charged but input VAT paid on related purchases may be credited, including: Compensation, bonuses and subsidies, except those provided in exchange for marketing/promotional services; Transfers of emission rights and other financial revenues; Certain services rendered by a foreign organization which does not have a PE in Vietnam where the services are rendered outside of Vietnam, including repairs to means of transport, machinery or equipment, advertising, marketing, promotion of investment and trade to overseas; brokerage activities for the sale of goods and services overseas, training, certain international telecommunication services; Sales of assets by non-business organizations or individuals who are not registered for VAT; Transfer of investment projects; Sale of agricultural products that have not been processed into other products or which have just been through preliminary processing; Capital contributions in kind; Certain asset transfers between a parent company and its subsidiaries or between subsidiaries of the same parent company; Collections of compensation/ indemnities by insurance companies from third parties; Collections on behalf of other parties which are not involved in the provision of goods/services (e.g. if company A purchases goods/services from company B, but pays to company C and subsequently company C pays to company B, then the payment from company C to company B is not subject to VAT); Commissions earned by (i) agents selling services, including postal, telecommunications, lottery, airlines/bus/ship/train tickets, at prices determined by principals; and (ii) agents for international transportation, airlines and shipping services entitled to 0% VAT; and (iii) insurance agents; Commissions from the sale of exempt goods/services.

Tax calculation methods

There are two VAT calculation methods:

Credit method applies to business establishments maintaining full books of account, invoices and documents in accordance with the relevant regulations, including: (i) Business

establishments with annual revenue subject to VAT of VND 1 billion or more, and (ii) Certain cases voluntarily registering for VAT declaration under the deduction method.

Accordingly, VAT payable = Output VAT – Input VAT.

Input VAT is creditable if it meets the requirements of: Relevant to business activities; Having sufficient legitimate invoice and vouchers; Settlement via forms of non-cash payment for transaction more than VND 20 million; and Paying under the registered bank account.

Indirect method applies to: Business establishments with annual revenue subject to VAT of less than VND1 billion; Individuals and business households; Business establishments which do not maintain proper books of account and foreign organizations or individuals carrying out business activities in forms not regulated in the Law on Investment; and Business establishments engaging in trading in gold, silver and precious stones.

Accordingly, VAT payable = revenue x ratio for direct VAT calculation.

Ratios for direct VAT calculation vary upon the business activities, as below: 1%: this ratio is for the business of “distribution, supply of goods”; 3%: this ratio is for “the production, transportation, service associated with goods, construction exclusive of the materials; 5%: this rate is for “service, construction exclusive of material”; and 2%: this ratio is for other business activities.

Tax refunds

If an enterprise's input VAT exceeds its output VAT during 12 consecutive months, it can claim a refund from the authorities.

In certain cases (e.g. exporters where excess input VAT credits exceed VND 300 million), a refund may be granted on a monthly/ quarterly basis. Newly established entities in the pre-operation investment phase may claim VAT refunds on a yearly basis or where the accumulated VAT credits exceed VND3 00 million.

Newly established entities and certain investment projects which are in the pre-operation stage may be entitled to refunds for VAT paid on imported fixed assets based on shorter timelines than normal, subject to certain conditions.

3. Framework of value added tax of Thailand

Value Added Tax (VAT) has been implemented in Thailand since 1992 replacing Business Tax (BT). VAT is an indirect tax imposed on the value added of each stage of production and distribution.

Taxpayers

Any person or entity who regularly supplies goods or provides services in Thailand and has an annual turnover exceeding 1.8 million baht is subject to VAT in Thailand. Service is deemed to be provided in Thailand if the service is performed in Thailand regardless where it is utilized or if it is performed elsewhere and utilized in Thailand.

An importer is also subject to VAT in Thailand no matter whether one is a registered person or not. VAT will be collected by the Customs Department at the time goods are imported.

Certain businesses are excluded from VAT and will instead be subjected to Specific Business Tax (SBT). Under VAT, taxable goods mean all types of property, tangible or intangible, whether they are available for sales, for own use, or for any other purposes. It also includes any types of articles imported into Thailand. Services refer to any activities conducted for the benefits of a person or an entity, which are not the supply in terms of goods.

Exemptions

Certain activities are exempted from VAT. Those activities are: small entrepreneur whose annual turnover is less than 1.8 million baht; Sales and import of unprocessed agricultural products and related goods such as fertilizers, animal feeds, pesticides, etc.; Sales and import of newspapers, magazines, and textbooks; certain basic services such as: transportation: domestic and international transportation by way of land; healthcare services provided by government and private hospitals as well as clinics; educational services provided by government and private schools and other recognized educational institutions; professional services: Medical and auditing services, lawyer services in court and other similar professional services that have laws regulating such professions; income from business, commerce, agriculture, industry, transport or any other activity not specified earlier; Cultural services such as amateur sports, services of libraries, museums, zoos; Services in the nature of employment of labor, research and technical services and services of public entertainers; Goods exempted from import duties under the Industrial Estate law imported into an Export Processing Zones (EPZs) and under Chapter 4 of the Customs Tariff Act; Imported goods that are kept under the supervision of the Customs Department which will be re-exported and be entitled to a refund for import duties; and Other services such as religious and charitable services, services of government agencies and local authorities.

Tax Base

- General Goods and Services

Tax base of VAT is the total value received or receivable from the supply of goods or services. Value means money, property, consideration, service fees, or any other benefits which is ascertainable in terms of money. Tax base will also include any Excise tax arises in connection with such supply. However, tax base is exclusive of the value added tax itself and does not include any discounts or allowances, but only if discounts or allowances are clearly shown in the tax invoices.

- Imported Goods

Tax base = C.I.F. price + Import duty + Excise Tax (if any) + other taxes and fees (if any)

- Exported Goods

Tax base = F.O.B. price + Excise Tax (if any) + other taxes and fees (if any)

Tax rates

General Rate: currently, the rate is 7 percent.

Zero Percent Rate: certain activities are liable to VAT at the rate of zero percent. Those activities include: export of goods; services rendered in Thailand and utilized outside Thailand in accordance with rule, procedure and condition prescribed by the Director-

General; aircraft or sea-vessels engaging in international transportation; supply of goods and services to government agencies or state-owned enterprises under foreign-aid program; supply of goods and services to the United Nations and its agencies as well as embassies, consulate-general and consulates; supply of goods and services between bonded warehouses or between enterprises located in EPZs.

Time of Supply

The time of supply of goods or services is important because it determines when a registered person should account for VAT. The time of supply will be determined as follows:

- Goods

General goods, the earliest of: the time of delivery; or when ownership of goods is transferred; or a payment is made; or a tax invoice is issued. Hire-purchase or installment sale, the earliest of: the time each payment is due; or a payment is made; or a tax invoice is issued. Supply of goods on consignment, the earliest of: the time the consignee makes delivery or transfers; or ownership of the goods to buyer; or a payment is made; or a tax invoice is issued. Imports, the earliest of: the time import duty is paid; or a guarantee is put up; or a guarantor is arranged for; or a bill of lading is issued. Exports, the earliest of: the time export duty is paid; or a guarantee is put up; or a guarantor is arranged for; or a bill of lading is issued; or goods are sent from Thailand to an EPZ; or goods are exported from a bonded warehouse.

- Services

In general, the earliest of the time a payment is made; or tax invoice is issued; or service is utilized. Service contract where payment is made according to the service performed, the earliest of the time a payment is made; or tax invoice is issued; or service is utilized. Imports: the time the payment is made.

Tax Invoice

VAT registered person or entity is required to issue tax invoices every time the transactions are made showing details of nature and value of goods sold or services provided and also amount of VAT due. Tax invoice is used as evidence for claiming input tax credit. Tax invoice must contain at least the following elements: The word "Tax invoice" in a prominent place; Name, address and tax identification number of the issuer; Name and address of the purchaser or customers; Serial numbers of tax invoice and tax invoice books (if applicable); Description, value and quantity of goods or services; Amount of VAT chargeable, and Date of issuance.

Tax calculation methods

$$VAT\ liability = Output\ Tax - Input\ Tax$$

"Output Tax" is a tax collected or collectible by VAT registered person from his customers when goods or services are supplied.

"Input Tax" is a tax charged by another registered person on any purchase of goods or provision of services. The term also includes any tax charged on imported goods.

Tax Refunds

In each month, if input tax exceeds output tax, taxpayer can claim for the refund, either in form of cash or tax credit to be used in the following months. Therefore, in case of

zero-rated, taxpayer will always be entitled to VAT refund. As for unused input tax, it may be creditable against output tax within the next 6 months. However, the refund can only be claimed within 3 years from the last day of filing date.

Certain input taxes, such as tax in relation to entertaining expenses, are not creditable under VAT. However, those non-creditable input taxes can instead be used as deductible expenses under Corporate Income Tax (CIT).

Tax Registration

Any person or entity who is liable to VAT in Thailand must register to be VAT registered person or entity (Form VAT 01) before the operation of business or within 30 days after its income reaches the threshold. The registration application must be submitted to Area Revenue Offices if the business is situated in Bangkok or to the Area Revenue Branch Offices if it is situated elsewhere. Should taxpayer have several branches, registration application must be submitted to the Revenue Office where the head-quarter is situated.

Tax Return and Payment

VAT taxable period is a calendar month. VAT return therefore must be filed on a monthly basis. VAT return (Form VAT 30) together with tax payment, if any, must be submitted to Area Revenue Branch Office within 15 days of the following month. If taxpayer has more than one place of business, each place of business must file the return and make a payment separately unless there is an approval from the Director-General of the Revenue Department. Services utilized in Thailand supplied by service providers in other countries are also subject to VAT in Thailand. In such a case, service recipient in Thailand is obliged to file VAT return (Form VAT 36) and pay tax, if any, on behalf of the service providers.

In the case where supply of goods or services is also subject to Excise tax, VAT return and tax payment, if any, must be submitted to the Excise Department together with Excise tax return and tax payment within 15 days of the following month. In case of imported goods, VAT return and tax payment must be submitted to the Customs Department at the point of import.

4. Framework of value added tax of China

VAT can apply to the sale and importation of goods in or to China, and the provision of all services in or to China. VAT also applies to the provision of services from China to overseas except where exemption or zero rating applies. VAT in China exhibits some of the features of other VAT regimes throughout the world (albeit with some uniquely Chinese characteristics), in the sense that it taxes final private consumption expenditure (as well as some public expenditure), by generally relieving the burden of VAT on transactions between businesses through an input VAT credit mechanism.

Taxpayers

VAT taxpayers fall into two categories: general VAT taxpayers and small-scale VAT taxpayers.

General VAT taxpayers refer to enterprises whose accumulated taxable income during a consecutive period of no more than 12 months, or four quarters, exceeds RMB 5 million or those who have a sound accounting system. Multiple VAT rates of 13%, 9%, and 6% apply to general VAT taxpayers. The input VAT can be credited against the output VAT.

Small-scale VAT taxpayers refer to enterprises whose accumulated taxable income during a consecutive period of no more than 12 months, or four quarters, are below RMB 5 million or without a sound accounting system. A 3% levying rate is applied to small-scale VAT taxpayers, but they cannot deduct input VAT from output VAT.

Newly registered companies or companies whose accumulated taxable income during a consecutive period of no more than 12 months, or four quarters, do not exceed RMB 5 million can voluntarily apply to be recognized as VAT general taxpayers, provided that they are capable of setting up legitimate, valid, and accurate bookkeeping and can provide accurate tax information to local tax authorities.

If a small-scale taxpayer derives revenue whose accumulated amount for the consecutive 12 months, or four quarters, reaches or exceeds RMB 5 million, it is required to register as a general VAT taxpayer within 15 days after the filing due date of the period in which the taxpayer meets the above threshold, or it shall be compulsorily ratified as a general VAT taxpayer.

Table 1. VAT taxpayers

Type	Small-scale VAT taxpayers	General VAT taxpayers
Taxable income	Equal to or less than RMB 5 million	More than RMB 5 million
VAT rate	3% (5%* on certain occasions)	13%, 9%, 6% and 0%
VAT payable	Tax-exclusive income x VAT levying rate (3%)	Current output VAT - current input VAT
VAT declaration	Monthly/quarterly	Monthly

Exemptions

Agricultural products; unprocessed by farmers; import goods for processing for export; import equipment to use in foreign investment capital projects or in projects are encouraged by the State; import equipment and tools to use direct in scientific research, experiment and education; imported supplies and equipment are sponsored by foreign governments, international organizations; dedicated import products for the disabled; contraceptive drugs and devices, antique books. Certain exported services: in general, the export of services is exempt from VAT. This includes services such as: Licensed international transportation services by Chinese domestic carriers; Production and publication of radio, film and television services for foreign entities abroad; Offshore outsourcing services; Research and development services provided to foreign entities abroad; Software services and information systems services provided to foreign entities abroad etc.

Tax rates

China maintains a multi-rate VAT system of 13%, 9%, 6% and 0%. The standard VAT rate of 13% is applied to the sale and importation of most goods, the provision of repair, replacement, processing services, and the leasing of tangible moveable assets unless otherwise stipulated by tax authorities. Reduced VAT rates apply to items as outlined below.

Table 2. Tax items and VAT rates

Sectors	Tax items	VAT rate
Most goods and some services	Sales and imports of most goods (unless otherwise specified) Labour services, including processing, repair, or assembling services Tangible moveable property leasing services	13%
Real estate, transportation, postal and agriculture	Agricultural, forestry, animal husbandry products: grains, vegetable oils, fresh milk, medicinal and other plants, agricultural machinery, fertilizer, and pesticide Tap water, heating, cooling, gas, coal/charcoal products for residential use Books, newspapers, magazines, audio-visual products, electronic publications Transportation services Postal services Basic telecommunications services Real estate, construction, transfer of ownership of properties and land use rights, real estate leasing service Other goods specified by the state council	9%
Services	Financial and insurance services Modern services: research and development, technical services, information technology services, cultural and creative services, logistics and ancillary services, leasing, consulting, radio, film and television services, etc. Lifestyle services: education, healthcare, travel, entertainment, catering, accommodation, cultural and sports services, other daily lifestyle services Value-added telecommunications services Intangible assets, excluding land-use rights Sales of virtual props for online games	6%
Small-scale taxpayers	For most goods and services, a uniform rate of 3% applies to small-scale VAT taxpayers	3% (*)
Exports	Export of goods and services (except where otherwise stipulated by the State Council)	0%

(*): except certain actual transactions applicable to 5% VAT rate

Tax calculation methods

- For general taxpayers, the basic formula for calculating VAT payable is:

$$\text{VAT payable} = \text{Output VAT in the current period} - \text{Input VAT in the current period}$$

If the output tax for the current period is insufficient to offset the input tax of the current period, the difference can be carried forward to the next term for continued offset.

When making a sale of goods or providing a taxable service, the taxpayer should calculate the amount of output VAT and charge this to the buyer according to the below formula:

$$\text{Output VAT} = \text{Sales} \times \text{VAT Rate}$$

The Interim Regulations define “sales” as the total amount of prices and other outlays received from the buyer, excluding output VAT. If the original price of the product(s) already includes VAT, the sales amount excluding VAT should be determined based on the formula:

$$\text{Sales} = \text{Sales including Output VAT} / (1 + \text{VAT Rate})$$

Input VAT is the VAT amount paid by the taxpayer when purchasing goods or taxable services.

- Small-scale taxpayers

For small-scale taxpayers, the formula for determining VAT payable is:

$$\text{VAT} = \text{Sales} \times \text{VAT levy Rate}$$

$$\text{Sales} = \text{Sales including VAT} / (1 + \text{VAT levy Rate})$$

5. Differences among value added tax of Vietnam, Thailand and China

Based on theoretical frameworks of value added tax among Vietnam, Thailand and China, differences are presented in Table 3, below:

Table 3. Differences among VAT of Vietnam, Thailand and China

Items	Vietnam	Thailand	China
Taxpayers	The majority of transactions involving the supply of goods, the provision of services and imports will be subject to this tax. Broadly, VAT is levied on the value added at each stage of the production and distribution supply chain. Registered businesses act as collection points for the Value Added Tax department.	Any person or entity who regularly supplies goods or provides services in Thailand and has an annual turnover exceeding 1.8 million baht is subject to VAT in Thailand. Service is deemed to be provided in Thailand if the service is performed in Thailand regardless where it is utilized or if it is performed elsewhere and utilized in Thailand. An importer is also subject to VAT in Thailand no matter whether one is a registered person or not	VAT taxpayers fall into two categories: general VAT taxpayers and small-scale VAT taxpayers.

Items	Vietnam	Thailand	China
Exemptions	<p>Under this treatment, no output VAT shall be charged and the input VAT shall be uncreditable, but considered as deductible expenses for CIT purposes;</p> <p>In addition, there are regulated cases that goods and services are not required to declare and pay VAT, it means that no output VAT has to be charged but input VAT paid on related purchases may be credited</p>	<p>Certain activities are exempted from VAT. Those activities are: small entrepreneur whose annual turnover is less than 1.8 million baht; Sales and import of unprocessed agricultural products and related goods such as fertilizers, animal feeds, pesticides, etc.; Sales and import of newspapers, magazines, and textbooks; certain basic services such as: transportation: domestic and international transportation by way of land; healthcare services provided by government and private hospitals as well as clinics; educational services provided by government and private schools and other recognized educational institutions; professional services: Medical and auditing services, lawyer services in court and other similar professional services that have laws regulating such professions; income from business, commerce, agriculture, industry, transport or any other activity not specified earlier; Cultural services such as amateur sports, services of libraries, museums, zoos; Services in the nature of employment of labour, research and technical services and services of public</p>	<p>Agricultural products; unprocessed by farmers; import goods for processing for export; import equipment to use in foreign investment capital projects or in projects are encouraged by the State; import equipment and tools to use direct in scientific research, experiment and education; imported supplies and equipment are sponsored by foreign governments, international organizations; dedicated import products for the disabled; contraceptive drugs and devices, antique books. Certain exported services: in general, the export of services is exempt from VAT. This includes services such as: Licensed international transportation services by Chinese domestic carriers; Production and publication of radio, film and television services for foreign entities abroad; Offshore outsourcing services; Research and development services provided to foreign entities abroad; Software services and information systems services provided to foreign entities abroad etc.</p>

Items	Vietnam	Thailand	China
		entertainers; Goods exempted from import duties under the Industrial Estate law imported into an Export Processing Zones (EPZs) and under Chapter 4 of the Customs Tariff Act; Imported goods that are kept under the supervision of the Customs Department which will be re-exported and be entitled to a refund for import duties; and Other services such as religious and charitable services, services of government agencies and local authorities.	
Tax rates	The standard rate is ten percent (10%). In addition, there are other rates of 5% and 0%	Currently, the rate is 7% and 0%	China maintains a multi-rate VAT system of 13%, 9%, 6% and 0%.
Tax calculation methods	There are two VAT calculation methods: credit method and indirect method	VAT liability = Output Tax - Input Tax "Output Tax" is a tax collected or collectible by VAT registered person from his customers when goods or services are supplied. "Input Tax" is a tax charged by another registered person on any purchase of goods or provision of services. The term also includes any tax charged on imported goods.	- For general taxpayers, the basic formula for calculating VAT payable is: VAT payable = Output VAT in the current period - Input VAT in the current period - For small-scale taxpayers, the formula for determining VAT payable is: $VAT = Sales \times VAT \text{ levy Rate}$

In short, through the process of conducting this study, it can be concluded that there are still some differences between the regulations on value-added tax of Vietnam, Thailand and China. The difference lies in the subject of tax, the object of tax exemption, the tax rate, the tax formula. Understanding tax regulations, especially value added tax, not only in

Vietnam but also in other countries such as Thailand and China is very important for those who will work in the business sector, economic, financial. This is also the basis for Vietnamese legislators to refer to issue policies on value-added tax.

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APPLYING STRUCTURAL EQUATION MODELING TO IDENTIFY DETERMINANTS OF MICRO, SMALL AND MEDIUM ENTERPRISES' SUSTABILITY

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Abstract

Micro, small and medium enterprises (MSMEs) are of great importance in socio-economic development in Vietnam. Sustainable enterprise has received global attention in the context of climate change, environmental pollution, and natural resource depletion. According to indicators on primary dimensions of sustainable development, Vietnam has achieved remarkable achievements. The driving force belongs to enterprises that play an active role in designing, manufacturing, and managing products. This research tries to measure the effects of factors influencing the sustainable development of MSMEs in Vietnam by applying PLS technology. 5 factors that affect enterprise governance and thus the sustainability of MSMEs were found. Based on the findings policy implications to enhance enterprises' role in achieving national sustainable development goals were proposed.

Key words: *enterprise sustainability, circular economy, Garden-Pond-Stables model*

1. Introduction

In the context of climate change, economic inequity, and environmental pollution here and there around the world, poverty has not been well handled in many countries sustainable development has been receiving global attention. The current state of technology and social organization places physical, social, institutional, psychological, and conceptual limits on conventional economic expansion. In various scenarios of the future, the only realistic direction is to learn to live together on this small and crowded planet. This means a sustainable development future (Robertson, 2008).

The purpose of this research is to identify factors determining the sustainable development of enterprises, thus their role in achieving national sustainable development goals. This research is structured in five sections. The first section is an introduction which is followed by a literature review, the third section is methodology and data, the next section is results and discussion about empirical analysis of factors determining the role of micro, small and medium enterprises (MSMEs) in achieving sustainable development goals in Vietnam, and the last section is policy implications and conclusion.

2. Literature Review

2.1. *The role of enterprises in achieving sustainable development goals*

The concept of sustainable development emerged in the context of the rapid population growth and the depletion of natural resources in the 1970s. However, for the first time, this concept was formally introduced in United Nations' Brundtland Report released in 1987, "Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (UN). Sustainable development can ensure harmony between competing goals, economic prosperity, environmental quality, and social equity (Hasna, 2007). In other words, three pillars of sustainability are economic, environmental, and social.

The environmental pillar of sustainable development illustrates the responsibility of the present generation to improve the lives of future generations by repairing previous damage to the ecosystem and combating what may cause further damage to it. These practices help the planet and improve financial results by reducing waste and using fuel efficiently. Externalities are among the challenges with the environmental pillar because costs are not fully reflected in market prices.

The social pillar of sustainable development focuses on maintaining and improving social quality. Agyeman, *et al*, (2003) defined sustainable development as the need to ensure a better quality of life for all, now and in the future, in equitable ways while living within the confines of supporting ecosystems. A sustainable community is referred to as one with cohesion, reciprocity and honesty, and the importance of relationships among people. It can be encouraged and supported by laws, information, and shared ideas of equity and rights (Diesendorf, 2000). A sustainable company is one that treats employees fairly and is a good neighbor and community member, both locally and globally. Such a company should be supported and approved by its employees, stakeholders, and the community in which it operates.

The economic pillar of sustainable development sometimes is referred to as the governance pillar. This means compliance, proper governance, and risk management. The board of directors must harmonize the shareholders' interests and that of the community, the value chains, and the end-user consumers as well. To be sustainable, a company must be profitable; however, profit goals cannot overwhelm environmental and social ones. Although the use of fossil fuels and chemicals harms the environment the economic pillar enables companies to phase in changes instead of abandoning them immediately.

Companies with social responsibility play a crucial role in achieving sustainable development goals. The term social responsibility (SR) means that companies, in addition to maximizing value for shareholders, must act in a manner that benefits society. Social responsibility applied to enterprises is known as corporate social responsibility (CSR) which refers to practices and policies undertaken by corporations aimed to have a positive influence on the world. CSR is a self-regulating business model by which a company is socially accountable to itself, its stakeholders, and the public. Companies that practice CSR means are operating in ways that are good for society and the environment instead of damaging them. CSR is the typical strategy implemented by large companies. Small and medium

enterprises (SMEs) also undertake socially responsible programs. CSR is always encouraged. To help organizations translate CSR principles into practical actions, in 2010, the International Organization for Standardization (ISO) released ISO 26000 (ISO, 2010) which clarifies what social responsibility is.

Sustainable development has many facets which may be expressed by four primary dimensions (WCED, 1987): (1) Safeguarding long-term ecological sustainability, (2) Satisfying basic human needs, (3) Promoting intergenerational equity, and (4) Promoting intergenerational equity, each of them can be measured by his own indicators. Threshold values of these primary dimensions are measured and recommended their limits for the year 2030 in Table 1.

Table 1. Primary dimensions, indicators, and suggested 2030 threshold values for sustainable development

Dimension	Indicator	2030 Threshold
(1) Safeguarding long-term ecological sustainability	Yearly per capita ecological footprint	Maximum 2.3 gha per capita
(2) Satisfying basic human needs	Human Development Index	Minimum 0.63
(3) Promoting intragenerational equity	Gini coefficient	Maximum 40
(4) Promoting intergenerational equity	The proportion of renewables to the total energy in primary energy production	Minimum 27%

Source: Holden et. al., 2014.

2.2. Measuring the sustainable development of the enterprises

Economic development aligns with environmental protection and social equity has been pursued globally. Enterprises are the driving force of economic and social development and also agents that negatively influence the environment. The 2030 Agenda for Sustainable Development of the United Nations defines sustainable development as a harmonious combination of three basic factors, namely: economic development, social security, and environmental protection. For sustainable development, enterprises should use inputs efficiently and minimize damaging waste to the environment. Hart (1997) proposed three strategies for enterprises to develop sustainably.

1. *Pollution prevention*: this means the shift from pollution control to pollution prevention. Enterprises should reduce or eliminate waste instead of handling them. Continuous improvement is the way to make this strategy implemented.

2. *Product life cycle management*: it focuses on minimizing pollution in production and throughout the product life cycle.

3. *Clean technology*: developing and using green and environmentally friendly technologies. This implies that all stages related to the product life cycle must be considered: product designing, manufacturing, and recycling.

Krajnc & Glavic (2003) introduced indicators relevant to economic, social, and environmental dimensions. Most of the mentioned above indicators are qualitative. Veleva & Ellenbecker (2001) proposed a set of indicators of sustainable production regarding energy use, emissions, effectiveness, contribution to society, employee welfare, and product.

To help translate corporate responsibility into practical activities, corporations, such as NIKE (2020), Samsung (2020), and others have developed and applied their code of conduct. In 2016 Vietnam Chamber of Commerce and Industry (VCCI) released the corporate sustainability index (SCI) for ranking companies in Vietnam by their sustainability.

2.3. Research model

Our research model is illustrated in Figure 1.

Environmental Sustainability

Resource savings and waste minimization are the first requirements for sustainable development. This means product must be produced, distributed, processed, and recycled in a way that minimizes resource use and negative impacts on the environment.

Companies with social responsibility try to minimize air emissions, discharge, and climate impacts and properly manage chemical fertilizers, waste, and appreciative water. Thus, we hypothesize

H1: Environmental sustainability indicators positively relate to enterprise governance and thus to sustainable development.

Social Sustainability

To measure social sustainability Veleva & Ellenbecker (2001) proposed indicators reflecting a company's contribution to the community and social development, and employee rights. Socially sustainable enterprises ensure a better quality of life for all; everyone is respected and treated fairly. The term respected in social sustainable enterprises means employment is voluntary, the minimum working age is 16, suppliers do not discriminate, and freedom of association and collective bargaining are respected. Therefore, we hypothesize

H2: respected indicators positively relates to enterprise governance and thus to sustainable development.

The concept of equity means harassment and abuse are not tolerated, working hours are not excessive, compensation and benefit are paid on time, and regular employment is provided. Thus, we hypothesize

H3: equity indicators positively relates to enterprise governance and thus to sustainable development.

Economic sustainability

Economic sustainability may be expressed by financial and employee indicators (Krajnc & Glavic, 2003). Financial indicators of economic sustainability include primarily the followings: adequate investment in R&D and environmental protection, paying the cost

of environmental responsibility to the affected party if it occurs, minimizing customer complaints, rarely breaking contracts with suppliers because of inconsistent environmental, health, and safety standards. Here we hypothesize

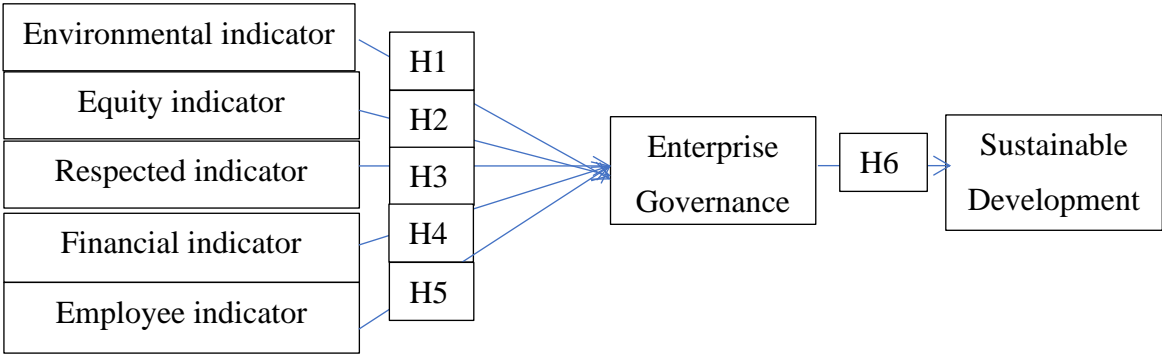
H4: Financial indicator positively relates to enterprise governance and thus to sustainable development.

Employee indicators of economic sustainability mainly encompass ensuring a safe workplace, healthy and safe dorms, canteens, and childcare facilities, building fitted for the purpose, fire and emergency action plans are in place, and occupational health and hygiene hazards are controlled. We hypothesize

H5: Employee indicator positively relates to enterprise governance and thus to sustainable development.

A sustainable enterprise is one managed by responsible, creative and innovative leaders. Indicators of enterprise governance include sustainable development strategies, risk management, procurement management, customer satisfaction, public relation, and innovative ideas. Thus, we hypothesize

H6: enterprise governance positively relates to sustainable development



2.4. MSMEs in achieving sustainable development goals in Vietnam

For enterprises, sustainable development simply is a corporate governance strategy that adapts to all circumstances, so as their profit goals in harmony with the interests of employees and environmental protection.

Since the UN 2030 Agenda, each country has a specific and unified destination in the process of achieving inclusive development and prosperity. Since 2016, in pursuing the goals of sustainable development Vietnam has been promoted in the global rankings, from 88/149 countries in 2016 to 51/165 in 2021.

However, the sustainable development goals in Vietnam mainly use public resources. Private resources are limited due to the fact that private enterprises, mainly MSMEs, are disadvantageous regarding enterprise competitiveness and effectiveness. In addition, many enterprises have applied outdated technology, with low labor productivity, and use fossil energy which both negatively affects the environment and adversely influences the welfare of future generations. Recognizing this, the Vietnam National Energy Development Strategy

to 2030 and Outlook to 2045 (Vietnam Politburo, 2020) has focused on improving the efficiency of energy use, to save 8-10% or 60 million tons of oil equivalent of the energy needed to develop the country under the normal scenario. 63 provinces/cities were divided into 7 groups with energy-saving goals. The local governments have been requested to build and implement energy savings schemes, in which enterprises were considered a breakthrough in achieving those goals. This is because goods and services are offered by companies while consumers choose products available in markets. Whether products are environmentally friendly produced or not mainly depends on enterprises.

Enterprises, especially those in energy-intensive industries/fields such as chemicals, construction materials (cement, ceramics, etc.), metallurgy (production of iron, steel, etc.), paper and paper powder, and other key energy users are subject to special attention in terms of efficient energy use. For many industries/sectors, energy costs of manufacturing account for more than 60% of total production costs. Therefore, the effective implementation of energy savings schemes will increase the enterprise's competitiveness and contribute to environmental protection and achieve the energy savings targets.

Vietnam's efforts have resulted in remarkable achievements as illustrated in Table 2. Indicators of the first three dimensions of sustainable development are desirable, particularly the first and the third indicators are below the maximum, and the second is above the minimum level of the thresholds, while the indicator of the fourth dimension is far from the threshold, of 11.3 percent.

Table 2. Vietnam's Indicators of four primary dimensions of sustainable development compared to 2030 thresholds

Dimension	Indicator	2030 Threshold	Achievement of Vietnam
(1) Safeguarding long-term ecological sustainability	Yearly per capita ecological footprint	Maximum 2.3 gha per capita	1.65
(2) Satisfying basic human needs	Human Development Index	Minimum 0.63	0.693
(3) Promoting intragenerational equity	Gini coefficient	Maximum 40	0.373
(4) Promoting intergenerational equity	The proportion of renewables to the total energy in primary energy production	Minimum 27%	11.3%

Source: UN, 2019; MOIT, 2021.

In Vietnam, enterprises are numerous by quantity but small by size. On December 31, 2019, in Vietnam micro, small and medium enterprises (MSMEs), accounted for 97.4 percent of the country's enterprises, on average in the 2016 - 2019 period, this figure is 93.7 percent (Ministry of Planning and Investment, 2021). Contributions of MSMEs to GDP and

Government revenue were 45 percent and 31 percent, respectively (VCCI, 2016). Compared to large enterprises MSMEs create smaller economic contributions however they play an important social role. The 2021 Enterprise White Book (Ministry of Planning and Investment, 2021) shows that on December 31, 2019 micro, small and medium enterprises provided jobs for 4.4 million people, accounting for 28.7 percent, and together, MSMEs provided jobs for 5.7 million people or 37.5 percent of total employment in the enterprise sector. In the 2016-2019 period that number is 5.6 million people or 38.4 percent.

Although, MSMEs in Vietnam often are in short of finance. In 2019 total finance for MSMEs were VND 14.5 million trillion, accounted for 33.4 percent of finance of all enterprises in the country. On average, in 2016 - 2019 that number is VND 10.9 million trillion or 40.5 percent which leads to low profit and effectiveness. In 2019 micro and small enterprises made a loss of VND 74.7 million trillion while small enterprises had a before-tax profit of VND 27.1 million trillion. In the 2016 - 2019 period the situation has improved, small and medium enterprises had before-tax profits of VND 3.1million trillion, and only micro-enterprises have lost money. Financial indicators of MSMEs in the year 2019 are very low in comparison with that of large enterprises. For micro and small enterprises, ROA, ROE, and ROS are all negative, these figures for medium enterprises are positive, 0.9, 3.0, 1.0 respectively, compared to 0.7, 12.8 and 4.9 of large enterprises.

Employees working in MSMEs receive lower monthly income compared to that of those working in large enterprises. In the 2016 - 2019 period monthly income of employees working in the micro, small, medium, and large enterprises is VND 6.3, 7.3, 8.1, and 9.3 million. Although, employment provided by MSMEs is of great importance, because the common practice in Vietnam is the fact that MSMEs do require not so high skilled labor, thus unskilled workers or vulnerable can find jobs to earn their family livings.

3. Method

Our questionnaire consists of two parts. The first part includes questions regarding enterprise general information, and the second part comprises questions relating to indicators of factors potentially determining the level of enterprise sustainable development: Environmental sustainability, social sustainability which is expressed by respected and equity indicator, and economic sustainability that is expressed by financial and employee indicators, all that affected enterprise governance and sustainable development. Respondents were requested to mark on the Likert five-point scale with increasing level of agreement, from “Do not agree at all” to “Fully agree”. The estimated time for completing it was between 10 to 15 min. The survey was conducted virtually through Google Forms in March and April, 2022. The survey URL was sent to enterprises and people working in enterprises via e-mail, SMS, and social media (Facebook, Zalo...).

4. Results

359 valid responses were collected. Majority of responded enterprises are non-state owned, 270 enterprises or 64.9 percent, 61.28 percent enterprises are commerce-service ones. By number of employee (less than 200) 61percent enterprises were MSMEs. 92.48 percent of enterprises have their registered main office in urban area (see Table 3).

Table 3. Characteristics of the sample

		Number	Percentage (%)
Enterprise category by ownership	Total	359	100.00
	Non-state owned	233	64.90
	FDI	37	10.31
	State owned	89	24.79
Major enterprise's activity	Total	359	100.00
	Production	84	23.40
	Commerce-services	220	61.28
	Other	55	15.32
Number of employees	Total	359	100.00
	Less than 10	37	10.31
	10 to less than 50	97	27.02
	50 to less than 100	48	13.37
	100 to less than 200	37	10.31
	200 and more	140	39.00
Enterprise's operation field	Total	359	100.00
	Agriculture, forestry, and fishery	20	5.57
	Manufacturing - Construction	90	25.07
	Service	249	69.36
Place of enterprise's registered main office	Total	359	100.00
	Urban	332	92.48
	Rural	19	5.29
	Mountainous	8	2.23

Source: authors

Our research topic belongs to the area where theory is not well developed we apply the structural equation model-based PLS technology to test the research model (Figure 1). The data was processed by SmartPLS 3.3.7.

Test of the measurement model

Firstly, the test of the measurement model was conducted by estimating the internal consistency and the convergent and discriminant validity of the instrument items. Most loadings were above .70 which indicate the measures are reliable for all constructs (Chin & Marcoulides, 2009). The model fulfilled requirements of adequate internal consistency because all reliability measures were higher than the recommended level of .70 (Fornell, 1981; Nunnally, 1994) (see Table 4).

Table 4. Convergent and discriminant validity of the model constructs

Variable	Factor loading
ENV	
IC = 0.973	
AVE = 0.925	
ENV1	0.954
ENV2	0.975
ENV3	0.957
ENV4	0.961
RES	
IC = 0.916	
AVE = 0.801	
RES1	0.925
RES2	0.778
RES3	0.924
RES4	0.943
EQU	
IC = 0.920	
AVE = 0.807	
EQU1	0.872
EQU2	0.851
EQU3	0.944
EQU4	0.924
FIN	
IC = 0.950	
AVE = 0.834	
FIN1	0.923
FIN2	0.923
FIN3	0.941
FIN4	0.884
FIN5	0.894
EMP	
IC = 0.918	
AVE = 0.806	
EMP1	0.916
EMP2	0.772
EMP3	0.931

Variable	Factor loading
EMP4	0.960
GOV	
IC = 0.976	
AVE = 0.914	
GOV1	0.969
GOV2	0.952
GOV3	0.940
GOV4	0.970
GOV5	0.947

IC = internal consistency; AVE = average variance extracted

Source: authors extracted from the processed data

To assess discriminant validity we compared the square root of the AVE for each construct with the correlation between the construct and other constructs in the model (Chin & Marcoulides, 2009). All the estimated model's constructs meet the requirement of discriminant validity (see Table 5).

Table 5. Correlation among construct scores (square root of AVE in the diagonal)

	EMP	ENV	EQU	FIN	GOV	RES	SD
EMP	0.898						
ENV	0.736	0.962					
EQU	0.783	0.717	0.898				
FIN	0.833	0.776	0.765	0.913			
GOV	0.855	0.774	0.806	0.849	0.956		
RES	0.763	0.724	0.828	0.787	0.814	0.895	
SD	0.839	0.750	0.720	0.747	0.816	0.739	1.000

Source: authors extracted from the processed data

Table 6. Inner model VIF

	EMP	ENV	EQU	FIN	GOV	RES	SD
EMP					4.044		
ENV					2.887		
EQU					3.996		
FIN					4.473		
GOV							1.000
RES					3.998		
SD							

Source: authors extracted from the processed data

R² for dependent constructs

The results indicate that 83.0 percent of the variance in the governance was explained by five constructs, and 66.6 percent of the variance in the sustainable development was explained by the variance in the in the governance. This percentage of variance explained above 10 percent implies satisfactory and substantive value and predictive power of the PLS model (Falk & Miller, 1992).

Structural Path Coefficient

The estimated model illustrated that five constructs hypothesized affecting the enterprises sustainable development were significant, of which four, employee, financial, respected and governance indicators, were supported at $p < 0.001$, and two, environmental and equity, were supported at $p < .050$ (Table 7).

The estimates resulted by using bootstrapping procedure are shown in Table 9 and Figure 2 reflecting a total effect of the factors influencing the dependent variable.

Table 7. Structural (inner) model results

	Path Coefficient	Observed <i>t</i> Value	Sig. Level
Effects on GOV			
EMP	0.323	4.111	****
ENV	0.127	2.541	**
EQU	0.129	2.277	**
FIN	0.243	3.499	****
RES	0.178	3.568	****
Effects on SD			
GOV	0.816	26.927	****

**** $p < .001$, *** $p < .010$, ** $p < .050$, * $p < .100$.

Source: authors extracted from the processed data

Effect size (f square)

f square expresses the effect size of independent variables on dependent variables. According to Cohen (1988), *f* square < 0.02 implies an extreme small effect, $0.02 \leq f$ square < 0.15 : shows a small effect; $0.15 \leq f$ square < 0.35 indicates a medium effect; and *f* square ≥ 0.35 : indicates a large effect. The estimated model shows all constructs have a small effect on the enterprise sustainable development, of which employee indicator has a largest and respected has a smallest effect (Table 8 and Figure 2).

Table 8. f square

	GOV	SD
EMP	0.151	
ENV	0.033	
EQU	0.025	
FIN	0.078	
RES	0.047	
GOV		1.991

Source: authors extracted from the processed data

Table 9. Path Coefficients

	Path Coefficients- diff (Small_size - Big_size)	p-Value original 1- tailed (Small_size vs Big_size)	p-Value new (Small_size vs Big_size)
EMP -> GOV	0.075	0.302	0.604
ENV -> GOV	0.024	0.401	0.801
EQU -> GOV	0.014	0.452	0.904
FIN -> GOV	0.007	0.496	0.992
GOV -> SD	-0.062	0.859	0.281
RES -> GOV	-0.107	0.854	0.292

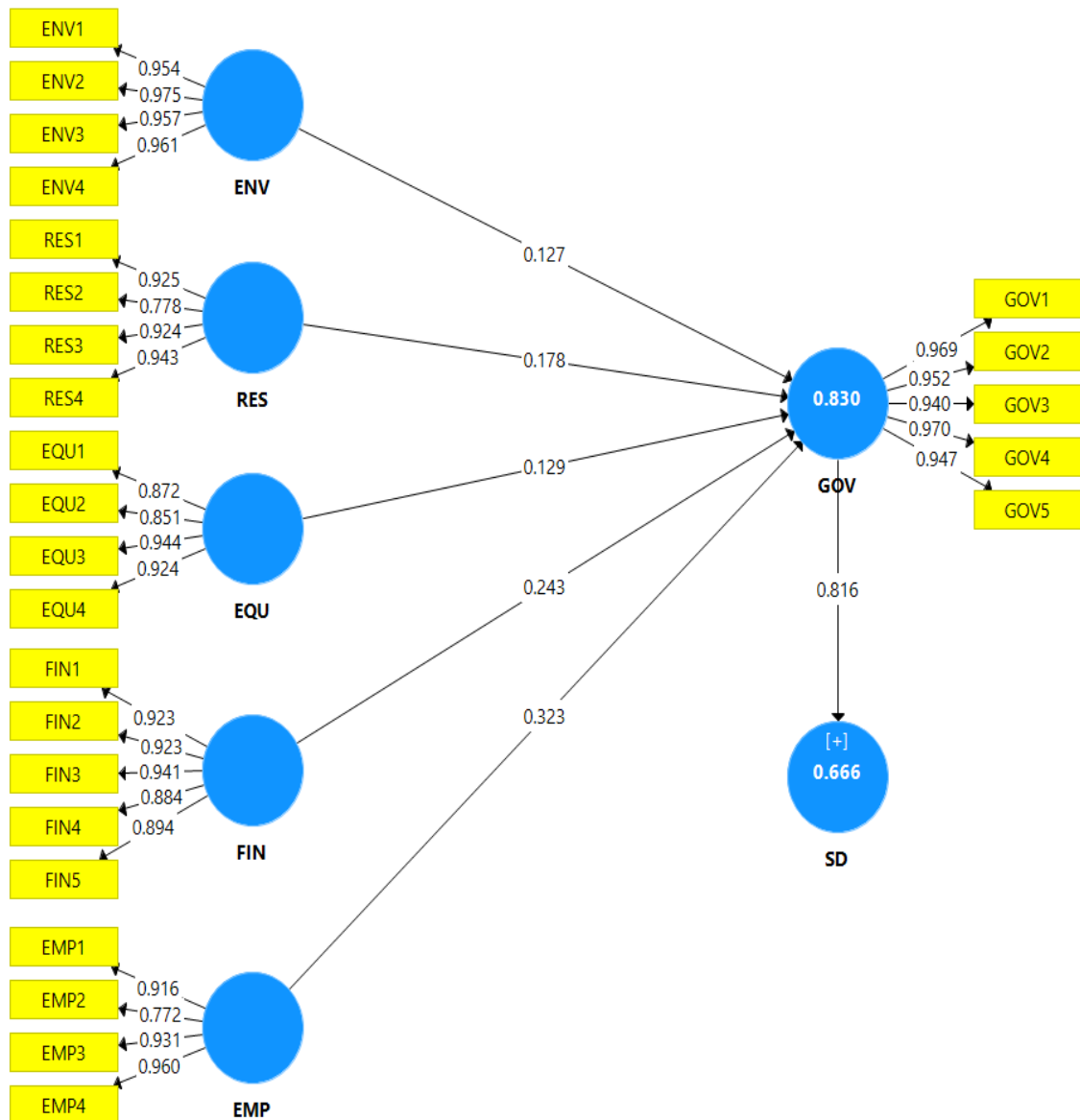


Figure 2. Estimated model

4. Discussion and Conclusion

Sustainable enterprises require the right environment at the regional, national and local levels to facilitate driving innovation for more and better jobs. In recent years, VCCI and Vietnam Business Council for Sustainable development (VBCSD) have played a guiding and supporting role to promote enterprises' driving force role in achieving sustainable development goals, encouraging enterprises to apply sustainable business models, clean technology, efficient use of resources, environmental protection, promotion of innovative start-ups, and effective implementation of supporting policies for MSMEs. At the same time, they provide the government with consultant services in implementing solutions to handle challenges in the public-private partnership (PPP) in order to create a favorable environment to attract the participation of enterprises in pursuing sustainable development goals in Vietnam.

In this study, we found that the environmental pillar of sustainable development in Vietnam has not been given enough attention. This can be interpreted by the fact that the role of enterprises in environmental protection has not been legitimated. The social pillar, expressed by respected and equity indicators, and the economic pillar, expressed by financial and employee indicators, illustrated larger effect. Regarding the social pillar, the change of Vietnam political system since 1945 has created significant progress in gender equity, women have more job and leadership opportunities, and the vulnerable are also received more support. In general, MSMEs in Vietnam although have limited access to finance and advanced methods of enterprise management, they have paid fairly enough attention to the financial obligations to stakeholders and their employees. This was illustrated by its highest estimated coefficients.

Based on the findings we suggest the following policy implications. *Firstly*, for MSMEs to become more involved in achieving sustainable development goals, their role in this regard should be legitimated. *Secondly*, circular economy should be encouraged because it is suitable for MSMEs. The Garden-Pond-Stables model in Vietnam has appeared 20 years ago, and that is related to the concept of a circular economy. Today, the circular economy is an essential trend for all countries, Vietnam is no exception. Enterprises that implement a circular economy can reduce their input costs, increase their effectiveness and competitiveness, and contribute to achieving the national goal of promoting intergenerational equity. Concepts such as ecological industrial zone, cleaner production, zero-emission, and recycling are part of a circular economy that appeared in policies relating to environmental protection. The point is to put them into practice instead of written on paper. This requires a drastic change in institutional reform, emphasizing the enforcement characteristics. *Thirdly*, to provide MSMEs with technical and financial support in suitable forms such as tax exemption, and loans with preferential interest rates.

Limitations

The survey was conducted in a short time, the significant rate of respondents was employees, 85 percent, and only 15 percent were enterprise leaders. In addition, 61.28 percent of enterprises operate in the commerce and service sector. All this may cause bias. Future research will try to use a balanced sample.

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BLOCKCHAIN TECHNOLOGY ADOPTION BARRIERS IN VIETNAM AGRICULTURE SUPPLY CHAIN: INTERVAL-VALUE HESITANT FUZZY DEMATEL APPROACH

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Abstract

Blockchain technology is emerging and being applied in many fields such as finance, energy, agriculture. The technology has high potential to improve and transform the agriculture supply chain. Since it's a relatively new technology and immature, we expect to face many challenges while adopting the technology. This study aims to investigate critical barriers of blockchain technology adoption in Vietnam agriculture supply chain using interval-value hesitant fuzzy DEcision-MAking Trial and Evaluation Laboratory (IVHF-DEMATEL). In this study, the IVHF-DEMATEL technique is applied to identify cause and effect relationship, draw the influence-relations-map (INRM) between ten barriers based on literature review and 12 experts' opinions. In contrast to prior work, which convert fuzzy sets into crisp set then use crisp set operations, here we use fully hesitant fuzzy operations which represent experts' assessment better and avoid information loss. The results indicated that lack of government regulation, lack of scalability and system speed, large amount of resource and capital requirement, and lack of trust among agro-stakeholder or public perception are main barriers in adopting blockchain technology in the context of Vietnamese agriculture supply chain management. Furthermore, the findings of this study can assist policymakers, businesses, farmers, and agro-stakeholders in prioritizing barriers that must or must not be addressed and in devising collaborative and appropriate solutions to overcome these obstacles in order to accelerate blockchain adoption in ASC.

Keywords: *Agriculture supply chain; Blockchain; DEMATEL; Interval-value hesitant fuzzy, Vietnam*

1. Introduction

In the challenging and fast-changing technology world, new technologies emerge more frequently. They can revolutionize “the economic structure *from within*, incessantly destroying the old one, incessantly creating a new one” (Schumpeter, 1962). One of emerging sector using blockchain technology is agriculture.

To be more specific, Blockchain technology is a "shared, cryptographically unaltered distributed ledger" that records and maintains digital transaction history. Each connected node on the blockchain system stores a copy of all previous records/transactions ever executed on the concerned system. It is important to note that no single stakeholder owns the system, so it is decentralized and visible to all stakeholders, and each activity performed on the system is also auditable. As a result, such a system would create a guarantee of trust for today's business. Blockchain can apply to many areas in agriculture business: Finance, energy, logistics, environmental management, farming, livestock (Demestichas et al., 2020). Many countries are actively investigating the applications of blockchain technology in agriculture such as United States, China, India, and Italy (Mirabelli & Solina, 2020). Since Vietnam is projected to be in the top 10-20 percent of developing countries that has the largest export volume of agricultural products in 2025-2030 (Jaffee et al., 2016), Vietnam has high potential for new technologies such as blockchain technology.

In fact, Vietnamese enterprises started to use blockchain technology to provide traceability and to help them export their products. Dong Thap province, one of the most exporting provinces in Vietnam, exports 93,000 tons of mangoes to high-standards-requirements countries such as Australia, Japan, South Korea, Russia. However, its enterprises still face difficulties in exporting the product to US market. With blockchain-based system, the producers can ensure quality and export their product to US. In fact, Vietnam's first eight tons of mangoes were exported to US market on 18 April, 2020.

Not only helping export agricultural products, blockchain-based system also has other benefits (Vu & Trinh, 2021) such as : Creating a more sustainable world, providing transparency, strengthening the accountability and reduce bureaucracy, and promoting more environmentally friendly behaviors.

However, farmers or enterprises face many barriers while adopting blockchain-based system: Environmental barriers, institutional barriers, enterprises barriers, technology barrier. The previous studies show, there are a large number of barriers affecting the blockchain adoption. Since the blockchain technology is in its early stage, its barriers can lack of structural network or the structural network of barriers has not been known yet.

Due to the complex network of the barriers, finding causal relationships and interdependencies between variables is considered as one of “Multi-Criteria Decision Making” (MCDM) issues (Nguyen et al., 2021a). Among established MCDM models such as Analytic Hierarchy Process (AHP) (Nguyen et al., 2021b), Analytic Network Process (ANP) (Tsai et al., 2021a), Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) (Tsai et al., 2021b), DEMATEL technique has been widely applied to not only identify cause-effect relationship but also prioritize proposed factors affecting research topics (Si et al., 2018).

Biswas and Gupta (2019) used DEMATEL to analyse barriers in implementing blockchain in industry and service sectors. Yadav et al. (2020) employed DEMATEL integrated with ISM to identify interrelationship between barriers in adopting blockchain in Indian agriculture supply chain. Their study revealed that Fuzzy DEMATEL could capture more accurate pictures than original model. However, fuzzy DEMATEL often converts linguistic variables to fuzzy sets, then apply some score functions to convert fuzzy sets to crisp number then apply DEMATEL. Example: warm temperature $\rightarrow (20^{\circ}\text{C}-30^{\circ}\text{C}) \rightarrow 25^{\circ}\text{C}$. It may not make sense that cold temperature (after transformation) become 25°C then apply DEMATEL. Asan et al. (2018) proposed interval-valued hesitant fuzzy DEMATEL that transform linguistic variables into fuzzy sets then apply fuzzy operations to reduce information loss.

To our best understanding, a few studies investigate the blockchain situation in Vietnam and none of them applied IVHF-DEMATEL approach in the adopting-blockchain process. Therefore, this study aims to answer the following questions:

- (i) What are barriers in adopting blockchain technology in Vietnamese agriculture supply chain?
- (ii) What are the causes and effects among critical barriers?
- (iii) Which barriers should be prioritized to tackle?

The remaining structure of the study is organized as follows: Section 2 presents proposed method. In section 3, the results are comprehensively provided. Finally, section 4 summarizes discussion and conclusions.

2. Method

2.1. Interval-value hesitant fuzzy sets

Hesitant fuzzy sets (Torra, 2010) are very useful to deal with group decision making problems when experts have a hesitation among several possible memberships for an element to a set. During the evaluating process in practice, however, these possible memberships may be not only crisp values in $[0, 1]$, but also interval values. Some basic operators and definitions are provided as follows:

Definition 1: Let X be a reference set, and $D[0,1]$ be the set of all closed subintervals of $[0,1]$. An interval-valued hesitant fuzzy set (IVHFS) on X is

$$\tilde{A} = \left\{ \langle x_i, \tilde{h}_{\tilde{A}}(x_i) \rangle \mid x_i \in X, i = 1, 2, \dots, n \right\} \quad (1)$$

where $\tilde{h}_{\tilde{A}}(x_i): X \rightarrow D[0,1]$ denote all possible interval-valued membership degrees of the element $x_i \in X$ to the set \tilde{A} . $\tilde{h}_{\tilde{A}}(x_i)$ is called an interval-valued hesitant fuzzy element (IVHFE) and is shown as

$$\tilde{h}_{\tilde{A}}(x_i) = \{ \tilde{\gamma} \mid \tilde{\gamma} \in \tilde{h}_{\tilde{A}}(x_i) \} \quad (2)$$

where $\tilde{\gamma} = [\tilde{\gamma}^L, \tilde{\gamma}^U]$ is an interval number, $\tilde{\gamma}^L = \inf \tilde{\gamma}$ and $\tilde{\gamma}^H = \sup \tilde{\gamma}$ represent the lower and upper limits of $\tilde{\gamma}$, respectively.

Definition 2: Some basic operations on IVHFEs:

$$\tilde{h}^c = \left\{ \left[1 - \tilde{\gamma}^U, 1 - \tilde{\gamma}^L \right] \mid \tilde{\gamma} \in \tilde{h} \right\} \quad (3)$$

$$\tilde{h}^c = \left\{ \left[1 - \tilde{\gamma}^U, 1 - \tilde{\gamma}^L \right] \mid \tilde{\gamma} \in \tilde{h} \right\} \quad (4)$$

$$\tilde{h}_1 \cup \tilde{h}_2 = \left\{ \left[\max(\tilde{\gamma}_1^L, \tilde{\gamma}_2^L), \max(\tilde{\gamma}_1^U, \tilde{\gamma}_2^U) \right] \mid \tilde{\gamma}_1 \in \tilde{h}_1, \tilde{\gamma}_2 \in \tilde{h}_2 \right\} \quad (5)$$

$$\tilde{h}_1 \cap \tilde{h}_2 = \left\{ \left[\min(\tilde{\gamma}_1^L, \tilde{\gamma}_2^L), \min(\tilde{\gamma}_1^U, \tilde{\gamma}_2^U) \right] \mid \tilde{\gamma}_1 \in \tilde{h}_1, \tilde{\gamma}_2 \in \tilde{h}_2 \right\} \quad (6)$$

$$\tilde{h}^\lambda = \left\{ \left[(\tilde{\gamma}^L)^\lambda, (\tilde{\gamma}^U)^\lambda \right] \mid \tilde{\gamma} \in \tilde{h} \right\}, \lambda > 0 \quad (7)$$

$$\lambda \tilde{h} = \left\{ \left[1 - (1 - \tilde{\gamma}^L)^\lambda, 1 - (1 - \tilde{\gamma}^U)^\lambda \right] \mid \tilde{\gamma} \in \tilde{h} \right\}, \lambda > 0 \quad (8)$$

$$\tilde{h}_1 \oplus \tilde{h}_2 = \left\{ \left[\tilde{\gamma}_1^L + \tilde{\gamma}_2^L - \tilde{\gamma}_1^L \tilde{\gamma}_2^L, \tilde{\gamma}_1^U + \tilde{\gamma}_2^U - \tilde{\gamma}_1^U \tilde{\gamma}_2^U \right] \mid \tilde{\gamma}_1 \in \tilde{h}_1, \tilde{\gamma}_2 \in \tilde{h}_2 \right\} \quad (9)$$

$$\tilde{h}_1 \otimes \tilde{h}_2 = \left\{ \left[\tilde{\gamma}_1^L \tilde{\gamma}_2^L, \tilde{\gamma}_1^U \tilde{\gamma}_2^U \right] \mid \tilde{\gamma}_1 \in \tilde{h}_1, \tilde{\gamma}_2 \in \tilde{h}_2 \right\} \quad (10)$$

Definition 3: An interval-valued hesitant fuzzy weighted averaging (IVHFWA) operator is a mapping $IVHFWA: \tilde{H}^n \rightarrow \tilde{H}$, where

$$IVHFWA(\tilde{h}_1, \tilde{h}_2, \dots, \tilde{h}_n) = \otimes_{j=1}^n (w_j \tilde{h}_j) = \left\{ \left[1 - \prod_{j=1}^n (1 - \tilde{\gamma}_j^L)^{w_j}, 1 - \prod_{j=1}^n (1 - \tilde{\gamma}_j^U)^{w_j} \right] \mid \tilde{\gamma}_1 \in \tilde{h}_1, \tilde{\gamma}_2 \in \tilde{h}_2, \dots, \tilde{\gamma}_n \in \tilde{h}_n \right\} \quad (11)$$

2.2. Proposed method

In this study, modelling of barriers for blockchain adoption in Vietnamese ASC is investigated. For this purpose, the ten key barriers are proposed through a comprehensive literature search and based on a panel of the twelve experts providing opinions through multiple rounds of the questionnaire. The proposed barriers are analysed using IVHF-DEMATEL model, which was proposed by Asan et al. (2018). The details of the computing process is presented as follows:

Step 1: Establish the initial direct-relation IVHF matrix

Assume there are K decision makers. The k^{th} expert assigns the relationship degree between pairwise of barriers in closed sub-intervals of $[0, 1]$. If there is no relationship, the degree is assigned $[0, 0]$. The corresponding k^{th} initial direct-relation IVHF matrix (\tilde{H}^k) between barriers is established as equation (1)

$$\tilde{H}^k = \begin{bmatrix} \tilde{0} & \tilde{h}_{12}^k & \cdots & \tilde{h}_{1n}^k \\ \tilde{h}_{21}^k & \tilde{0} & \cdots & \tilde{h}_{2n}^k \\ \vdots & \vdots & \ddots & \vdots \\ \tilde{h}_{n1}^k & \tilde{h}_{n2}^k & \cdots & \tilde{0} \end{bmatrix}, k = 1, 2, \dots, K \quad (12)$$

where IVHF element $\tilde{h}_{ij}^k = \{(\tilde{\gamma}_{ij}^k)^L, (\tilde{\gamma}_{ij}^k)^U\}$ is single interval and represents the influence exerted from i^{th} barrier to j^{th} barrier according to possible relationship degrees. $(\tilde{\gamma}_{ij}^k)^L$ and $(\tilde{\gamma}_{ij}^k)^U$ represent the lower and upper limits of IVHF element \tilde{h}_{ij}^k of k^{th} expert.

Step 2: Generate the group direct-relation IVHF matrix (\tilde{D})

We aggregate the relationship degrees into a single IVFH matrix by using equation that is interval-valued hesitant fuzzy weighted averaging operator (Chen et al., 2013)

$$\tilde{d}_{ij} = \oplus_{k=1}^p (\lambda_k \tilde{h}_{ij}^k) = \left\{ \left[1 - \prod_{k=1}^K (1 - (\tilde{\gamma}_{ij}^k)^L)^{\lambda_k}, 1 - \prod_{k=1}^K (1 - (\tilde{\gamma}_{ij}^k)^U)^{\lambda_k} \right] \right\} \quad (13)$$

where \tilde{d}_{ij} denotes the ij^{th} entry of matrix \tilde{D}

$$\tilde{D} = \begin{bmatrix} \tilde{0} & \tilde{d}_{12} & \cdots & \tilde{d}_{1n} \\ \tilde{d}_{21} & \tilde{0} & \cdots & \tilde{d}_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ \tilde{d}_{n1} & \tilde{d}_{n2} & \cdots & \tilde{0} \end{bmatrix}, \tilde{d}_{ij} = \{[\tilde{d}_{ij}^L, \tilde{d}_{ij}^U]\}, i, j = 1, 2, \dots, n \quad (14)$$

Step 3: Normalize the group direct-relation IVHF matrix \tilde{D}

The endpoints of $\tilde{d}_{ij} = \{[\tilde{d}_{ij}^L, \tilde{d}_{ij}^U]\}$ are divided by the maximum value of all row sums, which is given by equation (15). Because the lower limit of IVHF is always smaller than the upper limit, only summing the upper limits is sufficient

$$d = \max_{1 \leq i \leq n} \left\{ \sum_{j=1}^n \tilde{d}_{ij}^U \right\}, \tilde{s}_{ij} = \{[\tilde{s}_{ij}^L, \tilde{s}_{ij}^U]\} = \left\{ \left[\frac{\tilde{d}_{ij}^L}{d}, \frac{\tilde{d}_{ij}^U}{d} \right] \right\} \quad (15)$$

The normalized IVHF matrix (\tilde{S}) is split into two separate matrices (\tilde{S}^L and \tilde{S}^U), which are composed the lower limit and upper limit of IVHF elements (\tilde{s}_{ij}), respectively, as given by Equation (16)

$$\tilde{S}^L = \begin{bmatrix} \tilde{0} & \tilde{s}_{12}^L & \cdots & \tilde{s}_{1n}^L \\ \tilde{s}_{21}^L & \tilde{0} & \cdots & \tilde{s}_{2n}^L \\ \vdots & \vdots & \ddots & \vdots \\ \tilde{s}_{n1}^L & \tilde{s}_{n2}^L & \cdots & \tilde{0} \end{bmatrix}, \tilde{S}^U = \begin{bmatrix} \tilde{0} & \tilde{s}_{12}^U & \cdots & \tilde{s}_{1n}^U \\ \tilde{s}_{21}^U & \tilde{0} & \cdots & \tilde{s}_{2n}^U \\ \vdots & \vdots & \ddots & \vdots \\ \tilde{s}_{n1}^U & \tilde{s}_{n2}^U & \cdots & \tilde{0} \end{bmatrix} \quad (16)$$

Step 4: Derive the total-relation hesitant fuzzy matrix

The total-relation hesitant fuzzy matrix (\tilde{T}) equals the sum of all direct and indirect relationships between each pair of barriers of IVHF. It can be computed by using equation (17) where m is sufficiently large.

$$\tilde{T} = \tilde{S} \oplus \tilde{S}^2 \oplus \cdots \oplus \tilde{S}^m \quad (17)$$

We can separate the lower and upper limits then raise them to powers by using the summation operator and multiplication operator as follow Let T^L and T^U the lower and upper limits of total-relation hesitant fuzzy matrix \tilde{T} , respectively. T^L and T^U can be calculated by equation (18) and (19)

$$\tilde{T}^L = \tilde{S}^L \oplus (\tilde{S}^L)^2 \oplus \dots \oplus (\tilde{S}^L)^m \quad (18)$$

$$\tilde{T}^U = \tilde{S}^U \oplus (\tilde{S}^U)^2 \oplus \dots \oplus (\tilde{S}^U)^m \quad (19)$$

Then we can combine T^L and T^U to obtain the limit matrix \tilde{T} as shown below:

$$\tilde{T} = \begin{bmatrix} \{[\tilde{t}_{11}^L, \tilde{t}_{11}^U]\} & \{[\tilde{t}_{12}^L, \tilde{t}_{12}^U]\} & \dots & \{[\tilde{t}_{1n}^L, \tilde{t}_{1n}^U]\} \\ \{[\tilde{t}_{21}^L, \tilde{t}_{21}^U]\} & \{[\tilde{t}_{22}^L, \tilde{t}_{22}^U]\} & \dots & \{[\tilde{t}_{2n}^L, \tilde{t}_{2n}^U]\} \\ \vdots & \vdots & \ddots & \vdots \\ \{[\tilde{t}_{n1}^L, \tilde{t}_{n1}^U]\} & \{[\tilde{t}_{n2}^L, \tilde{t}_{n2}^U]\} & \dots & \{[\tilde{t}_{nm}^L, \tilde{t}_{nm}^U]\} \end{bmatrix} \quad (20)$$

Step 5: Calculate the sum of the rows \tilde{r}_i and \tilde{c}_i columns of total-relation matrix

We use hesitant fuzzy summation operator, equation (9), to calculate the sum of each row and column where \tilde{r}_i represents the total influence exerted from i^{th} barrier to the other barriers, and \tilde{c}_i represents the total influence that i^{th} barrier receives from the other CVPs, as shown in Equation ...

$$\tilde{r} = \begin{bmatrix} \{[\tilde{r}_1^L, \tilde{r}_1^U]\} \\ \{[\tilde{r}_2^L, \tilde{r}_2^U]\} \\ \vdots \\ \{[\tilde{r}_n^L, \tilde{r}_n^U]\} \end{bmatrix}, \tilde{c} = \begin{bmatrix} \{[\tilde{c}_1^L, \tilde{c}_1^U]\} \\ \{[\tilde{c}_2^L, \tilde{c}_2^U]\} \\ \vdots \\ \{[\tilde{c}_n^L, \tilde{c}_n^U]\} \end{bmatrix} \quad (21)$$

Step 6: Construct the influence-dependence graph

The influence-dependence (I-D) graph is a two-dimensional map, where horizontal axis denotes sum of columns (\tilde{C}_i) and vertical axis denotes sum of rows (\tilde{r}_i). Four quadrants of this map respectively represent critical, influential, dependent and excluded regions. This I-D map is linked to the causal diagram proposed by Godet (1994). The role of each barrier can be detected as its belonged region.

The cut-off points of horizontal axis and vertical axis (Asan et al., 2018), which separate four quadrants from I-D map are determined by calculating the average sum of columns as Equation (22) and the average sum of rows as Equation (23), respectively.

$$\{[\tilde{c}_{avg}^L, \tilde{c}_{avg}^U]\} = \left\{ \left[\frac{1}{n} \otimes \left(\oplus_{i=1}^n \tilde{c}_i^L \right), \frac{1}{n} \otimes \left(\oplus_{i=1}^n \tilde{c}_i^U \right) \right] \right\} \quad (22)$$

$$\{[\tilde{r}_{avg}^L, \tilde{r}_{avg}^U]\} = \left\{ \left[\frac{1}{n} \otimes \left(\oplus_{i=1}^n \tilde{r}_i^L \right), \frac{1}{n} \otimes \left(\oplus_{i=1}^n \tilde{r}_i^U \right) \right] \right\} \quad (23)$$

3. Results

Case study

3.1. Proposed barriers

In this study, we analyze barriers of adopting blockchain in Vietnam agriculture supply chain. Based on barriers analyzed by (Yadav et al., 2020), we revise the barriers to be appropriate for Vietnam case. As a result, we find 10 barriers in Table 1.

Table 1:
Adoption barriers & their explanation

No.	Barriers	Explanation	Reference
1.	Lack of government regulation (B1)	Most of the countries haven't regulated and legislated blockchain.	Biswas and Gupta (2019); Zhao et al. (2019)
2.	Large amount of resource and capital requirement (B2)	Blockchain-based system consumes high energy and requires large initial investment, sufficient infrastructure.	Biswas and Gupta (2019); Zhao et al. (2019)
3.	Security and privacy concern (B3)	Blockchain-based systems can be hacked and attacked by malicious actors. Agro-business organizations also concern about confidentiality due to exposure of their information to competitors.	Biswas and Gupta (2019); Zhao et al. (2019); Zheng et al. (2018)
4.	Lack of standardization (B4)	There is no universal standard so it's difficult to integrate and operate blockchains.	Biswas and Gupta (2019); Zhao et al. (2019)
5.	Lack of consortia (B5)	Consortia can provide more resources and meet financial requirements and take advantage of economy of scale	Deloitte Blockchain Survey (2018)
6.	Lack of trust among agro-stakeholder or public perception (B6)	Agro-stakeholders suspect the uses of blockchain-based system, Stakeholders like farmers may not aware blockchain-based system	Yadav et al. (2020)
7.	Lack of Scalability and system Speed (B7)	It's difficult to scale up the blockchain-based system; the transaction speed is deficient	Deloitte Blockchain Survey (2018), Biswas and Gupta (2019); Zhao et al. (2019); Zheng et al. (2018)
8.	The complexity of blockchain-based system design (B8)	The efficiently blockchain-based system design requires a high level of skill sets	Yadav et al. (2020)
9.	Agro-stakeholder resistance to blockchain culture (B9)	The middleman in the agro-supply chain may resist blockchain due to affecting their benefits	Yadav et al. (2020)
10.	Lack of consumption demands for certified products (B10)	Consumers may not prefer blockchain-based (certified) products due to high prices	Hoang (2020)

3.2. Results

We interviewed 12 experts who work in agriculture sector, companies related to blockchain technology. Each expert assessed the relationship between barriers in the survey questionnaire. After that, we applied the method mentioned in section 2 to aggregate 12 individual assessments into single intervals. We assume that the experts have equal weight.

The results are described in Table 2 and Figure 1.

Table 2. The sum of rows and the sum of columns

Barrier	\tilde{r}_i	\tilde{c}_i	Rank (\tilde{r}_i)	Rank (\tilde{c}_i)
B1	{[0.791,0.907]}	{[0.478,0.662]}	1	10
B2	{[0.664,0.803]}	{[0.6,0.76]}	4	7
B3	{[0.57,0.717]}	{[0.534,0.717]}	8	9
B4	{[0.343,0.542]}	{[0.654,0.793]}	9	3
B5	{[0.575,0.743]}	{[0.623,0.792]}	7	4
B6	{[0.636,0.789]}	{[0.602,0.761]}	5	6
B7	{[0.666,0.809]}	{[0.573,0.748]}	3	8
B8	{[0.681,0.827]}	{[0.67,0.814]}	2	2
B9	{[0.332,0.536]}	{[0.597,0.769]}	10	5
B10	{[0.591,0.773]}	{[0.687,0.823]}	6	1

Using the interval-valued hesitant fuzzy sum operator (Eq. (9)), the sum of rows indicating the sum of influence exerted from factor i to the other factors and sum of columns indicating the sum of influence that factor i receives from the other factors are obtained.

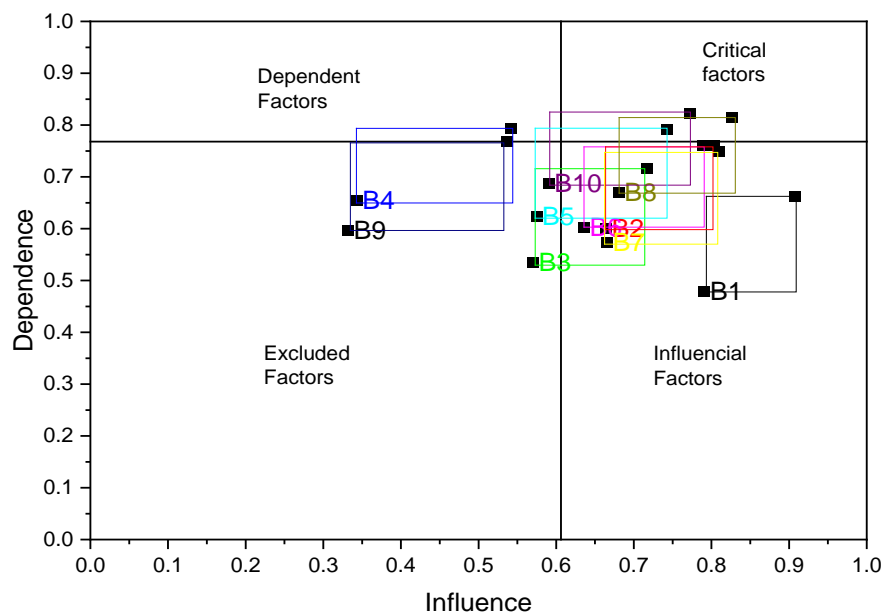


Figure 1. The Influence - Dependence Chart

4. Discussion and Conclusion

We use three indicators as follow to analyze the results:

- Distance: How far and overlapping between barriers is. According figure 1, B4 and B9 are overlapping; B2, B3, B5, B6, B7, and B10 are overlapping. These overlapping factors don't have no clear-cut difference.

- Relative size: A larger rectangular describes the higher level of hesitancy. B9 is associated with the most hesitancy, followed by B5, B4, B3, B7, B10, B6. Other three barriers, B2, B1, B8, have smaller rectangular which represents experts were less hesitant in their assessments.

- Position: it describes the position of each barrier on the influence-dependence chart. B1, B2, B6, B7 belongs to influential region; B9 belongs to excluded region; B3 belongs to both excluded region and influential region, B8 belongs to both critical region and influential region; B5 and B10 belong to all four regions, it means B5 and B10 become critical, influential, dependent, or excluded based on how the situation happens.

Table 3. The characteristic role of barriers based on different scenarios

Barriers	Optimistic Scenario	Pessimistic Scenario
B1	Influential	Influential
B2	Influential	Influential
B3	Influential	Excluded
B4	Dependent	Excluded
B5	Critical	Excluded
B6	Influential	Influential
B7	Influential	Influential
B8	Critical	Influential
B9	Excluded	Excluded
B10	Critical	Excluded

For priority, B1, B7, B2, B6 belong strictly to influential regions. It implies that we should tackle B1, B7, B2, B6 in descending order. B4 and B9 can be ignored. B8 has relatively better positions than B3, B5, B10 in term of influence, so we may prioritize B8 over B3, B5, and B10. Since B3, B5, B10 may be excluded factors, we may have less priority for them. If we must decide, we can prioritize factors have less dependence which means we prioritize B3 over B5 over B10.

As shown in figure 1, many barriers overlap each other, it may confuse practitioners. Future research can focus on reducing the size of rectangular, identifying under which conditions the barriers belong to certain regions, or an objective function that transform the rectangular to crisp values.

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LABOR QUALITY ADJUSTMENT IN PRODUCTIVITY MEASUREMENT: THE CASE OF VIETNAMESE AGRICULTURE

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Abstract

In many studies on agricultural productivity, the productivity indicator is calculated by considering the efficiency of using inputs without mentioning the quality of the inputs. This fact leads to an inaccurate assessment of agricultural production productivity because the quality of input is also an important factor determining output in agriculture, in other words agricultural productivity depends on the quality of inputs. Many guidelines and research papers about productivity such as ones of the World Food Organization (FAO) and the Organization for Economic Cooperation and Development (OECD) refer to this issue. They also affirmed that agricultural productivity depends on the quality of inputs and the degree of integration of those inputs in the production process. For example, soil productivity is highly dependent on the location of the soil and its physical characteristics. It is the same for labor as the quality of the workforce varies. This study examines labor quality adjustment, introduces the method calculates the labor quality adjustment coefficient for agricultural productivity in Vietnam in the period 2000-2020.

Keywords: *Adjusting labor quality, agricultural productivity, TFP*

1. Introduction

In recent years, many countries with developed and modern agriculture have taken into account adjusting quality of inputs by the measurement and quality classification of input factors when calculating productivity indicators in agriculture. That requires needed data for this purpose. As such, data needs to be collected for different input types or quality classes. Taking input quality into account is important for accurate Total Factor Productivity (TFP) estimates, but this requires having detailed and accurate datasets of input quantities, values, and prices available for other quality classes. This requirement leads to increased data collection costs and a higher response burden.

For labor inputs, the quality of the workforce varies across labor types and the variation in labor quality over the years needs to be taken into account when collecting data and adjustments should be made. This means that agricultural labor data needs to be collected for different types of labor and different quality classes. Thus, family labor, unpaid labor, and paid labor must be distinguished when collecting. On the other hand, the quality of agricultural labor may also depend on other characteristics such as gender, education, etc., since workers with different skill levels have different levels of productivity.

First estimates of labour input holding labour quality constant were constructed by Denison (1962) and Jorgenson and Griliches (1967) using US data. A seminal study in this

literature, Jorgenson et al. (1987) contains a detailed examination and estimates of labour quality for the US. This work has been recently updated by Ho and Jorgenson (1999). Ho and Jorgenson construct a quality-adjusted measure of labour input for the US based on a cross-classification of hours worked into a number of cells by observed worker characteristics (sex, age groups, education and self-employment status). Alternative estimates for the US using different methodologies are provided by the Bureau of Labor Statistics (BLS) (1993) and by Aaronson and Sullivan (2001). The BLS uses a slightly modified version of the Ho and Jorgenson method to estimate labour quality in the United States (see BLS, 1993). The method differs mainly in the estimation of the weights. Aaronson and Sullivan (2001) extend the regression approach taken by the BLS to calculate the labour quality measure using microdata of individuals only. Similar to the BLS, they obtain predicted wages for each individual using a regression approach.

The United States Department of Agriculture (USDA) uses the changing demographics of the agricultural workforce to construct an index that adjusts for the quality of labor inputs. Labor account of the collective farm sector incorporating a demographic cross-classification of the agricultural labor force was developed by Jorgenson, Gollop and Fraumeni (1987). The matrix of working hours and hourly wages of workers in the agricultural sector is cross-classified by gender, age, education, and type of labor (hired and family labor, self-employed, unpaid labor). Hence, they have a complete state-by-year panel data set of annual hours worked and a wage matrix for employees cross-disaggregated by gender, age, education, and employment type. Labor input indexes were developed for each State and farm. This method is also used to adjust the quality of New Zealand workers in the study of Kam Leong Szeto et al (2008). Fuglie (2009) when studying the sources of Indonesian agricultural TFP growth also accounted for labor quality adjustment. Data on two types of workers - male and female adult workers employed in the agricultural sector - are available from FAO. Wages for male and female workers are the average daily wages paid for weeding crops (from the 1993-2007 BPS survey). To find the total annual labor cost, the daily wage (in rice equivalents) is multiplied by 300 working days per year for men and 250 working days per year for women. Yu Sheng (2013) takes into account labor quality differences using the Australian Bureau of Statistics (ABS) quality-adjusted index. This indicator uses Census Data, cross-disaggregated by sex, age and education. The age groups are: 15-24, 25-34, 35-44, 45-64. The groups of educational attainment are university degree, skilled and unqualified workers. Steven Block (2010) uses a qualitative adjustment for the agricultural labor force based on literacy rates.

2. Method

Based on the literature review as well as specific data sources from Vietnam, the selected method is the Pre-Adjustment method - Building the labor quality adjustment index from the matrix of each type of labor and the level of education. hour-wage suggested by Jorgenson et al. (1987).

To be able to adjust for differences in the quality of hours worked by different types of labor, this can be done by separately accounting for different types of labor inputs.

Considering the aggregate production function to describe how to form the labor quality adjustment index, the production function is expressed as follows:

$$Q_t = f(A_t, K_t, H_t) \quad (1)$$

where: Q_t indicates input, K_t indicates capital, A_t is TFP, H_t is labor input expressed by the total of working hours.

Replace the function above with the following expression:

$$Q_t = g(B_t, k_t^1, \dots, k_t^M, h_t^1, \dots, h_t^N) \quad (2)$$

Where, each capital input (k_t^1, \dots, k_t^M) and each labor input (h_t^1, \dots, h_t^N) are accounted for separately. B_t denotes the alternative measure of multifactor productivity (which is interpreted below). When the productive capital stocks of various asset types are used, the aggregate capital stock measure is formed using the corresponding user cost of capital measures as weights in the index formula. Likewise, when different types of labor inputs are used, income shares for the different types of labor inputs are used as weights in the index formula.

The difference between the multifactor productivity measure (A_t) corresponding to the underlying production function in equation (1) and the multifactor productivity measure (B_t) corresponding to equation (2) is the latter measure accounts for changes in the composition or quality of labor inputs. This can be seen from the analysis that follows.

Consider the case where the Tornqvist index is used to measure multifactor productivity. Assuming that the aggregate capital stock has been formed using rental prices for different asset types, the multifactor productivity indices can be written as follows:

$$A_t = \frac{Q_t}{K_t^{1/2(w_0^K + w_t^K)} H_t^{1/2(w_0^L + w_t^L)}} \quad (3)$$

$$B_t = \frac{Q_t}{K_t^{1/2(w_0^K + w_t^K)} L_t^{1/2(w_0^L + w_t^L)}} \quad (4)$$

where w_t^K is capital's income share and w_t^L is labor's income share.

$$H_t = \frac{\sum_{n=1}^N h_t^n}{\sum_{n=1}^N h_0^n} \quad (5) \text{ the total number of hours worked, and } L_t = \prod_{n=1}^N \left(\frac{h_t^n}{h_0^n}\right)^{\frac{1}{2}(w_0^n + w_t^n)} \quad (6)$$

a Tornqvist index of aggregate labor input. Furthermore, the labor quality index (LC_t) can be written as:

$$LC_t = L_t/H_t \quad (7)$$

This index is the ratio of the aggregate labour input index to an index of total hours worked. This labour quality index is akin to that adopted in work by Jorgenson, Gallop and Fraumeni (1987) and Jorgenson and Fraumeni (1989, 1992).

Finally, the formula of the index for multifactor productivity is:

$$B_t = A_t LC_t^{1/2(w_0^L + w_t^L)} \quad (8)$$

Equation (8) shows the alternative multifactor productivity index (B_t) is simply the original multifactor productivity (A_t) adjusted for the quality composition of the labor input. In forming the alternative multifactor productivity measure (B_t), it is necessary to have

estimates of labor income shares for the various labor types. Labour shares for the various labor types can be estimated in one of two ways. One approach is to classify the labour inputs into different categories based on the characteristics of various workers and then use the average wage in forming labor shares for the various labor inputs. For example, workers could be classified into various categories based on their level of educational qualification. This approach has been adopted in work by Jorgenson, Gallop and Fraumeni (1987).

An alternative approach is to estimate wage equations econometrically using worker characteristics, such as the number of years worked, as explanatory variables and then use the predicted values from the wage equations to form weights for the various types of labor inputs. This approach has been used by the Bureau of Labour Statistics (1993) when forming their multifactor productivity estimates that account for changes in the composition of labor over time (Bureau of Labour Statistics, 1993).

3. Results

✚ *Calculate the coefficient of adjustment for the quality of agricultural labor in Vietnam*

* *Data*

To construct a matrix on labor to adjust the quality of labor, it is necessary to have specific information about the number of working hours, the salary received, the number of employees of each type of labor.

Based on the overview, the following criteria can be selected to form the matrix table:

- Sex: Male and Female
- Education level: Never attended school, Did not finish elementary school, Elementary school, Middle school, High school, and Higher education
- Age group: 15-25, 25-35, 35-45, 45-55, 55-65.

Data from the Vietnam Population Living Standard Survey (VHLSS) can provide the following information:

- Information about employment (in the agricultural sector)
- Information about employees: gender, type of labor, educational level and technical expertise, age.
- Income of hired labor.
- Number of hours worked in the last 30 days.

Thus, a labor matrix for even years can be formed from the VHLSS survey data:

Table 1. Labour matrix of Vietnam for a year

Education level	Neverattended school		Did not finish elementary school		Elementary school		Middle school		High school		Higher education	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Age group												
15-25												
25-35												
35-45												
45-55												
55-65												

From the data of each matrix, it is possible to calculate the labor quality index according to the formula mentioned above. Since these labor quality indicators are only available in even years, the adjusted index for odd years can be calculated by estimating from the closest 2 years.

*** Steps**

Step 1: Construct labor matrices according to identified classes

Using the Vietnam Population Living Standard Survey (VHLSS) dataset of years to calculate the annual data for the matrix in Table 1. The information of the VHLSS dataset completely meets the data needs. above data (using weights to ensure representativeness). In the VHLSS dataset, we calculate:

- Calculate the total number of hours worked by a labor in a year by multiplying the average number of hours worked per day of agricultural labor and the number of working days in the corresponding year. The number of working days in a year is calculated according to the method of Fuglie (2003) with appropriate adjustments. The total number of working hours in agriculture in a year of a cell in the table is equal to the total number of working hours of a labor in a year multiplied by the corresponding number of workers in that cell.

- Calculate the total annual income using the ratio between the total number of people and the number of paid employees. This calculation is used from the recommendation of FAO (2018), where no information is available on the income of self-employed, it can be assumed that their income is equal to a paid employee. Therefore, this figure will be:

(Wages for 30-day labor) x (Number of agricultural employees/Number of paid employees) x (365/30).

The following is an example of the labor matrix for 1 year (2000):

Education level	Never attended school		Did not finish elementary school		Elementary school		Middle school		High school		Higher education	
	M	F	M	F	M	F	M	F	M	F	M	F
Year 2000												
Hour – wage per labour (hour)												
15-24	2,8312	2,5481	3,5210	2,8489	4,4265	3,3137	5,9075	3,9482	6,7304	4,9388	6,7304	6,0574
25-34	3,3689	3,0320	4,1292	3,1994	4,8321	3,1683	6,4173	3,8980	5,7612	5,0993	11,7177	11,7177
35-44	3,5925	3,2332	4,0321	2,9054	4,8818	3,4150	7,3242	4,0374	6,0054	5,4048	10,3785	9,3407
45-54	3,6952	3,7632	4,1948	2,8826	5,5605	3,4432	5,8689	4,3962	7,1997	6,4797	17,3316	15,5984
44-64	1,8828	1,7116	3,3357	2,4180	4,9385	4,4447	6,0492	5,4443	6,5006	5,6220	7,8899	7,1009
Income share												
15-24	0,0019	0,0019	0,0302	0,0241	0,0492	0,0395	0,0398	0,0289	0,0125	0,0074	0,0003	0,0002
25-34	0,0017	0,0018	0,0321	0,0285	0,0438	0,0329	0,0454	0,0391	0,0108	0,0101	0,0004	0,0004
35-44	0,0031	0,0030	0,0285	0,0292	0,0372	0,0301	0,0732	0,0512	0,0128	0,0112	0,0012	0,0005
45-54	0,0034	0,0037	0,0216	0,0252	0,0256	0,0167	0,0305	0,0243	0,0088	0,0033	0,0021	0,0010
44-64	0,0013	0,0011	0,0111	0,0160	0,0113	0,0088	0,0110	0,0041	0,0022	0,0004	0,0015	0,0012

Source: Author's calculation form VHLSS survey in 2000

Step 2: Calculate the labour quality index LC_t

First of all, calculate the total working hours and the Tornqvist index of the aggregate labor input, calculate the total working hours index according to formula (5), and calculate the Tornqvist index of the aggregate labor input (6):

where h_t is the number of agricultural working hours of the group n years t and h_0 is the number of agricultural working hours of the group n year 0, where 0 denotes the year 2000. w_t is the income share of that group in the total income of year t and w_0 is the income share in the income of year 0 (2000). N is the total number of groups (class) formed in the matrix.

LC_t can be calculated from equation (7).

Step 3: Adjust TFP by coefficient as below:

$$LC_t^{1/2(w_0^L+w_t^L)}$$

Hence:

$$B_t = A_t LC_t^{1/2(w_0^L+w_t^L)}$$

Where: A is the TFP index before adjusting for labor quality, and B is the TFP index after adjusting for labor quality.

From the data of the matrices, performing the calculations according to the above steps, the results are as follows:

Table 2. The results of computation

Unit: times

Year	L_t	H_t	LC_t	Income share of labour in total income	Adjustment coefficient of TFP
2000	1,0000	1,0000	1,0000	0,5544	1,0000
2002	1,6544	1,6489	1,0033	0,5231	1,0018
2004	0,3198	0,3426	0,9335	0,5125	0,9639
2006	1,4936	1,7051	0,8759	0,4931	0,9330
2008	1,3267	1,5532	0,8542	0,5048	0,9199
2010	0,2853	0,2795	1,0205	0,5075	1,0108
2012	0,2905	0,2762	1,0518	0,5135	1,0273
2014	0,2812	0,2640	1,0653	0,5229	1,0346
2016	1,2345	1,1588	1,0653	0,4984	1,0339
2018	1,1258	1,0043	1,1209	0,4644	1,0599
2020	1,1557	1,0215	1,1314	0,4782	1,0608

Source: Author's calculation form VHLSS survey

This coefficient will be used to adjust the TFP index due to the impact of labor quality. However, because the VHLSS survey was conducted only in even years, data for odd years were not available. To complete the time series of the TFP quality adjustment coefficient series, assumes that this data for odd years is equal to the average of the last two even years.

With such assumptions, the data set of the quality adjustment coefficient of TFP due to the influence of labor quality used in this study is as follows:

Table 3. TFP adjustment coefficient of Vietnam's agriculture in 2000-2020

Unit: times

Year	TFP adjustment coefficient	Year	TFP adjustment coefficient
2000	1,0000	2010	1,0108
2001	1,0009	2011	1,0194
2002	1,0018	2012	1,0273
2003	0,9909	2013	1,0310
2004	0,9639	2014	1,0346
2005	0,9484	2015	1,0343
2006	0,9330	2016	1,0339
2007	0,9264	2017	1,0469
2008	0,9264	2018	1,0599
2009	0,9643	2019	1,0602
		2020	1,0608

Source: Author's calculation form VHLSS survey

These coefficients will be used to adjust input quality when calculating the agricultural TFP in Vietnam.

The calculation results show that there is a clear difference in the labor quality adjustment coefficient by period. From 2000-2002, these coefficients were almost unchanged in value. In the period from 2003 to 2009, these numbers were less than 1, with the smallest values belonged to the year 2007 and 2008. After that, there was a gradual recovery. In the period 2010-2020, these coefficients were greater than 1, and tend to increase gradually over the years.

From formula (8), it can be seen that the values of these coefficients will directly affect agricultural TFP after adjusting for labor. Accordingly, agricultural TFP after adjustment for labor quality will remain unchanged compared to TFP before adjustment in the period 2000-2002, decrease in the period 2003-2009 and gradually increase in the period 2010-2020. The changes after applying the labor quality adjustment coefficient have a large influence on the value of agricultural TFP. For example, in 2008, after adjustment, TFP will decrease by 7.36%, in 2020, TFP will increase by 6.08%. The application of this coefficient will help to have a more accurate assessment of the value of agricultural TFP.

4. Discussion and Conclusion

Quality adjustment coefficients calculated in Table 3 can be used to adjust agricultural productivity indicators such as TFP. It can be seen that from 2000-2009 these coefficients tend to decrease, while from 2010-2020, these coefficients have increasing coefficients. This will have a similar effect on agricultural TFP.

Research on the quality of inputs should be concerned more to get accurate productivity indicators for research and policymaking. The most important issue is the source of the data needed to calculate the quality adjustments of inputs such as labor. The research still has limitation in terms of data such as can just construct the matrix of labor coefficient in even years. However, the study has contributed a view on this issue and performed an experimental calculation of the labor quality adjustment coefficient in the period 2000 - 2020.

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IMPACTS OF MONETARY POLICY ON VIETNAM'S ECONOMIC GROWTH

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Abstract

Monetary policy plays a very important role in every economy. Recently, Vietnam's monetary policy is gradually adjusted to the changes of the economy. This study will analyze and assess impacts of monetary policy on economic growth by using both qualitative and quantitative analysis to examine impacts of some specific monetary policies (interest rate, monetary supply, exchange rate, credit) on Vietnam's economic growth.

Keywords: *Growth, monetary policy, Vietnam, quantitative*

1. Introduction

Monetary policy through the increase or decrease of monetary volume will affect interest rates and aggregate demand, leading to an increase in productive investment, thereby affecting economic growth.

Recently, Vietnam's monetary policy has played a significant role in economic growth, reflected in the key tasks that monetary policy has been aiming for, including maintaining macroeconomic stability, promoting and sustaining growth.

This study uses a number of quantitative tools such as correlation analysis, econometric models to clarify the impacts of some monetary policies on Vietnam's economic growth.

2. Method

Methodologies used in this study to examine impacts of monetary policies on Vietnam's economic growth includes:

•Correlation coefficient analysis

The correlation coefficient is a statistical indicator to measure strength of relationship between two variables. The correlation coefficient has a value from -1.0 to 1.0. A positive correlation coefficient shows that two variables have a positive relationship, whereas a negative value indicates an inverse relationship, and the correlation coefficient is zero for two independent variables.

There are many types of correlation coefficients, but the most common one is the Pearson correlation. This index measures the strength and linear relationship between two variables. It cannot measure nonlinear relationship between two variables and cannot distinguish between dependent and independent variables.

Formulation

$$\rho_{xy} = \text{Cov}(x,y) / \sigma_x * \sigma_y$$

In which:

- ρ_{xy} : Pearson correlation coefficient
 $\text{Cov}_{(x, y)}$: Covariance of x and y
 σ_x : Standard deviation of x
 σ_y : Standard deviation of y

• *Multivariable regression econometric model (Hadjimichael model, 1994)*

This model is to evaluate the impact of fiscal and monetary policy on economic growth, based on Hadjimichael's model (1994), which is described as follows:

$$Y_{it} = \alpha_{it} + Y * \text{MonVar}(t-1) + \beta * X_i(t-1) + c + \varepsilon_{it}$$

In which:

- Y_{it} : Dependent variable
- MonVar: Variable representing monetary policy
- X_i : Control variables
- c : Intercept coefficient
- ε : Residual

Monetary indicators and control variables in the model are delayed because:

First: Economic policies in general and monetary policies in particular often have lags in impacts

Second: technically, to avoid the endogeneity problem between dependent and control variables

The above model is applied by following steps:

Step 1: Build an aggregate monetary indicator

To develop the composite fiscal indicator, principal component analysis (for Dimensionality reduction) – PCA is used.

Principal Component Analysis (PCA) is one of the simplest multivariate data analysis methods. The idea of this method is to extract the greatest amount of information from single variables and indices when combining them in ways through the fewest number of principal components (PCs). In other words, the PCA method allows a transformation to convert from a large set of variables and observations into a set of less variables but carrying the full or maximum amount of information of original variables. Through PCA analysis, principal components (PCs) are generated by modeling the resonance of single variables in different spatial directions, which ensures the maximum information of single variables and indices is retained in the principal components (Stock and Watson, 2002).

Step 2: Use the Hadjimichael model above to estimate the impact of monetary policy on growth

Step 3: Analyze the results

3. Results

3.1. Impact of monetary policy on Vietnam's economic growth

Over 70 years of development (State Bank of Vietnam was established in February 1951), Vietnam's banking system has continuously grown and achieved many important results, contributing positively to the growth of Vietnam's economy. Notably, important results have been recorded since 1986, when Vietnam implemented policy to open its economy when the country faced great difficulties and challenges.

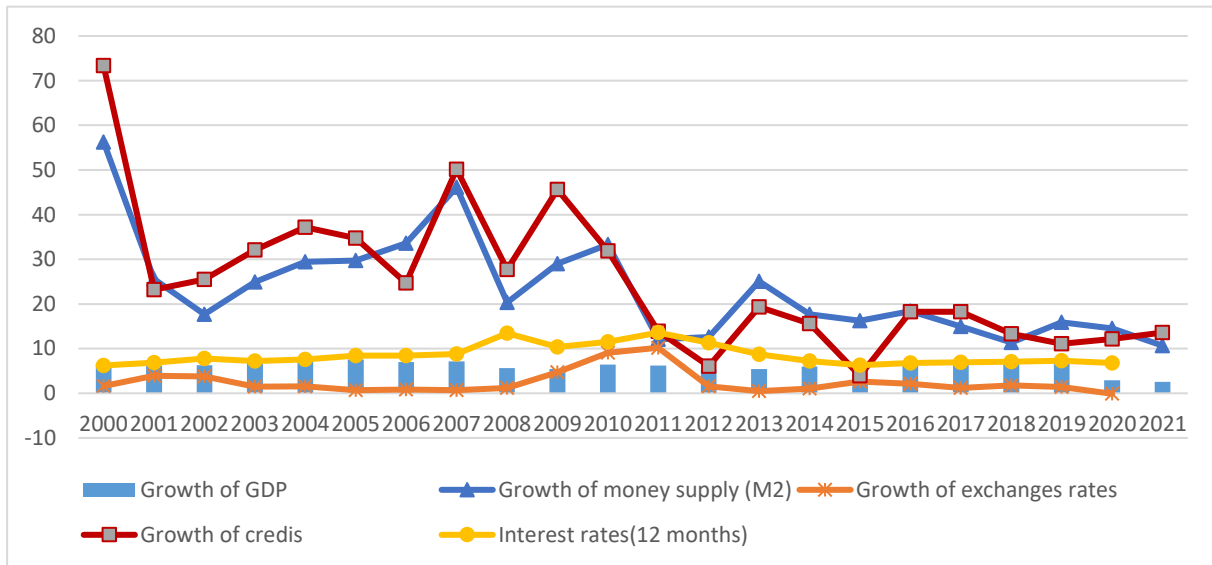


Figure 1. Economic growth and some monetary indicators (%)

Source: Author's calculations from GSO and ADB data

The impact of monetary policy on growth can be examined into following stages:

- *Period 1986 - 1989*
- *Period 1990 - 1996*
- *Period 1997 - 2005*
- *Period 2006 - 2010*
- *Period 2011 - 2016*
- *Period 2016 - 2021*

Period 1986 - 1989 : During this period, Vietnam started to renovate in the context of the economy facing a series of difficulties and challenges such as stagnant production, galloping inflation, extremely difficult living...The main reason is that the long existed centralization, bureaucracy and subsidy mechanism in the economy has eliminated the drivers for development. However, thanks to Doi moi policy in 1986, including policies to eliminate subsidies, liberate production power, liberalize production and circulation of goods, and gradually liberalize prices, economic difficulties have been gradually overcome. Regarding monetary policy management, the State Bank switched to a positive real interest rate mechanism, which has attracted deposits to the banking system, contributing to stabilizing the currency and market, and boosting production. This is a breakthrough solution and determines the success of this period.

However, in this period, monetary policy has not been clearly shaped, the State Bank still supplied money under the direction of the Government. Thus, in the early years of renovation, the cash management regime was still according to the will and orders, not according to the laws of commodity economy and money circulation.

Period 1990 - 1996 : The collapse of the Soviet Union and the socialist countries in Eastern Europe during this period pushed Vietnam 's economy into more serious difficulties , though inflation during this period was controlled, it was still around 10%/year. The Party and Government are determined to give up the central planning mechanism and switch to a market economy under the management of the State, but it was not able to fully operate according to the market mechanism.

During this period, the State Bank continued to implement the positive real interest rate policy, associating with indirect tools and direct control tools in operating monetary policy; formed money market; initially modernize technology and strengthen human resource training for the operation of the new banking system. Credit capital was expanded to all economic sectors and achieved an average annual growth rate of 36%/year, contributing to restructuring and promoting economic growth in the following years. However, signs of hot development also revealed, especially in the real estate market. High-risk lending activities increased; many bank leaders take advantage of the bank's capital to invest in their own companies, credit fraud increased... leading to the collapse of credit cooperatives and the weakening of many commercial banks.

Period 1997 - 2005 : The Asian financial - monetary crisis in 1997 - 1998 had negative impacts on the domestic economic situation, economic growth slowed down, import and export activities decreased, foreign investment stagnated, the banking system faced many risks and challenges. The inherent weaknesses of the banking system were exacerbated by the impact of the above crisis.

To respond to the crisis, the State Bank has implemented flexible and prudent monetary policy, contributing to minimizing negative impacts on the economy. Besides, the State Bank continued to improve the monetary policy management mechanism, especially the interest rate management mechanism; promulgate safety regulations and institutions to strengthen credit institutions' ability to prevent bad changes; applied provisioning for risks in an increasing direction; established Vietnam Deposit Insurance, separated policy credit from commercial credit and established the Social Policy Bank. Thanks to the above solutions, Vietnam's growth was kept at a decent rate: GDP growth averaged 7% in the 1996-2000 period and 6.9% in the 2000-2005 period.

However, this stage also backlogs and contains many risks when facing external shocks. Growth model based on increased investment; bank credit increased at an average annual rate of 25 - 30%/year, loose budgetary discipline has weakened the sustainability of the macro foundation, leading to high inflation again (from 2007 - 2011) and strongly fluctuated exchange rate.

Period 2006 - 2010 : During this period, the world political and economic situation was complicated, the global financial crisis 2008-2009 and economic recession had a strong

impact on Vietnam's economy, in the context that Vietnam has just joined the WTO (January 11, 2007), puts Vietnam's financial - monetary system in front of many difficulties and challenges.

Facing complicated developments of the domestic and international economic situation, monetary policy in this period was flexibly operated from time to time:

(1) From 2006 to October 2008: Focus on controlling inflation, stabilizing the macro-economy, limiting hot growth;

(2) From November 2008 to the end of 2010: Loosening to prevent economic downturn.

Accordingly, the State Bank required credit institutions to extend credit effectively and in accordance with the provisions of law; promptly handled problems related to loans and customers' access to credit; focused on effective implementation of lending mechanisms to support interest rates; strictly controlled credit quality, coupled with credit expansion in the direction of concentrating capital to meet needs of production, small and medium-sized enterprises, agriculture, rural areas and large and key projects of the State; strictly controlling loans for real estate, securities and consumption.

Policy administration of the State Bank during this period has actively contributed to curbing inflation, promoting growth, and preventing economic decline from the negative impacts of the global financial crisis and economic recession. However, the administration of expansionary fiscal policy and loosening monetary policy along with other reasons have pushed prices up quite high, adversely affecting inflation control in the following years .

Period 2011 - 2016 : Due to the adverse impact of the financial crisis in 2008 - 2009 and the internal weaknesses of the Vietnamese economy for many years, in the period 2011 - 2016, Vietnam's economy faced many challenges such as high inflation from 11.8% in 2010 to 18.13% in 2011; the money market, foreign exchange and gold market fluctuated considerably with high lending interest rates, up to 20-25%/year, VND was under pressure of devaluation, state foreign exchange reserves decreased. However , monetary policies were implemented effectively in this period, thereby having a positive impact on the economy: inflation was controlled and gradually decreased, the macro-economy gradually stabilized, major balances of the economy were maintained. The growth rate of consumer prices dropped sharply from 18.13% in 2011 to 0.63% in 2015, the lowest level in the past 15 years; interest rate level decreased from 20-25%/year to only 6-9%/year ... Besides, the economic growth model was also gradually transformed towards improving quality, efficiency and competitiveness. .

2016 - 2021 period : During this period, Vietnam's economy is continuously affected in term of supply and demand due to abnormal developments in the world economy, severe natural disasters and epidemics, trade tensions between the US, China and many other key economies. In early 2020, the Covid-19 pandemic broke out and devastated most of the countries in the world . In the financial sector, the world market is volatile and unstable.

To promote economic growth, the State Bank has synchronously administered solutions to maintain stability and gradually reduce interest rates. Since 2016, the State Bank has adjusted down the operating interest rates by 2 - 2.5%/year, down the ceiling deposit

interest rates for terms of less than 6 months by 0.8 - 1.5%/year on, reducing the ceiling lending interest rate by 2%/year for priority sectors; timely regulated and responded to the needs of credit institutions, maintain the interbank market interest rates at a reasonable level to facilitate credit institutions' access to capital at reasonable costs.

Regarding the exchange rate and foreign exchange market, the State Bank has managed the exchange rate proactively, flexibly, in line with the macro balances, actual developments in the market and objectives of monetary policy in each specific period. Accordingly, the State Bank has announced the central exchange rate daily on the basis of reference to domestic and foreign market movements, macroeconomic balances and monetary balances and objectives of monetary policy, contributing to stabilizing domestic exchange rate and foreign currency market.

In addition, the State Bank of Vietnam has also set up targets for credit orientation and credit administration in line with the macro balances, meeting the capital demand of the economy associated with improve credit quality, focus on production and priority areas, strictly control risky areas.

3.2. Quantifying the impacts of monetary policy on growth

Correlation coefficients

Considering the correlation relationship between some indicators of monetary policy and growth, it can be seen that since the financial crisis 2008, Vietnam's monetary policies (credit, money supply, exchange rates, interest rates) has been gradually stabilized, thereby contributing to stabilizing the macro-economy and promoting Vietnam's economic growth.

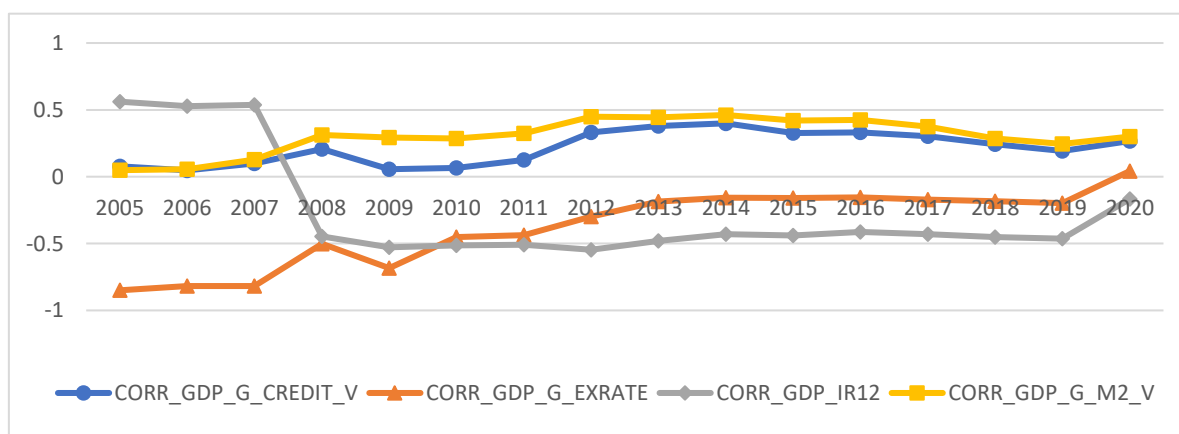


Figure 2. Correlation coefficients between some monetary indicators and growth¹

Source: Author's calculations

Impact assessment model

Using Hadjimichael model to evaluate the impact, we have the equation:

$$\text{Log(gdp)} = \alpha + \beta_0 * \text{INDEX_MON} + \beta_1 * \text{LOG(FCF(-1))} + \beta_2 * \text{LOG(LF_AC(-1))} + \beta_3 * \text{LOG(OPEN(-1))} + \beta_4 * \text{DUMMY} + \epsilon$$

¹CORR_GDP_G_CREDIT_V, CORR_GDP_G_EXRATE. CORR_GDP_IR12, CORR_GDP_G_M2_V : Correlation between growth and credit, exchange rate, interest rate and money supply

In which:

- ✓ GDP: gross domestic product (2010 price)
- ✓ INDEX_MON: Aggregate variable for monetary policy (calculated by PCA method)
- ✓ FCF: accumulation of fixed assets
- ✓ LF_AC: economically active workforce
- ✓ OPEN: openness of the economy
- ✓ DUMMY: dummy variable
- ✓ ε : Residual

Data:

The data used in the analysis and estimation were collected from GSO and ADB

*** Developing aggregate indicator for fiscal policy**

Using the dimensionality reduction method for fiscal and monetary indicators, we have the aggregate indicator of fiscal policy (Estimation results in Appendix 1).

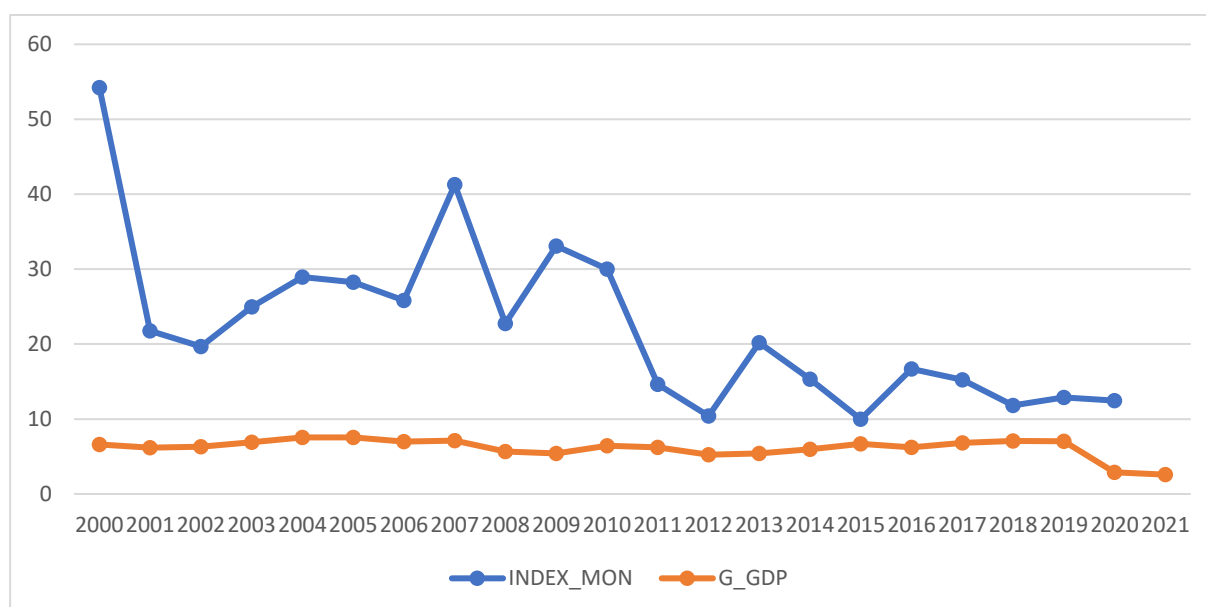


Figure 3. Aggregate indicators of monetary policy and growth²

Source: Author's calculations

Impact estimation model

When constructing aggregate indicator in the monetary sector by PCA method from fiscal component indicators³, we find that the coefficient of the aggregate fiscal index is -0.057, showing that there are coordinating problems among monetary policies bring positive effects to growth

$$\text{LOG(GDP)} = -0.057 \cdot \text{LOG(INDEX_MON)} + 0.421 \cdot \text{LOG(FCF(-1))} + 0.692 \cdot \text{LOG(LF_AC(-1))} + 0.350 \cdot \text{LOG(OPEN(-1))} - 0.079 \cdot \text{DUMMY}$$

²INDEX_MON: Aggregate monetary index calculated by PCA method from 4 monetary indicators: credit, exchange rate, interest rate, money supply; G_GDP: Growth rate

³Exchange rate, credit, money supply m2, interest rate 12 months

Vietnam's growth is still wide-ranging as the coefficients for labor (0.692) and capital (0.421) are very high, and the coefficient for economic openness is 0.350, indicating that Vietnam's economy has been integrating deeply into the world economy.

4. Discussion and Conclusion

In conclusion, in 35 years since Doi moi policy, although facing many difficulties and challenges, monetary policy has achieved many positive results and has made great contributions to the socio-economic development of the country. The management of monetary policy has had strong innovation in the direction of being proactive, leading the market, and gradually shifting from the regulation by volume to the regulation by interest rate. The State Bank has announced the interest rate management orientation and implemented synchronously measures to achieve the goal of gradually reducing the interest rate level, removing difficulties for businesses and households; flexible adjusting operating interest rates, combined with the application of appropriate administrative measures according to market developments.

In the coming time, in order to continue to improve the efficiency and effectiveness of the monetary policies for economic growth, following solutions should be paid attention: (1) As COVID-19 pandemic affects all aspects of socio-economic life, negatively affecting economic growth, commercial activities, labor, employment and income... maintaining policy solutions to support the economic recovery is necessary but inflationary pressure should be taken into account, which requires close coordination between policies as well as implementation methods; (2) Control interest rates at a reasonable level in a proactive manner, actively curbing inflation, curbing credit growth, improving the value and attractiveness of VND compared to foreign currencies, and at the same time controlling the conversion of credit in VND into foreign currencies ; (3) manage the exchange rate and foreign exchange market flexibly, in line with market movements. Strengthen foreign exchange management, immediately take necessary measures for organizations and individuals to sell foreign currencies to banks when they possess and buy them when they have reasonable need, ensuring foreign currency liquidity, stabilizing the exchange rate, meeting the essential production development of the economy and increasing foreign exchange reserves; and (4) Improve the quality of information and communication on monetary policy management and operations. bank.

References

1. General Statistics Office (GSO), Annual report on socio-economic situation.
2. Statistical Yearbook over the years, General Statistics Office, Statistical Publishing House
3. Textbook of Econometrics, National Economics University, 2012

Appendix 1

Principal Components Analysis

Date: 03/23/22 Time: 19:21

Sample (adjusted): 2000 2020

Included observations: 21 after adjustments

Balanced sample (listwise missing value deletion)

Computed using: Ordinary correlations

Extracting 4 of 4 possible components

Eigenvalues: (Sum = 4, Average = 1)

Number	Value	Difference	Proportion	Cumulative Value	Cumulative Proportion
1	1.945209	0.426313	0.4863	1.945209	0.4863
2	1.518896	1.069122	0.3797	3.464105	0.8660
3	0.449774	0.363653	0.1124	3.913879	0.9785
4	0.086121	---	0.0215	4.000000	1.0000

Eigenvectors (loadings):

Variable	PC 1	PC 2	PC 3	PC 4
G_M2_V	0.685265	0.168898	-0.001762	0.708436
IR12	-0.208284	0.674230	0.707268	0.042487
G_EXRATE	-0.191746	0.680721	-0.706678	0.021427
G_CREDIT_V	0.671016	0.231316	0.019398	-0.704169

Ordinary correlations:

	G_M2_V	IR12	G_EXRATE	G_CREDIT_V
G_M2_V	1.000000			
IR12	-0.102641	1.000000		
G_EXRATE	-0.079096	0.550080	1.000000	
G_CREDIT_V	0.910818	-0.031385	-0.018578	1.000000

Appendix 2

Estimation results of monetary policy and growth

Dependent Variable: LOG(GDP)

Method: Least Squares

Date: 03/23/22 Time: 19:21

Sample (adjusted): 2001 2020

Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(INDEX_MON)	-0.057235	0.015198	-3.765852	0.0019
LOG(FCF(-1))	0.420549	0.040730	10.32539	0.0000
LOG(LF_AC(-1))	0.692060	0.028160	24.57601	0.0000
LOG(OPEN(-1))	0.350768	0.095789	3.661891	0.0023
DUMMY	-0.079526	0.011797	-6.741301	0.0000
R-squared	0.997107	Mean dependent var	14.60444	
Adjusted R-squared	0.996336	S.D. dependent var	0.361039	
S.E. of regression	0.021854	Akaike info criterion	-4.596580	
Sum squared resid	0.007164	Schwarz criterion	-4.347647	
Log likelihood	50.96580	Hannan-Quinn criter.	-4.547986	
Durbin-Watson stat	1.890926			

RICE EXPORT IN THE WORLD MARKET IN THE CONTEXT OF COMMITMENT OF CARBON EMISSION REDUCTION: CASE STUDIES IN VIETNAM AND THAILAND

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Abstract

Vietnam and Thailand are big producers and exporters in the world. However, Vietnam and Thailand's export competitiveness could be affected by policies on cleaner production and reduced carbon emissions by partners. Such policies could impact the global rice market that lead to changes in consumer tastes or tariffs on high-emission rice. In this context, the study is carried out to assess the impact of policies related to carbon emission reduction on Vietnam and Thailand rice export in the coming time. The gravity model is used in this study to estimate the impact of carbon tariffs on rice export value. The study also applies the stochastic frontier approach (SFA) to estimate the gravity equation and scenarios development of carbon tariff based on previous research. Given the regression coefficient of tariffs on the value export of rice, we calculate the impact of carbon tariffs on rice export of Thailand and Vietnam at three levels (10%, 20%, and 35%) for 2 scenarios: (i) only US and EU27, and (ii) all countries in the world impose carbon tariff on rice import. The results show that, in the first scenario, Thailand's rice export value will decrease from 20 million USD to 71 million USD whereas Vietnam's rice export value will decrease from 1 million USD to 5 million USD. But if all the countries in the world take action, both Vietnam and Thailand will lose a similar amount from 83 million USD to 349 million USD. Accordingly, the government and value chain actors in both countries need to take action to strengthen international cooperation on green development, develop and implement joint programs of research, and transferring science and technology for a green food system and emissions reduction. In addition, it is necessary to change and raise awareness the perception of production and consumption towards green and low-carbon production.

Keywords: *carbon emission, rice export, carbon tariff.*

1. Introduction

At the top of 10 rice producers, Vietnam and Thailand, produced around 71.7 million tons of paddy, equivalent to 48.7 million tons of rice accounting for more than 9,4% of global production (FAOSTAT, 2019). Both countries make an important contribution to the world's food security when they are always in the top 3 largest rice export countries in the world, contributing over 25% of the world's rice export value (Trademap, 2020). As a staple food,

over half of the global population depends on rice as a major part of their diet. Rice is considered an essential part of nutrition in many countries and is estimated to provide more than one-fifth of the calories consumed worldwide by humans. The demand for rice continues to grow as the world's population is expected to increase by 2 billion persons in the next 30 years, from 7.7 billion currently to 9.7 billion in 2050 (United Nations, 2019). At the same time, thanks to international economic integration, the tariffs on rice are gradually removed, which creates many opportunities to boost rice exports for both Vietnam and Thailand. However, rice production is already responsible for 70% of the world's water consumption and 30% of global greenhouse gas (GHG) emissions. In the context of the world promoting carbon emission reduction, countries will prioritize importing low-carbon rice products. Meanwhile, Vietnam and Thailand are pledging to reduce carbon emissions by 2050. In contrast, due to climate change, epidemics, and soil degradation pressures, there is an increasing trend of using inputs to ensure output. This increases the risks of carbon emissions. The risks will affect the promotion of rice export potentials and advantages in economic integration. Accordingly, both countries need to consider and promote measures in production quickly towards reducing carbon emissions.

In this context, there is little research on assessing the impacts of the tax on carbon emission on rice export of Vietnam and Thailand. Therefore, the research on "*Assessing the potential of rice exports to the world market of Vietnam and Thailand in the context of carbon emission reduction requirements in accordance with international commitments*" is carried out to identify the impact of the carbon tax on the rice sector, with a focus on Vietnam and Thailand. In this study, we applied the gravity model theory to identify the impact of tariff reduction on the export of rice. The research team proposed tariff scenarios imposed by rice importers on rice products from Vietnam and Thailand when the risk of increasing Carbon emissions from rice production took place in the context of climate change and degradation of natural production resources.

2. Method

To assess the impact of carbon tariffs on rice export of Vietnam and Thailand, firstly we identify the impact of tariffs on the rice export sector using the gravity model (e.g. 1% increase in tariffs will lead to how many percentage change in rice export). In the next step, we build up scenarios on carbon tariffs based on the scenario of carbon tariff from Nordin et al. (2019) since there are no official statements on how much a country will impose tariffs on rice.

First step: identify the elasticity between tariffs and the value of rice export

Generally, the gravity model has been extensively used to examine the relationship the bilateral trade flows between two countries (Kaliappa, 2008). The general gravity equation is as follows:

$$\text{Trade}_{ij} = G * S_i * M_j * \theta_{ij} \quad (1)$$

Where:

Trade_{ij} is the value of the bilateral trade between country i and j,

S_i is factors that make up the total importing demand of country i such as income, GDP

M_j is factors that represent the total amount of country j are willing to supply such as income, GDP, domestic production, etc.

θ_{ij} represents the ease of country i to access of country j (for example: distance)

G is a variable that does not depend on country i or j such as the level of world liberalization

Given this form, the standard procedure for estimating a gravity equation is simply to take the natural logarithms of all variables and obtain a log-linear equation (Bacchetta et al., 2012). Based on the research objectives and previous literature review, the estimation model in this study is:

$$\ln Trade_{ijt} = \alpha_0 + \alpha_1 * \ln GDP_{it} + \alpha_2 * \ln GDP_{jt} + \alpha_3 * \ln Distance_{ij} + \alpha_4 * \ln Population_{jt} + \alpha_5 * \ln Production_{it} + \alpha_6 * \text{Tariff}_{ijt} + \alpha_7 * \text{FTA}_{ijt} + \varepsilon_t \quad (2)$$

Where:

$Trade_{ijt}$ is the value of the rice export value of country i to country j in year t

GDP_{it} , GDP_{jt} are respectively the GDP of country i and country j in year t

$Population_{jt}$ is the total population of country j in year t

$Production_{it}$ is the total rice production of country i in year t

Tariff_{ijt} is the minimum effective applied tariff between country i and j in year t

FTA_{ijt} is whether country i and j has any Free trade agreements in year t

$Distance_{ij}$ is the distance between country i and j

α is the regression coefficient of the model

ε is the error term

There are a wide range of estimation methods such as OLS, tobit, panel fixed effects, Heckman model, etc. (Saleh et al., 2019). However, the method has some weaknesses such as loss of information due to the removal of zero trade flows, biased coefficient or exclusion of required variables. To address this problem, this study applies the stochastic frontier approach (SFA) to estimate the gravity equation. Kaliappa (2008) pointed out three main advantages of the suggested method of estimation are as follows. Firstly, it does not suffer from a loss of estimation efficiency. Second, it estimates the combined effects of the ‘economic distance’ bias term, which is creating heteroscedasticity and nonnormality, isolating it from the statistical error term. Third, the suggested approach provides potential trade estimates that are closer to free trade estimates. Finally, the suggested method bears strong theoretical and trade policy implications (Kaliappa, 2008). The frontier gravity equation for exports can be estimated as:

$$Trade_{ij} = f(Z_i; \alpha) \exp(-u_i + v_i)$$

Given this model, the equation (2) becomes:

$$\ln Trade_{ijt} = \alpha_0 + \alpha_1 * \ln GDP_{it} + \alpha_2 * \ln GDP_{jt} + \alpha_3 * \ln Distance_{ij} + \alpha_4 * \ln Population_{it} + \alpha_5 * \ln Production_{it} + \alpha_6 * \text{Tariff}_{ijt} + \alpha_7 * \text{FTA}_{ijt} + (v_t - u_t) \quad (3)$$

Step 2: After estimating the tariff elasticity (α_6), we multiply the carbon tariffs with the tariff elasticity. There is not much information on the specific carbon tariffs for each country in the world. The only available information is that the EU27 is proposing to introduce carbon tariffs in 2026 and the US is considering the same method for reducing

carbon emissions, but they have not announced the level of carbon tariffs either. Therefore, we applied the carbon scenarios developed by Nordin et al. (2019), carbon tariffs at the farm gate for agricultural commodities are 120 eur/ton (equal to the Swedish CO₂ tax on fossil fuels). This carbon tariff is equivalent to 21% for Vietnam and 35% for Thailand

Table 1. Estimation of tariff carbon for Vietnam and Thailand

	Vietnam	Thailand	Sources
Rice (HS-100630)	175 Eur/ton	175 Eur/ton	Macmap
Tariffs (equivalent)	23%	23%	Macmap
Carbon tariffs	120 Eur/ton	120 Eur/ton	Nordin et al.
CO ₂ /rice	1.33	2.21	Calculated from FAO
Final tariffs (Equivalent)	21%	35%	

In scenario 1: Only the United States (US) and European Union (EU27) are introducing carbon tax to rice of Vietnam and Thailand in three levels: low (10%), medium (20%) and high (35%).

In scenario 2: we assume that all countries in the world will participate in introducing carbon tax at 3 levels: low (10%), medium (21%) and high (35%).

Export value decrease of Vietnam = tariff elasticity (α_6)* proposed increase tariffs (β)*rice export value of year 2021

Export value decrease of Thailand = tariff elasticity (α_6)* proposed increase tariffs (β)*rice export value of year 2021

Data selection: The data includes the rice export value of top 10 largest rice exporters with their partners during 2005 – 2020. These countries are: India, Thailand, Vietnam, Pakistan, United States of America, China, Myanmar, Italy and Brazil, representing 85% of total rice traded globally. Hence, this panel data can represent the global rice sector and its sensitivity with tariff reduction. The main data sources for each variable are described in table 2.

Table 2. Data sources for each variable

Variable	Source
Total export	World Integrated Trade Solution (WITS)
GDP	World Development Indicators (World Bank)
Distance	Distance between cities (DistanceFromTo)
Population	World Development Indicators (World Bank)
Production	Rice production (FAO)
Tariff	World Integrated Trade Solution (WITS)
FTA	Market Access Map (ITC)

3. Results

3.1. Overview of rice sector in Vietnam and Thailand

Rice sector is a key source of greenhouse gas emission⁴. For Vietnam, its total greenhouse gas emissions in 2018 were equivalent to 376.53 million tons of CO₂, ranking 23rd in the world in terms of total greenhouse gas emissions (Worldbank, 2022). Among all the sectors, greenhouse gas emission from the rice industry accounts for 36 million tons of equivalent CO₂ (FAO, 2022). In Vietnam, rice cultivation was responsible for 75% of CH₄ in agriculture and 15% of Vietnam's total GHG emissions (Monre, 2020). Thailand has the same position with Vietnam related to carbon emissions from the rice sector. In 2018, Thailand ranked 20rd in 2018 with a total of 416.950 million tons of equivalent CO₂ and its rice sector contributed 47.683 million tons of equivalent CO₂ (FAO, 2022; Worldbank, 2022). Hence, in the context when other countries commit to reduce greenhouse gas emissions by introducing carbon tariffs, the rice sector of both Vietnam and Thailand will be heavily affected.

Both Vietnam and Thailand are among the top rice producers and exporters in the world. In 2020, Vietnam and Thailand produced 28.5 million tons and 20.2 million tons of rice respectively, accounting for 7.5% of global rice production (FAO, 2022). In terms of exporting, Vietnam and Thailand are among the top rice exporters after India. Viet Nam's rice exports grew strongly during the period 2005 - 2012, however, from 2012 to 2016, rice exports tended to decrease gradually and only recovered within the last 4 years. Rice exports peaked in both volume and value in 2012 with 8 million tons of rice reaching US\$3.7 billion, the compound annual growth rate of 43% compared to 2005. Southeast Asia remains to be the largest importer accounting for 40% market share, followed by African countries such as Ghana and Ivory Coast. China has also become a major trading partner of Vietnam in the past 10 years. Although exports to Europe, the US, Australia and Japan remain limited, Vietnam has opportunities of expanding its export share of high-quality rice due to tariff cutting under free trade agreements.

The rice export value of Thailand decreased from \$4.56 million to \$3.69 million during the 2015 - 2020 period. The decrease indicates Thailand has tended to decrease low and medium-quality rice, particularly for white rice in African markets, which accounts for approximately 40-50 percent of total rice exports over the past five years (USDA, 2019). Thailand has retained itself as a high value and strong brand name rice in developed countries, especially plays an important role in supplying rice for the US and the EU27 markets, accounting for 59% and 16.7% of rice import value in these markets respectively. However, in 2020, South Africa becomes the second largest partner of Thailand whereas the other countries remain little changed.

3.2. The estimation results of gravity model on impact of carbon tax on rice export value

For a large rice exporter such as Vietnam and Thailand, the impact of carbon tariff will decrease the competitiveness of these countries as well as export value. Based on the

⁴ The primary greenhouse gasses in Earth's atmosphere are water vapor (H₂O), carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and ozone (O₃). CO₂ accounts for 9 - 26% and CH₄ accounts for 4-9%.

gravity theory, using the SFA method, the estimated results of impacts of tax and other factors on rice export are provided in table 3.

Table 3. Estimation results for gravity model using SFA method

Coefficient	Coefficiency	Standard error	Pvalue
Tariff	-0.003	0.001	0.000
Population	0.172	0.052	0.001
Gross Domestic Product (GDP) of importer	0.352	0.037	0.000
GDP of exporter	0.286	0.030	0.000
Production	0.556	0.050	0.000
Distance	-0.876	0.114	0.000
Free trade agreement (FTA)	0.386	0.053	0.000
constant	8.452	1.481	0.000
Mu = 7.532 (Pvalue = 0.000), sigma2 = 8.21, gamma = 77.76%			
Log likelihood = - 23098, Chi-square = 820 (Pvalue =0.00)			

Sources: Estimation results from STATA (2022)

The gravity model for rice sector are:

$$\ln\text{Trade}_{ijt} = 8.45 + 0.352*\ln\text{GDP}_{it} + 0.286*\ln\text{GDP}_{jt} - 0.876*\ln\text{Distance}_{ij} + 0.172*\ln\text{Population}_{it} + 0.556*\ln\text{Production}_{it} - 0.003*\text{Tariff}_{ijt} + 0.386*\text{FTA}_{ijt}$$

The value of gamma in the model is 77.76%, implying the presence of hidden factors affecting the bilateral trade of rice between countries. Therefore, the high significance of gamma indicates that the SFA method is appropriate to estimate gravity models for rice exporting. The Pvalue of Wald test is also significant at the 1% level, hence we can conclude that the selected explanatory variables are suitable for explaining the variations in rice export. All of the independent variables are significant at 1% implying this is a very good model and the SFA is suitable for estimating the regression coefficient. Overall, the results are similar to the classical theory of gravity model. The sign of regression coefficient of both GDP variables and population is positive whereas that of distance is negative, indicating that bilateral exports of rice are proportional to economic size and inversely proportional to geographic distance. This proves the hypothesis of traditional gravity model theory (Chaney, 2018).

Among all of the factors, the study found that distance is the factor having the most profound impact on export rice between two countries. If the distance increased 1%, the rice export value would decrease 0.87%. Hence, the closer the two countries are, the larger the value of rice reaches. In fact, the closer distance can reduce the shipping cost and risks during transportation (Bui & Chen, 2015; Carrere, 2003; Nguyen & Heo, 2009).

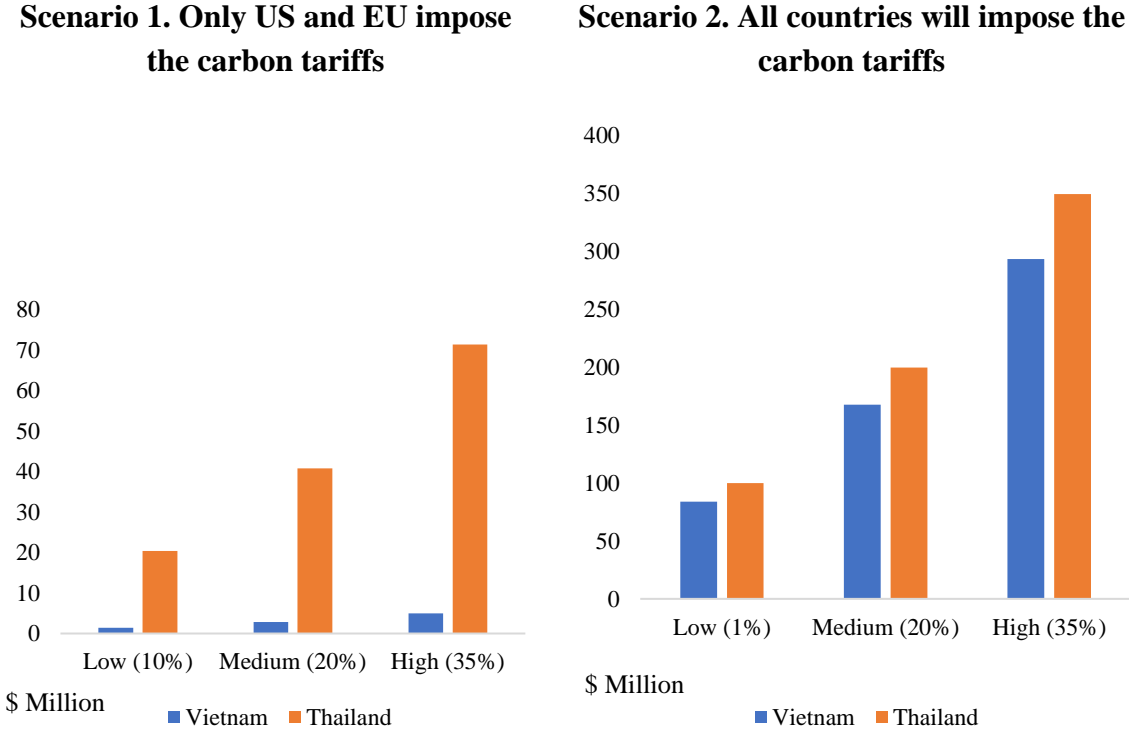
Production of the exporter is the second largest factor affecting the rice export value, 1% increase in production will lead to 0.56% increase in the export value. The production implicates the exporter's capacity to supply. Besides, 1% increase in the GDP of exporter

and importer will lead to 0.35% and 0.28% respectively increase in the export value. Hence, for the rice commodity, the increase in GDP and production reflect the increase in the exporter's supply capacity and importer's demand, leading to the increase of trade as economic theory. The impact of the importer's population only led to 0.17% increase in the export value.

In terms of the ease of trade, if the two countries are engaging in any free trade agreement except for WTO, their export value will increase 0.38%. And 1% increase in tariff rate will lead to 0.3% decrease in the rice export value.

3.3. Carbon tariff scenarios and impacts on rice export value in Vietnam and Thailand

The below figures illustrate the impact of carbon tariffs on Vietnam and Thailand rice export values based on the result of gravity model estimation and carbon tariff scenarios of the research team.



Sources: Authors' calculation

Figure 1. Impact of carbon tariffs on Vietnam and Thailand rice export value in two scenarios

In scenario 1: Only the US and EU27 are introducing carbon tax to rice production of Vietnam and Thailand in three levels: low (10%), medium (20%) and high (30%). From figure 1, it can be easily seen that Thailand will suffer more than Vietnam as the US and EU27 are one of the principal trade partners for Thailand. Thailand's rice export value will decrease from \$20 million to \$71 million whereas Vietnam's rice export value will decrease from \$1 million to \$5 million. Although the figure of Vietnam is small, this increases a heavy burden for Vietnamese enterprises as it is developing its strategy into integrating into wealthy markets.

In scenario 2: All countries in the world will participate in introducing carbon tax at 3 levels: low (5%), medium (10%) and high (20%). It can be clearly seen that Vietnam and Thailand will lose from \$83 million to \$349 million if they continue with the current technique for rice production. This is a huge loss for the rice industry, which can have a split-over effect on farmers in both countries.

4. Discussion and Conclusion

Vietnam and Thailand's rice industry is important for national and world food security, affecting the lives of the majority of farmers, welfare, and social stability. Both countries are also actively involved in the global rice value chain and implement international commitments under free trade agreements with new constraints of enhanced environmental responsibilities. Consumers in many markets are shifting in friendly-environment consumption habits. As joining global value chains, both countries are also under increasing pressures from buyers across the globe to reduce greenhouse gas emissions and environmental footprints. Their commitments require Vietnam and Thailand to commit to produce towards sustainability, energy saving and low-carbon production emission. Accordingly, stakeholders along the rice value chain must increase investment to better clean production, so that their production costs can increase. As a result, the trade advantages will be significantly reduced.

Vietnam and Thailand's rice production mainly relied on small-scale and scattered farming households. The requirements for reducing carbon emissions associated with small farmers are quite difficult. While the development of the rice industry is facing challenges with resources and other input intensification requirements due to the impact on climate change, natural disasters, epidemics and degradation of natural resources. Accordingly, the risks of increasing carbon emissions from rice production have always existed. The introduction of a carbon tariff will pose a threat to rice export of Vietnam and Thailand. If the tariffs are at 20%, Vietnam and Thailand will suffer a loss of 2 million and 35 million respectively in case only the US and EU27 impose. But if all the countries in the world take action, this value could decrease to 167 million for Vietnam and almost 200 million for Thailand.

In order to reduce greenhouse gas emissions (CO₂ and CH₄) in the rice production chain of Vietnam as well as Thailand, it is necessary to promote management and monitoring solutions as well as production techniques - business processing - emission reduction along the rice value chain. Accordingly, countries need to focus on: i) International cooperation on green growth - transitioning to a green food system, GHG emissions reduction, developing emission control and measurement systems, ii) Develop and implement joint programs of research and transfer of science and technology for green growth - transition to a green food system, GHG emissions reduction, iii) Monitoring and calculating which stages in the rice value chain play an important role in carbon emissions. In term domestic production system, it is necessary to build trainings for producers to: i) Raise awarenesses for transitioning to a green food system and emissions reduction, ii) Change the perception of production and consumption, and meet the requirements of low-carbon production, iii) Promote the application of production technologies and techniques to save production resources

(economical irrigation systems, exploitation of natural irrigation water sources, effective application of hydroponics, application of clean and safe production standards). In terms of rice products with permeable carbon emissions, it is necessary to focus on brand development and ecological label expansion.

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RESEARCH ON THE IMPACT OF TECHNICAL BARRIERS TO TRADE (TBT) AND SANITARY AND PHYTOSANITARY MEASURES (SPS) ON VIETNAM'S EXPORT OF SEAFOOD AND CEREALS

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Abstract

Non-tariff measures (NTMs) are gaining popularity as a trade protection measure and have an impact on international trade. According to I-TIP, since 2010, the number of NTMs has increased 2.5 times. In Vietnam, of the total NTMs imposed by the importing countries, 54% are technical barriers to trade (TBT) and 27% are sanitary and phytosanitary measures (SPS). The research assesses the impact of TBT and SPS on seafood (HS 03) and cereals (HS 10) exports of Vietnam for the period 2001 - 2020. Using the extended gravity model and Poisson estimation method, the results show that SPS has an export-restrictive effect on both seafood and cereals of Vietnam. In addition, while TBT has the same negative effect as SPS on cereals, it has a positive effect on seafood. However, the magnitude of those impacts are not significant and does not differ when comparing seafood and cereals. Research results imply that the Government should actively support capacity building of enterprises. Simultaneously, businesses need to invest in product quality and work closely with the Government to ensure product origin.

Keywords: *SPS, TBT, Vietnam's export*

1. Introduction

In the context of global integration, growing trade liberalization, tariffs have been significantly reduced through the wave of signing of Free Trade Agreements. However, at the same time, there is an increase in the number of non-tariff measures (NTMs). Initially, NTMs were used for legal purposes such as human health, animal and plant health, environmental problems, food concerns, and so on. However, now, some countries are

abusing this measure for the purpose of trade protection. NTMs are often applied to protect the domestic industry from competition of foreign products (Fridhowati & Asmara, 2013; Disdier et al. 2008). By the end of 2021, the world has applied a total of 61543 NTMs, an increase of 2.5 times compared to 2010 (I-TIP, 2021). Among the current NTMs, phytosanitary measures (SPS) and technical barriers to trade (TBT) are the two most commonly-used NTMs, accounting for 36% and 53%, respectively. The proliferation of NTMs and their effect on trade has been the subject of debate among researchers, especially with regard to SPS and TBT (UNCTAD, 2016). Despite an increasing focus on investment and development, Vietnam's export products cannot avoid the negative influence of NTMs. Even compared with other countries in the region and in the world, Vietnam's products are subject to a rather large number of NTMs. By the end of December 2021, Vietnam's exports had been affected by 56186 NTMs, accounting for 92% of the total number of more than 61298 NTMs in the world; of the total NTMs imposed on Vietnam, 57% are TBT and 35% are SPS (I-TIP, 2021). According to statistics from I-TIP, Vietnam suffered from a total of 2821 NTMs in the world applied to seafood products (HS 03) with the TBT and SPS rates of 50% and 50% respectively. Cereals products (HS 10) are affected by 3531 NTMs with TBT and SPS rates of 45% and 47%, respectively (I-TIP, 2021). Based on the above-mentioned rationales, the research objective is to assess and compare the magnitude of impact of TBT and SPS on the export of Vietnam's seafood and cereals. In addition, some recommendations were made to enhance the export of Vietnamese cereals and seafood products.

Previous research has reported that the imposition of NTMs produces a variety of effects for different subjects. From an economic perspective, the impact of TBT and SPS on trade has received much attention from researchers with different approaches and their empirical results suggest inconsistency. In other words, they have documented both trade-promoting and trade-restrictive effects of such two types of NTMs (Shepotylo, 2017; Crivelli & Groeschl, 2016; Bao & Chen, 2013).

TBT and SPS promote trade

Quantifying the impact of China-imposed NTMs measured by coverage ratio, Devadason & Chenayah (2014) concluded a higher coverage ratio of TBT would promote exports from ASEAN to China, although such impact is not large for the member countries that have recently joined ASEAN. Particularly, the authors said that chemical products exported from ASEAN benefited the most from China's TBT compared to other products. Though Bao (2014) used a different indicator called frequency index to quantitatively assess TBT imposed by China, he yielded the same results as Devadason & Chenayah (2014). With a combination of coverage ratio and frequency index to measure the impact of NTMs, Rindayati & Kristriana (2008) drew a conclusion that frozen tuna is most affected product by SPS and TBT and the two NTMs increased Indonesia's overall tuna exports by a factor of 0.011 and 0.15 respectively. On the basis of past studies, the benefits of NTMs for export continue to be verified across the product range (Shah et al., 2014; Wood et al., 2017; Bhyuana & Oh, 2020).

TBT and SPS restrict trade

However, TBT and SPS exert a trade-restrictive effect on the value of countries' exports as well. Studying the impact of an EU-imposed SPS about food safety standard on cereals, dried fruits and nuts, Otsuki et al. (2001) concluded that the measure would reduce the value of exports of these items from Africa to Europe by 64%, although it prevented 1.4 billion deaths annually. Additionally, the stringent SPS adopted by the OECD developed countries cost South Africa \$69 million in agricultural exports (Gebrehiwet, 2007). Disdier (2008) found similar negative results for TBT and SPS from OECD countries but added that they had no effect on intra-regional trade between the member countries. Applying a gravity model, Wei et al. (2012) agree with the results of Bao & Qiu (2012) that a strict SPS or TBT measure will reduce China's agricultural exports. This may result from the sensitivity of the country's agricultural trade to changes in food safety standards (Chen et al., 2008). Research results by Grant et al. (2015) argue it is true that SPS measures are often trade-restrictive, but this level of restriction will gradually decrease as exporters accumulate more experience. In her study, Nguyen (2018) discussed the negative impact of SPS on Vietnam's rice exports, gradually decreases as the income of importers increases. Today, the negative impact of NTMs on exports continues to be demonstrated when Sandaruwan et al. (2020) reported that TBT and SPS led to a 15% and 48% reduction in seafood exports from Sri Lanka between 2001 and 2017. In a follow-up study, Ngo (2020) found that NTMs restrict exports from Vietnam to ASEAN by about 3.7% only when they come into effect after two years.

A comparison in the magnitude of impact of SPS and TBT by product

While measuring TBT and SPS, some researchers have compared the magnitude of their impact between products. Chen et al. (2008) reported that spinach suffered a greater impact than onions and garlic due to the imposition of a maximum excess of Chlorpyrifos by importing countries on Chinese agricultural products. Meanwhile, Disdier et al. (2008) made a more complex comparison when they study with different numbers of 2-digit HS items. Results of studied 8 items showed that TBT and SPS had stronger negative effects on HS 06 "living plants", HS 13 "resin", HS 22 "alcoholic beverages and vinegar" and HS 24 "tobacco and substitutes". On the other hand, when the number of items studied is reduced to 7, the impact becomes positive and has the strongest magnitude for HS 10 "cereals" and HS51 "wool and animal hair". Generally, various notable research gaps have been identified. Global research has diversified in indicators (frequency index, coverage rate, etc.) to assess the impact of TBT and SPS but they only analyze and compare without further comments on the causes and implications of such differences in the magnitude of impact not only between products but also between TBT and SPS. In addition, the number of studies revolving around the export value of seafood and cereals in Vietnam is relatively scarce and the inventory approach has not been applied to specify the share of exports affected by TBT and SPS, given the fact that previous studies by Nguyen (2018) and Ngo (2020) only used dummy variables. This is the research gap that this study focuses on exploiting.

2. Method

2.1. Empirical model

2.1.1. The extended gravity model

The Gravity Model was first applied by two economists, Tinbergen (1962) and Poyhonen (1963) to analyze the factors affecting international trade flows. Leamer & Levinsohn (1995) claimed it produced very significant outcomes for empirical economics. The modern gravity model includes additional independent variables, namely tariff (Anderson & Wincoop, 2003) or regional FTA, language, common border (Hatab et al., 2010). Meanwhile, many researchers quantified the impact of NTMs, including TBT and SPS, by using coverage ratio and frequency index, for example, and added them on to the classic gravity model such as: Disdier et al. (2008); Bao & Qiu² (2010); Choi et al. (2015). Based on such research, we propose an extended gravity model below:

$$\ln EX_{ijt} = \ln GDP_i + \ln GDP_j + \ln DIST_{ij} + \ln(TAR_{jt}+1) + FI_{TBT} + FI_{SPS} + BOR_{ij} + FTA_{ij} + REL_{ij} \quad (1)$$

2.1.2. The Poisson estimators

In the research sample, the value of Vietnam's export to several countries equals zero, which makes $\log(0)$ undefined; therefore, these cases are usually eliminated or ignored. Accordingly, when OLS regression is applied, the estimates may be incorrect or biased. Currently, Heckman and Poisson estimation methods are most prevalent for their ability to deal with "zero-trade" situations. However, according to Liu (2009), Heckman sample selection method can cause heteroskedasticity as it uses log-linear specifications like OLS estimate and suffers from the problem of Jensen inequality. Therefore, the Poisson regression will be more ideal for two following reasons: *firstly*, it can deal with heteroskedasticity and zero trade effectively instead of ignoring them like OLS; *secondly*, there is no need to test both the normality of error term and homoscedasticity assumptions. In addition, Poisson regression allows the dependent variable to be logaritized while independent variables can be in logarithmic form or not.

2.2. Data

The study relies on secondary data collected as panel data, which includes time series data from 2001 to 2020 and cross-sectional data on TBT and SPS measures imposed on seafood products (HS 03) and cereals (HS 10) of 15 importing countries: China, Chile, India, Thailand, New Zealand, South Africa, USA, Russia, Netherlands, Canada, Brazil, UAE, Korea, Malaysia, Australia. Regarding the dependent variable, EX_{ijt} stands for exported value of Vietnam, to 15 partner countries (j) in year t, which is collected from Trademap. With regards to the independent variables, about GDP_i and GDP_j , they are the Gross Domestic Product of exporting country Vietnam and Gross Domestic Product of the importing country j, respectively. Both of the GDP mentioned above are taken from Worldbank. $DIST_{ij}$ is the geographical distance from Vietnam to importing country j and collected from CEPIL. TAR_{jt} is the simple average importing tariff under Most Favored Nation (MFN) from WTO. FI_{TBT} and FI_{SPS} are frequency index for TBT imposed on Vietnamese product by importing countries and frequency index for SPS imposed on Vietnamese product by importing country. Both of them are all calculated by the author based on the data of I-TIP. BOR_{ij} is border exposure between Vietnam and the importing country j taken from Nationsonline (Political Map of the World). FTA_{ij} is Free Trade

Agreement between Vietnam and importing country j , which is collected from Findrulesoforigin. REL_{ij} is common religion between Vietnam and the importing country j from Nation Master. In addition, in terms of the expected sign of independent variables, apart from $DIST_{ij}$, TAR_{jt} , FI_{TBT} , FI_{SPS} , all of the rest are forecasted to have a positive impact on the dependent variable.

2.3. Frequency index FI_{TBT} and FI_{SPS}

Disdier et al. (2008) applied the “inventory approach” through two indicators, the frequency index and the coverage ratio, to measure the level of trade-restrictiveness of NTMs proposed by importing countries. However, the coverage ratio’s magnitude does not adequately represent the SPS and TBT requirements’ restrictions (Wood et al., 2017). Furthermore, the coverage ratio might lead to endogeneity issues with the dependent variables (Wood et al., 2017). Therefore, in this study, the frequency index is the only indicator used by the authors to assess the impact of TBT and SPS on Vietnam’s seafood and grain exports.

The following formula is used to compute the frequency index of product type j in year t :

$$FI_{jt} = \left[\frac{\sum D_{xt} M_{xt}}{M_{xt}} \right] \times 100 \quad (2)$$

i = product classification i with 4-digit HS code

j = product classification j with 2-digit HS code

t = 2001 – 2020

x is the product identified at the 4-digit HS code level of the product classification j at the 2-digit HS level; if an SPS or TBT measure is imposed on product x in year t , the dummy variable D_{xt} takes on a value of one or, conversely, zero. M_{xt} is also a dummy variable, which is equal to one if an import of product x exists or zero if no value exists.

3. Results

3.1. Descriptive statistics

Table 1 summarizes the statistical values of the variables used in the gravity models for seafood (HS 03) and cereals (HS 10). The minimum and maximum values of both FI_{TBT} and FI_{SPS} are 0 and 100, which means no HS 4-digit product line or all HS 4-digit product lines of seafood or cereals are subject to TBT and SPS in one year.

Table 1. Descriptive statistics of variables

Variable	Mean	Standard deviation	Min	Max
EX_{ijt}	142029.4*	51756.03**	233993.4*	159306.7**
$\ln GDP_i$	18.52	0.69	17.30	19.42
$\ln GDP_j$	20.50	1.34	17.80	23.79
$\ln DIST_{ij}$	8.71	0.85	6.90	9.83
$\ln(TAR_{jt}+1)$	1.61*	1.92**	1.04*	1.47**
FI_{TBT}	38.36*	39.67**	48.36*	49.00**
FI_{SPS}	35.90*	25.22**	45.65*	43.14**
BOR_{ij}	0.07	0.25	0	1
FTA_{ij}	0.68	0.47	0	1
REL_{ij}	0.73	0.44	0	1

Note: *, ** are seafood and cereals respectively

Source: Authors’ calculation

Table 2 summarizes the correlation between the research variables in the model for seafood. Generally, no independent variable has a strong correlation with another. The correlation coefficient is lower than the limit of 0.75 (Tsui et al., 1995), meaning that the data set does not have serious multicollinearity. Therefore, no independent variables are excluded.

Table 2. Correlation matrix of independent variables in the model for seafood

	lnGDP _i	lnGDP _j	lnDIST _{ij}	ln(TAR _{jt+1})	FI _{TBT}	FI _{SPS}	BOR _{ij}	FTA _{ij}	REL _{ij}
lnGDP _i	1.0000								
lnGDP _j	0.3062	1.0000							
lnDIST _{ij}	-0.0001	0.0638	1.0000						
ln(TAR _{jt+1})	-0.0381	0.0851	-0.3289	1.0000					
FI _{TBT}	0.2773	0.2728	0.0132	-0.0397	1.0000				
FI _{SPS}	0.2999	0.1919	0.0016	-0.0394	0.1853	1.0000			
BOR _{ij}	-0.0001	0.3848	-0.3010	0.2287	0.0367	-0.0219	1.0000		
FTA _{ij}	0.1717	-0.0135	-0.3361	-0.0011	-0.1467	0.0954	0.0670	1.0000	
REL _{ij}	0.0001	0.4038	-0.2691	-0.1427	0.0629	0.1339	0.1612	0.1242	1.0000

Source: Authors' calculation

3.2. Results of regression

Due to the "zero trade" phenomenon, Poisson regression was applied to estimate the coefficients of the independent variables. The Hausman test confirms the model is subject to random effects instead of fixed effects, with a probability value of 0.93 and 0.77 (higher than 0.05) for seafood and cereals models respectively. The main reason is the presence of a time-invariant independent variable (Bell & Jones, 2014), which is the geographical distance between Vietnam and the importing country in this research. Table 3 presents the results of regression analysis by Poisson estimation method, assuming that the model has a Gamma distribution. Most independent variables ensure high statistical significance at a level of 1% for both products, only the variable BOR_{ij} has statistical significance at a 5% level. In addition, the variable DIST_{ij} is not significant in the model for cereals and the variable REL_{ij} is insignificant in the model for seafood.

Table 3. Results from Poisson regression (Gamma random effects)

Independent variable	Seafood		Cereal	
	β	p-value	β	p-value
lnGDP _i	0.174638*** (0.000519)	0.00	1.089015*** (0.000865)	0.00
lnGDP _j	1.121347*** (0.000895)	0.00	2.92594*** (0.001482)	0.00
lnDIST _{ij}	-1.109378*** (0.310708)	0.00	-0.189911 (1.680287)	0.910
ln(TAR _{jt+1})	-0.3607334*** (0.001789)	0.00	3.064533*** (0.001785)	0.00
FI _{TBT}	0.0019044*** (4.58e-06)	0.00	-0.0013474*** (6.49e-06)	0.00
FI _{SPS}	-0.0016496*** (4.25e-06)	0.00	-0.0010214*** (6.70e-06)	0.00
BOR _{ij}	-1.663347** (0.846553)	0.049	-12.77018*** (3.374466)	0.00
FTA _{ij}	-0.682248*** (0.001331)	0.00	0.712949*** (0.002515)	0.00
REL _{ij}	0.773525 (0.512199)	0.131	-1.76859*** (0.003471)	0.00

*Note: *, **, *** are significant levels at 10%, 5% and 1% respectively*

Source: Authors' calculation

4. Discussion and Conclusion

4.1. Discussion

4.1.1. The impact of independent variables of gravity on seafood and cereals exports

Based on the sign of β coefficient, gross domestic product (GDP) of Vietnam and importing partners are statistically significant and positively correlated with seafood and cereals exports. This relationship is in line with expectations and supported by previous researchers such as Bao & Qiu (2010) and Darhyati & Rifin (2017). They explained that the increase in GDP of both exporting and importing countries encouraged the exporters to boost their production and enhance the consumption demand of importers. Conversely, geographical distance is negatively correlated with the exports of both products. Thus, the sign is as expected. Darhyati & Rifin (2017) stated that the further a country was from another, the more expensive the imported products became, which might lead to the prohibitive shipping costs and a decline in consumption demand for imported products. While BOR_{ij} has statistical significance at 1% in the model for cereals, this independent variable only becomes significant when the significance level rises to 5%. Contrary to initial expectations, the sharing of common borders has a trade-restrictive impact on exports. Moreover, when two nations join one common FTA, it would increase 71.29% of cereals exports but decrease 68.22% of seafood exports. This situation was once explained by Wood (2017) when he analyzed the growth in export value between New Zealand and China before and after their bilateral FTA. A notable independent variable is the common religion of the exporting and importing countries REL_{ij} , which appears in the study of Helpman et al. (2008). Although this variable is not statistically significant in the seafood model, the negative effect of REL_{ij} on cereals exports is significant at the 1% level with a coefficient of 1.7686. This result is in contrast to that of Helpman et al. (2008), who found that sharing a common religion increased exports. For the variable TAR_{ij} , the results show it is statistically significant and has a negative relationship with seafood export values. Meanwhile, for cereals exports, a surprising finding was that increasing the simple average MFN tariff rate by 1% would increase the value of cereals exports by 3.0645%. Such finding contradicts with expectation and is explained by the phenomenon of trade diversion when Vietnam joins many FTAs with other countries (Dai et al., 2015; Sun & Reed, 2015).

4.1.2. Effect of TBT and SPS on seafood and cereals exports

a. Evaluating the impact of SPS and TBT on two products

Noticeably, both important variables that are frequency indexes of TBT and SPS have statistical significance at 1%, although their coefficients are negligible. Regarding SPS, this NTM restricts the exports of seafood and cereal. This result is reinforced by the majority of research papers in the same field such as: Otsuki et al. (2001), Gebrehiwet et al. (2007) and Bao & Qiu (2010). According to Gebrehiwet et al. (2007), developing countries, including Vietnam, lack expertise and resources to upgrade the quality of the exported products; therefore, they fail to meet the stringent requirements of importing countries. And such countries must face the financial burden to satisfy the conditions. Regarding TBT, while it has a negative effect on cereals export like SPS, this NTM promotes seafood export by

0.19%. The cause for the adverse effect of TBT on cereals is similar to that of SPS on seafood. In terms of seafood's regression model, the sign is contrary to our expectations and this outcome was once mentioned by Shepotylo (2016) when he explained that unlike SPS, TBT imposition contributed to fixed cost in seafood industry. Therefore, any firms overcoming this financial barrier thanks to their economies of scale could beat other inefficient producers successfully. In this case, TBT works as a protectionism mechanism for efficient exporters. Based on this analysis, the first research question is answered.

b. Comparing the magnitude of impact of SPS and TBT by product

Generally, the magnitude of SPS's adverse effect on seafood is more significant than that on cereals, with the gap of 0.06%. This discrepancy arises given that seafood products are often inspected and controlled more stringently to make sure such products meet sanitary standards while less restrictive measures of this type are imposed on cereals. Additionally, because seafood is high-value, the decline in its export caused by SPS is very clear. According to Nguyen & Dang (2014), the most frequently-rejected products of Vietnam by foreign large markets is seafood due to the high content of heavy metals, antibiotic residues and additives during 2002-2010. However, the gap between cereals and seafood is small, which proves seafood producers gradually adapt to SPS requirements given by developed markets. This results from the supervision and support from the Government, the Associations and exporters' adaptation. Meanwhile, the export of seafood is positively impacted by TBT while the opposite pattern is seen in that of cereals. Regarding seafood products, TBT mainly includes packaging and labeling requirements. In reality, such Vietnamese seafood products met 5/6 exporting conditions promulgated by EU, according to Nguyen (2019), at that time, most of which belonged to TBT group. Accordingly, it has created protectionism for Vietnamese seafood compared to that of other producers as long as Vietnam entered foreign markets successfully. However, the magnitude of both positive and negative impact is not significant, which means that cereals producers have tried to overcome the barriers created by TBT to take advantage of this measure's protectionism power.

The result of this comparison implies the capability of Vietnamese exporters has improved remarkably thanks to close supervision from the Government and Associations. Such producers successfully adapt to SPS and TBT introduced by difficult markets; hence, the impact of both measures is not enormous. These favorable conditions should be maintained and enhanced so that Vietnam's exports really increase in value and quantity.

4.2. Conclusion

This study establishes a quantitative framework to assess the impact of NTMs on Vietnam's seafood and cereals exports by adopting the extended gravity model and Poisson estimators. The results indicate SPS has export-restrictive effects on both products. While TBT has negative effects on cereal, it has positive effects on seafood. Moreover, the magnitudes of impact of TBT and SPS on seafood and cereals are not considerable, indicating that businesses are adapting well to NTMs. Particularly, SPS has created a higher negative impact on seafood than on cereals export, with a difference of coefficients being 0.0006. Based on the result, the authors propose some solutions for two groups, namely

Government and enterprises. Firstly, Government aid packages and priority loans for enterprises investing in human resources and technology are required. This might strengthen the capacity to meet demanding NTMs and improve the economies of scale advantage of enterprises over competitors. At the same time, exporters need to actively update alerts of TBT and SPS imposed by different markets. They may then create a quality management and assessment system for the whole manufacturing and processing procedure, meeting the censoring stage, based on specific criteria.

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BUILDING A FINANCIAL EXHAUSTION FORECASTING MODEL FOR VIETNAMESE STEEL INDUSTRY ENTERPRISES

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Abstract

The steel industry, as one of the most important sectors of the Vietnamese economy, is gradually establishing its effect on the broader economy. However, our steel sector continues to face several difficulties and obstacles in comparison to the development levels of steel industries in other countries in the region and around the world, including tough rivalry for foreign steel products, trade defense cases, and so on. The COVID-19 epidemic, in particular, has had a significant detrimental impact on the steel industry's production and consumption over the last two years. Even bankruptcy is possible. The paper evaluates financial, market, and macroeconomic elements' ability to anticipate financial fatigue and develops a model for forecasting financial exhaustion for steel businesses using 2016-2020 data.

Keywords: *finance, financial exhaustion, steel industry, Vietnam*

1. Introduction

With the economy entering a period of rapid growth as a result of global economic integration, Vietnamese firms are always interested in financial risks, elements that affect the financial fatigue of corporate finances. The rise of the steel industry demonstrates the industry's capacity for growth, exerting significant economic influence. However, Vietnam's steel sector is confronted with numerous problems throughout this period. In comparison to other nations in the region, Vietnam's steel enterprises are still developing slowly, and their competitiveness with steel products from other countries is low. Additionally, the COVID-19 epidemic has had a detrimental influence on the steel sector, both in terms of output and consumption. According to a report by Vietcombank Security in 2020, the volume of sales at steel sector firms declined significantly in the first six months of the year compared to the same period previous year. In the production dimension, the supply chain in markets worldwide is disrupted as a result of the country's implementation of blockade measures and trade controls. The COVID-19 epidemic erupted as a result of extended social isolation tactics that disrupted

supply networks and altered consumer mood. Due to the current difficulties, negative oscillations have resulted in the loss and financial exhaustion of some steel firms.

Numerous experts define corporate financial exhaustion as a period of financial distress experienced by a firm before declaring bankruptcy and continuing until the business files bankruptcy (Altman, 1968; Jiming & Weiwei, 2011; Tinoco & Wilson, 2013). According to Campbell et al. (2011), financial exhaustion is a negative effect of a business's operations becoming weaker, which can be caused by a lack of calculation when growing the business's size, bad management, or competitive pressure from competitors. The business's debt is unsustainable, putting it at risk of lawsuits and losing money on unprofitable contracts. Tran Ngoc Tho et al. (2005) state the following: "Financial depletion happens when creditors are unable to keep their commitments or reply in a timely manner. Occasionally, financial depletion results in bankruptcy. Occasionally, this simply indicates that you are in trouble."

The purpose of this study was to identify the factors affecting the financial exhaustion of Vietnamese steel enterprises, to develop a model for forecasting the possibility of financial exhaustion, and to provide a number of conferences and policy implications so that businesses can take measures to improve their financial health and avoid unnecessary risks.

2. Method

Research methods

The study employs a series of procedures to ascertain the link between independent variables, including correlation analysis, multilinear testing, and eventually binary logistic regression methods such as those used by Ohlson (1980), Tinoco & Wilson (2013).

Research data

The study's data were derived from the financial statements of 26 publicly traded companies that provided sufficient continuous data for the period (2016-2020) with 130 observations. With the research objective of developing a model that incorporates three factors: financial factors, market factors, and macro factors in order to forecast financial exhaustion for steel enterprises in Vietnam, the retained observation patterns are said to be consistent with the model after searching and classifying. The dependent variable is a binary variable that is assigned one of two values: one for businesses that are financially tired and zero for businesses that are not financially exhausted. The study employed STATA 16 software to conduct descriptive statistics, examine variable correlations, develop a forecasting model, and classify the model's accuracy. Additionally, the forecasting model was used to several steel firms in Vietnam.

Research model

The team developed a formal study model with the following six elements determining the possibility of steel industry financial exhaustion based on previous theories and experimental research findings. Specifically, with the following six hypotheses:

H1: The circulating capital-to-total-assets ratio is inversely related to the likelihood of financial exhaustion.

H2: The cash-to-total-assets ratio is inversely related to the likelihood of financial exhaustion.

H3: The percentage of earnings before taxes and interest on total assets is inversely related to the likelihood of financial exhaustion.

H4: The size of the business is inversely related to the likelihood of financial exhaustion.

H5: Gross domestic product growth rate is negatively related to the likelihood of financial exhaustion.

H6: Inflation is positively related to the likelihood of financial exhaustion.

General Logit regression model form:

$$\text{Log} \left(\frac{P_o}{1 - P_o} \right) = \text{Log} \left\{ \frac{P(Y = 1)}{P(Y = 0)} \right\} = \beta_0 + \beta_i \cdot X_{it-1} + \mu_i + U_{it-1}$$

In which:

$P(Y=1) = P_o$ is the probability of financial exhaustion occurring

$P(Y=0) = 1 - P_o$ is the probability that financial exhaustion does not occur

3. Results

Wruck (1990) defined financial exhaustion as when a business's cash flow is insufficient to cover its present financial obligations. As a result, we will identify steel businesses that have reached financial exhaustion in this research article using the interest coverage ratio determined using the following formula:

$$\text{Interest coverage ratio} = \frac{EBIT}{\text{Interest expenses}}$$

Specifically, if the ability to pay interest is less than 1, the business is predicted to be likely to suffer from financial exhaustion. If the ability to pay interest is greater than 1, the business is not expected to be financially exhausted.

Table 1. Statistics describing the number of observations that are likely to suffer from financial exhaustion and are unlikely to be subject to financial exhaustion

Criteria	Number of bservations	Proportion
There is a possibility of financial exhaustion	27	20.77%
There is no possibility of financial exhaustion	103	79.23%

Source: Authors' calculation using Stata 16, 2022

Our research article examined 26 steel businesses listed on the HNX, HOSE, and UPCOM exchanges over a five-year period from 2016 to 2020, totaling 130 observations. The whole data sample is separated into two groups: those subject to financial exhaustion and those not subject to financial exhaustion. The following tables detail the descriptive statistics.

The number of observations, the average value of each variable, the standard deviation, and the greatest and smallest values are all included.

Table 2. Statistical table describing independent variables

Variable	WCTA	CASH	EBITA	SIZE	GDPR	INF
Average value	-0.1232744	0.0552348	0.0475087	14.01524	-2.868261	3.067624
Standard deviation	1.178577	0.076583	0.1510575	1.927373	0.3468545	0.3436636
The greatest value	0.7332373	0.527301	0.2732452	18.6946	-2.647896	3.438535
Smallest value	-8.014449	0.0000128	-1.218254	9.821301	-3.537017	2.643347
Number of observations	130	130	130	130	130	130

Source: Authors' calculation using Stata 16, 2022

The correlation coefficient between the model's independent and multilinear variables was then determined. The results of the pair correlation coefficient test indicated that the independent variables were not associated with one another, indicating that there were no indicators of similar events correlating between independent variables. Additionally, the independent variables were not multilinear.

Table 3. Results of correlation and multi-line coefficient testing

Variable	WCTA	CASH	Ebita	SIZE	GDPR	INF	Mean VIF
Correlation coefficient matrix							
WCTA	1.0000						
CASH	0.2150	1.0000					
EBITA	0.3256	0.1490	1.0000				
SIZE	0.0972	-0.2235	0.2129	1.0000			
GDPR	0.3486	0.0876	0.3420	0.4709	1.0000		
INF	0.0012	-0.0190	0.0854	0.0150	0.0127	1.0000	
Multi-line statistics							
VIF	1.17	1.16	1.20	1.13	1.02	1.01	1.11

Source: Authors' calculation using Stata 16, 2022

Finally, the team obtained the following model by running the Logit regression model at the times t and t-1:

Research model at time t:

$$\begin{aligned} \text{Log} \left(\frac{\text{Financial exhaustion} = 1}{\text{Financial exhaustion} = 0} \right) \\ = 31.53743 - 2.918193 * WCTA + 32.64786 * CASH - 148.4575 \\ * EBITA - 0.7 \end{aligned}$$

Research model at the time of t-1:

$$\begin{aligned} \text{Log} \left(\frac{\text{Financial exhaustion} = 1}{\text{Financial exhaustion} = 0} \right) \\ = 8.247388 - 0.6979484 * WCTA + 7.010734 * CASH - 13.15864 \\ * EBITA - 0.3036188 * SIZE + 5.681004 * GDPR + 3.197909 * INF \\ + \mu_t + U_{it} \end{aligned}$$

For the non-late variable regression model (model t), reflecting the extent of the factors affecting the likelihood of financial exhaustion of the listed steel industry enterprises as follows:

- (i) When the circulating capital-to-total-assets ratio is reduced by 1%, the probability of an enterprise experiencing financial exhaustion increases by approximately 0.1219%.
- (ii) When the cash-to-total asset ratio increased by 1%, the probability of the business falling into financial exhaustion also increased by about 1.364%.
- (iii) When the percentage of earnings before taxes and interest on total assets increased by 1%, the probability of the enterprise experiencing financial exhaustion decreased by 6.202%.
- (iv) When the business size increases by 1%, it reduces the probability of an enterprise experiencing financial exhaustion by 0.0301%.
- (v) When the growth rate of gross domestic product reached 1%, the probability of enterprises experiencing financial exhaustion increased by 0.1807%.

For the regression model using a 1-year late variable (t-1 model), the meaning of the values is explained as follows:

- (i) When the percentage of earnings before taxes and interest on total assets increased by 1%, the probability of the business experiencing financial exhaustion decreased by about 1.667%.
- (ii) When the business size increases by 1%, it reduces the probability of enterprise experiencing financial exhaustion by 0.0384%.
- (iii) When inflation in the economy increases by 1%, the probability of businesses experiencing financial exhaustion increases to 0.405%.

The two models t and t-1 demonstrate that, among financial, market, and macroeconomic variables, financial variables have the greatest impact on the probability of steel sector exhaustion, followed by macroeconomic variables and lastly market variables. Enterprise finances have a direct impact on their ability to operate and maintain a firm foothold in the economy, followed by the macroeconomic environment, which has a moderate impact on the economy of steel businesses and a negligible impact on the market.

The probability of financial exhaustion of a steel sector listed business is forecast using models. The team sent applications to the following businesses: (i) Dana Steel Joint Stock Company (DNY), which will be delisted from the HNX in 2020. Also, its trading registration on UPCOM will be canceled in 2021, and its securities registration with the Securities Depository will be canceled in 2021. (ii) Hoa Phat Group Joint Stock Company (HPG), which will continue to operate regularly.

After getting the equation expressing the model's output, the team applied it to the logistical accumulation probability function in order to anticipate financial exhaustion in the following manner:

With P_o the probability of financial exhaustion occurring, we have a process:

$$P_o = \frac{1}{1 + e^{-(\beta_o + \beta_i X_{it-1} + \mu_i + U_{it-1})}}$$

Model year t

$$P_o = \frac{1}{1 + e^{-(31.53743 - 2.918193 * WCTA + 32.64786 * CASH - 148.4575 * EBITA - 0.7222345 * SIZE + 4.326492 * GDPR - 2.347614 * INF + \mu_t + U_{it})}}$$

Model year t-1

$$P_o = \frac{1}{1 + e^{-(8.247388 - 0.6979484 * WCTA + 7.010734 * CASH - 13.15864 * EBITA - 0.3036188 * SIZE + 5.681004 * GDPR + 3.197909 * INF + \mu_t + U_{it})}}$$

The meaning of odds= value $\frac{P_o}{1-P_o} \geq 1$ or $P_o \geq 50\%$ the business is forecast to be financially depleted.

Table 4. Table of Forecast Results

Stock Code	Year	Year t	Year t + 1
DNY	2018	99.994%	24.777%
	2019	100%	68.344%
	2020	87.870%	73.761%
HPG	2018	0.00%	3.012%
	2019	0.00%	4.916%
	2020	0.00%	7.903%

Source: Authors' calculation using Stata 16, 2022

Commenting on the results in the table shows:

HPG is a big enterprise in the steel industry that operates in a normal and stable manner. As a result, HPG's forecasted outcome of financial exhaustion is always less than 10%. HPG's 2020 projection for the likelihood of depletion in 2021 yields a value of 7.903 percent in the one-year early forecast model. This demonstrates that, in light of HPG's current financial and macroeconomic conditions, the business remains viable for at least another year.

In comparison, DNY is a company that was delisted from the HNX in 2020 due to a high probability of depletion. The results indicated that DNY's chance of financial exhaustion was 68.344 percent by the end of 2019 (i.e. one year in advance), which is the clearest warning indication regarding the risk of financial exhaustion for this business. Additionally, in 2021, DNY canceled the transaction on UPCOM and canceled the securities registration with the Securities Depository. The results indicated that by the end of 2020 (i.e., within one year), the probability of DNY's financial exhaustion is 73.761 percent, which is also the clearest signal of risk. Financial depletion of this business in 2021 results in the cancellation of securities registration and trading on Upcom, as previously stated.

4. Discussion and Conclusion

The study's findings indicated that the variables had an effect on financial exhaustion, but their magnitude of influence varied across models. More precisely, as follows:

When financial, market, and macro variables are combined at time t , we observe five significant variables: the ratio of capital rotation to total assets, cash ratio to total assets, ratio collected before tax and interest on total assets, business size, growth rate of gross domestic product. The whole year of variables has a negative impact on the probability of financial exhaustion of steel enterprises. All financial factors are statistically significant except for the WCTA variable, which is statistically significant at 5%. This is also consistent with prior research conducted by Keige (1991), Kiragu (1993), Altman et al. (1977), Pranowo (2010), Widhiari & Merkusiwati (2015), Moch & colleagues (2018), and Dinh Thi Thu Ngoc (2019). Following that comes the cash variable, which has a statistical significance of 10%. This finding is also consistent with prior study conducted by Jiming & Weiwei (2011), Pham Thi Hong Van, and others (2018). EBITA, the final financial variable, is statistically significant at 5%. Platt (2006), Shumway (2001), Altman (1968), and Dinh Thu Ngoc (1968) have all used this interpretation previously (2019). This is also consistent with prior studies such as Ohlson (1980), Tinoco & Wilson (2013), and Vo Trung Nhan (2015). This result corroborates the economic consequences of prior studies such as Bunn & Redwood (2003) and Vo Trung Nhan (2015).

When the team ran the model at the time of the $t-1$ which also incorporated all three financial, market, and macro factors, the results show that there were sufficient financial, market, and macro variables that impacted the likelihood of financial exhaustion including the ratio collected before tax and interest on total assets, business size and inflation. The EBITA variable is statistically significant at 5% and is in line with the team's expectations. The SIZE variable is statistically significant at 10% and this is also in line with the team's expectations. Finally, the INF variable has statistical significance at 1%, in line with expectations and in accordance to previous studies by Mare (2012), Tinoco & Wilson (2013), Pham Vo Ninh Binh et al. (2018), Dinh Thu Ngoc (2019).

Long-term remedies are required to prevent restricted steel firms from succumbing to financial exhaustion. Domestic agencies and businesses must prioritize implementing significant and flexible solutions to maintain macroeconomic stability while also controlling inflation, promoting the economy vigorously, increasing the growth rate of steel enterprises, and providing premises and opportunities for businesses to thrive in the face of epidemics.

For state agencies

To begin, while closely monitoring the construction strategy toward industrialization and modernization, state agencies and the government must constantly monitor the strategy of destroying the steel industry within the 10-year socioeconomic development strategy and the fundamental objectives set forth in the Resolution of the Party's 13th National Congress.

Second, it is critical to prioritize research and broaden the strategic vision in order to assure the most effective implementation of the steel industry's development objectives. Additionally, the government should place a premium on tax incentive measures that foster enterprise growth.

Third, boost ore mining in order to develop a rich raw material market, thereby assisting domestic steel businesses in increasing their competitiveness.

Fourth, establish and complete investment funds using state budget and social security funds. Additionally, it is necessary to contribute to and invest in infrastructure and laboratories dedicated to the research and production of special steel products, not only to improve the quality of input materials used in domestic manufacturing industries, but also to increase exports to international markets, thereby reaffirming Vietnam's steel industry's position in the region and throughout the world.

Fifth, it is vital for entities within the Ministry, the Department of Industry and Research, to work with VSA when presenting policies to develop strategies and orientations for the steel industry's future development. Simultaneously, it is vital to continuously monitor production and market conditions, proactively resolving issues confronting domestic steel firms.

Sixth, it is necessary for the Department of Science and Technology to promote research, develop quality standards, and technical barriers in order to ensure an equal competitive environment; to assist laboratories in producing high-quality steels; and to research the primary steel in order to solidify its market position. It is vital for the Department of Trade Protection to pioneer and execute proactive trade defense solutions for steel products that adhere to international legal norms.

Finally, it is vital for the General Department of Market Management to strengthen market inspection and control, consequently offering timely answers to conditions of speculation hoarding, pricing fever, and commodities picking. On the side of the Export-Import Department, it is critical to have a strong grasp on the import and export situation in the country, particularly with regard to steel goods, and to swiftly implement suitable policies to stabilize the domestic manufacturing market.

For steel enterprises in Vietnam

To begin, Vietnam steel business managers must focus on their long-term financial strategies and their implications for the elements that contribute to financial exhaustion in order to maintain stable and sustainable operations, ensuring the business's long-term viability.

Second, the study's findings serve as a signal to assist businesses in monitoring their financial status, so that they may quickly spot warning indications of financial weariness and design appropriate solutions, thereby assisting businesses in mitigating losses and risks.

Thirdly, during the export process, firms must adhere to the Ministry of Industry and Trade's instructions, which include regular monitoring of information, particularly information on trade restrictions imposed on imported goods. Additionally, enterprises must prioritize diversifying export products, growing export markets, and avoiding excessive reliance on a single market to minimize the risk of export taxes.

Fourthly, VSA must rise to the challenge of supporting local steel firms while also contributing to market stabilization by protecting the reasonable rights and interests of the three parties involved: the state, the enterprise, and the consumer.

Additionally, financial depletion may be influenced by unmentioned internal and external causes. Thus, in future studies, the research topic might be narrowed to certain sectors or research professions with a greater number of listed firms in order to strengthen the research field's representation and trustworthiness. Additionally, additional research can be conducted on the entire subject to broaden the scope. Simultaneously, adjusting the lengthier study period and including additional factors from past studies or developing new ones to account for Vietnam's economic and social situations, and drawing new results.

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FACTORS AFFECTING INTERNATIONAL SUPPLY CHAIN COOPERATION OF VIETNAMESE SEAFOOD ENTERPRISES

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Abstract

The article aims to understand the influence of factors affecting cooperation in the international supply chain of Vietnamese seafood enterprises. Based on the previous theories and studies, the team inherited and developed a research model for international supply chain cooperation of Vietnamese seafood enterprises in the context of the COVID-19 pandemic affecting the international supply chain. The study used qualitative research methods and quantitative research methods based on data collected from 327 different seafood enterprises across the country. After researching, the authors conclude that the cooperation in the international supply chain of seafood enterprises in Vietnam is directly affected by 6 factors: trust level between the partners, the power of partners, the distance between partners, government policies, cooperation strategies of partners, and information sharing. All factors have a favorable impact on cooperation in the international supply chain in the long run but the power of partners is the most powerful. From there, the authors proposed solutions for Vietnamese seafood enterprises to participate in international supply chain cooperation more effectively, removing barriers in the cooperation process.

Keywords: *Cooperation in Supply Chain, Factors affecting collaboration, International Supply Chain, Seafood Enterprises.*

1. Introduction

The supply chain plays an important role in the whole business cycle of the enterprise. According to Michael Porter (1990), the supply chain is a transition from raw materials to finished products through processing and distribution to the end customer. Another definition holds that the supply chain is the network of organizations involved, through upstream and downstream links, in different processes and activities that create value in the form of products and services offered to the end consumers (Christopher, 1992). Mentzer et al. (2001) take a different perspective when defining the supply chain as a collection of three or more partners (organizations or individuals) directly involved in the flow of movement before and after products, services, finance, and/or information from origin to customer. In Vietnam, research on supply chains has only stopped in some industries in more thoroughly understanding the structure of supply chains.

To develop and maintain a stable and durable supply chain, businesses need to promote supply chain cooperation, especially international supply chain cooperation. In the study of Mentzer et al. (2000), cooperation is defined more broadly, as "a common set of joint activities of closely related businesses to accomplish goals that benefit each other." By working together and coordinating actions, supply chain participants become partners in an alliance (Monczka et al., 1998). Many companies seek to coordinate operations with other companies and work back and forth over time to produce superior performance (Anderson and Narus, 1990; Stern and Reeve, 1980). The underlying reason behind the cooperation is that a company can't compete successfully on its own while customers are more rigorously demanding products and services (Kotler, 1997). Therefore, cooperation increases the organization's ability to work across boundaries to build and manage unique value-added processes to better meet the needs of customers (Fawcett et al., 2008). The goal is to ensure higher performance than operating individually (Lambert et al., 1999).

The need for supply chain cooperation is due to global competitive pressures or risks from environmental fluctuations including changes in supply, demand, and technology, opportunities in new markets (Tate et al. 2010a; Chen et al. 2017). Companies enter into multi-stakeholder cooperation agreements to share both risks and benefits while accessing additional resources, improving their capacity to learn and transfer knowledge quickly, towards the goal of ensuring higher performance than operating individually (Lambert et al., 1999). This can also create a long-term competitive advantage for the business (Jap, 1999). Organizations have been working for many years to improve the efficiency of their internal supply chain operations, e.g. procurement, manufacturing, and logistics (Rae-Smith and Ellinger, 2002; Fawcett and Magnan, 2002).

It can be seen that in the supply chain there are many forms of potential cooperation, but can be divided into two main categories as Figure 1, first, vertical cooperation: can include cooperation with customers, internal cooperation, and cooperation with suppliers; and second, horizontal cooperation: including cooperation with competitors, internal cooperation and cooperation with other enterprises.

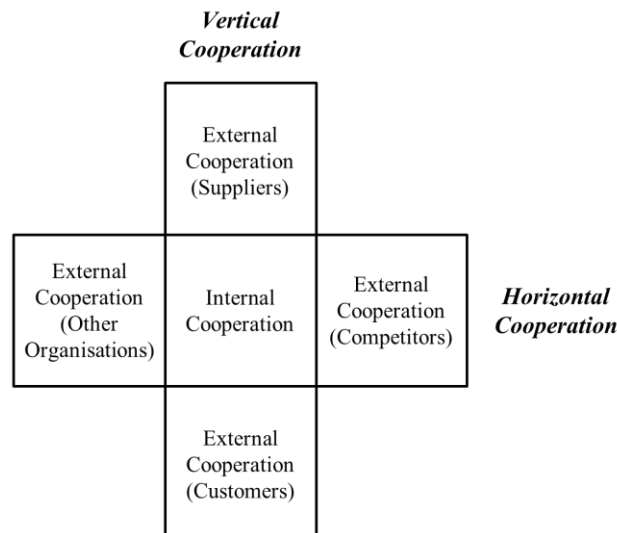


Figure 1. Scope of cooperation

Source: Authors' compilation

Although there are great roles and benefits, in Vietnam, cooperation in the international supply chain, typically the fisheries industry, is still not popular. This issue becomes even more urgent as the situation of the Covid-19 epidemic still raging and the international situation is changing. Therefore, the authors implemented the topic: "***Factors affecting cooperation in the international supply chain of Vietnamese seafood enterprises***" to identify the factors affecting this extremely important cooperation.

The team applied game theory, resource dependency theory, social exchange theory, collaborative network theory, and realism to find the factors that influence and identify the link between these factors and the international supply chain cooperation of the enterprise.

This article was structured into five parts: (1) Introduction; (2) Research Methods; (3) Results and (4) Discussion, Conclusion and Recommendations.

2. Method

2.1. Research model proposes

The team inherited the preceding research model with appropriate variables for the research process: The level of trust between partners (Huynh Thi Thu Suong, 2013); Power of partners (Kumar, 1996); Distance between partners (Van Donk, 2010); Government Policy (Mentzer et al., 2001); Partnership strategy of partners (Muckstadt et al., 2001); Information Sharing (Kim et al., 2006).

When comparing the research model of research works in the world, it is only possible to draw 5 factors of significance to the research problem of the topic. However, by looking up academic articles, some experts in the supply chain industry have emphasized the role of information sharing in international supply chain cooperation. Based on the operational practices of the industry, the author interviewed directly managers in the industry, the results of which all agreed with the meaning of the role of the information sharing factor. Therefore, the authors proposed a research model as shown in Figure 2:

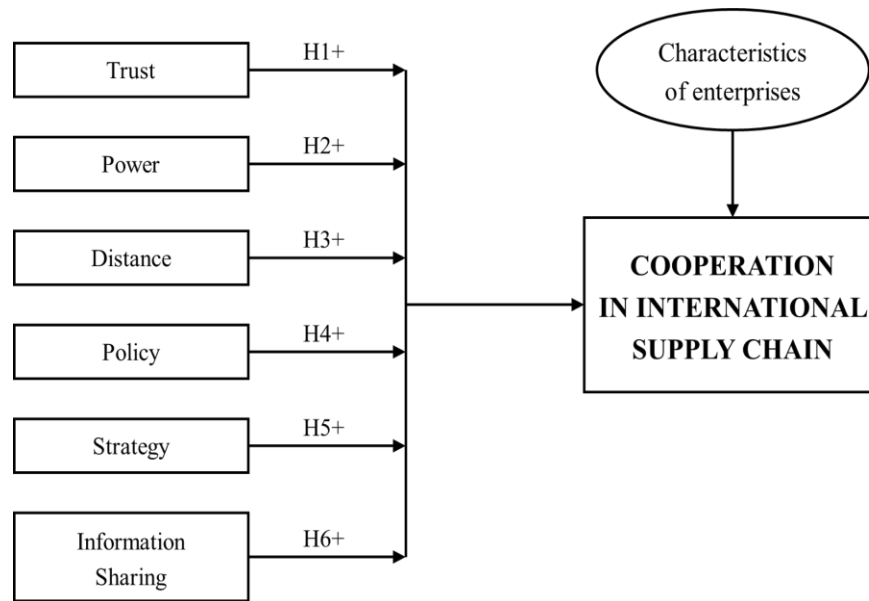


Figure 2. Proposed research model

Source: Authors' compilation

Based on the above research model, the study proposes the following research hypotheses:

Trust reflects trust in the partner and covers some aspects of weakness and uncertainty in the trusted partner (Smith, 1997). A successful relationship is characterized by mutual trust and businesses that trust each other to always be profitable, serve customers better and adapt more easily (Sin et al., 2002). Tangible assets can play an important role in fostering trust among intermediaries' partners (Clark, 1999). While subsequent studies suggest that trust is a function of citizens' relationship behaviors and frequent interactions. Both studies emphasize reliability among organizations to minimize the cost of administrative procedures (Lui, 2004).

H1: There is a positive relationship between the level of trust between partners and supply chain cooperation.

Power is considered the center of all business relationships (Hingley, 2005). The strength of a business or organization over a partner is determined by the extent to which the business or organization depends on other resources-specific resources (Inkpen et al., 1997). In a relationship, when a party has more power, it is more likely to pressure the less powerful party to make decisions in favor of the more powerful party (Kumar, 1996). In the supply chain, there is no close relationship between power and dependence. In the relationship between the buyer and the seller, the more unilateral power, the use of the contract with clear and detailed terms.

H2: There is a positive relationship between the power of partners and supply chain cooperation.

The gap between partners in the supply chain means referring to geographical, cultural, and organizational distances between partners in that supply chain (Van Donk, 2010). Distance in general has a certain effect on cooperation in the supply chain. That is, the closer the distance between partners, the more similar partners have in terms of culture, language, business practices. So it makes it easier for partners to choose each other and work together.

H3: There is a positive relationship between the gap between partners and supply chain cooperation.

Any business that wants to enter the supply chain in the industry but does not meet national and international policies and laws will be difficult to cooperate with (Tate et al., 2010b). A policy issued by the government of the partner or the partner itself will always have certain effects on the ability of partners to cooperate in the supply chain. The policy is not permanent but will likely change over time (Huynh Thi Thu Suong, 2013). In the complex and extensive operation of the supply chain, it is necessary to improve cooperation between businesses and governments, domestically and internationally, to control and manage risks in the international supply chain.

H4: There is a positive relationship between government policy and supply chain cooperation.

When researching the supply cooperation chain, the cooperation strategy consists of four basic contents: merger and acquisition strategy, capital streamlining strategy, manufacturing fusion optimization strategy, and new product introduction strategy (Anderson, 2004). Collaborative strategies include basic strategies for activities such as planning, forecasting, and supplementing collaborative content in the supply chain (Stadtler, 2005). The strategy of the partners in the chain includes strategies from suppliers, manufacturers, and distributors complementing each other to develop together, surely the higher the cooperation between partners and vice versa (Huynh Thi Thu Suong, 2013). A business that plans a supply chain management strategy reasonably will be more likely to strengthen cooperation in its chain (Doan Thi Hong Van, 2008).

H5: There is a positive relationship between the partners' cooperation strategy and supply chain cooperation.

Information sharing is the foundation of supply chain integration (Lee, 2000), and decisions about supply chain engagement are closely correlated with decisions about what information is shared and how it is shared. The configuration design of the supply chain not merely determines which companies should integrate, but also how the company's operations should be designed about the operations of both partners should decide what information the partners should access. Some comments in previous documents on supply chain management have stated the importance of cooperation and information sharing among chain participants (Stank et al., 2001). Information sharing and cooperation in the supply chain are closely related to the formation of the supply chain.

H6: There is a positive relationship between information sharing and supply chain cooperation.

2.2. Methods of collecting and analyzing data

In qualitative research, the authors conducted in-depth interviews with experts and senior leaders such as directors, deputy directors, heads of departments, deputy departments, and officials in charge of supply chain cooperation. The interviewees came from government agencies, economic experts, businesses, and seafood-related organizations in Vietnam such

as the Vietnam Association for Seafood Processing and Export (VASEP). The subjects interviewed with different characteristics will provide multidimensional and complete information for the study content, ensuring the achievement of the goal. Open-ended questions are included in the interview for participants to present their opinions under the author's guidance.

Qualitative research results show that all six factors affecting the international supply chain cooperation of Vietnamese seafood enterprises are accepted and no new factors are proposed. The factors included in the quantitative study are (1) The level of trust between partners (6 variables); (2) The power of partners (4 variables); (3) Distance between partners (3 variables); (4) Government policy (5 variables); (5) Cooperation strategies of partners (4 variables); (6) Information sharing (7 variables). A total of 29 observational variables of 6 factors affecting international supply chain cooperation of Vietnamese seafood enterprises were included in quantitative research.

About preliminary quantitative research by direct survey slip with a small study sample (20 enterprises). The majority of subjects accepted the survey slip but needed to adjust some of the words accordingly and design the question more rationally. The team of authors built the originally planned sample of 300 survey votes. This number of observations both met the sample size requirements of Hair et al. (2014) with 167 observations and Green's study with 115 observations. The expected number of observation slips of the group greater than the minimum sample size makes the study more valuable.

Of the 327 enterprises surveyed, the majority were small and medium-sized enterprises, of which up to 35% were enterprises [200;500] employees. The results of the survey of operating time of enterprises showed that the majority of operating enterprises [10;15] in year accounted for 32%, followed by operating enterprises [15;20] for 24% of the year. Seafood enterprises are mainly concentrated in the Mekong Delta region, accounting for 48% of the total seafood enterprises in the country. The main seafood items of enterprises are shrimp and fish, especially pangasius and tuna. Of which, shrimp accounted for 44%, pangasius 18%, tuna 8%, other fish 20%. In terms of processing type, up to 82% of frozen seafood processing enterprises, 11% of dry goods processing enterprises, 5% of fish sauce processing enterprises, and the number of canned processing enterprises accounted for only 2%.

The data is processed using SPSS 20 software. Data from independent variables are analyzed through steps: Cronbach Alpha scale reliability testing, EFA discovery factor analysis, correlation analysis, and linear regression analysis.

3. Results

Coefficient Analysis found that there were 6 scales used in the study with Cronbach's Alpha coefficient greater than 0.7 satisfying reliability and a total variable correlation coefficient greater than 0.4. Thus, it is possible to identify the scales that ensure reliability and are suitable for use in further analysis.

Table 1. Cronbach's Alpha Reliability Test Results Table

Scale	Variable number	Cronbach's Alpha	Smallest Corrected Item-Total Correlation
Level of trust between partners	7	0.924	0.755
The power of partners	5	0.822	0.604
Distance between partners	4	0.860	0.716
Government policy	4	0.772	0.429
Cooperation strategies of partners	5	0.761	0.490
Information sharing	3	0.917	0.723

Source: Authors' compilation from primary data

The scale consists of 29 observation variables, after testing the scale reliability using Cronbach's Alpha, which is included in the EFA factor analysis. The EFA factor analysis showed that there were 5 factors extracted at the Eigenvalue value of 1,574 and the total variance of 66.063% indicating that the model was appropriate. The KMO coefficient = 0.803 > 0.5 so the EFA factor is consistent with the study. In addition, the factor loading factor is > 0.5, so the observation variables have good statistical significance and are important in the elements, have practical meaning. Sig. (Bartlett's Test) = 0.000 < 0.05 shows that observed variables are correlated with each other overall.

Table 2. KMO and Bartlett Test Results for Independent Variables

	Result	Compare
KMO coefficient	0.915	0.5 < 0.915 < 1
Sig. value in Bartlett audit	0.000	0.000 < 0.05
Extracted variance	66.426%	66.426% > 50%
Eigenvalue Value	1.531	1.531 > 1
Approximate squared limb	4982.527	
df	406	

Source: Authors' compilation from primary data

The authors used the Pearson coefficient to analyze the correlation between quantitative variables. Pearson correlation coefficients between variables run from 0.136 to 0.601. That demonstrates the distinguishing value achieved, suggesting that the relationship between dependent variables (Procurement Decisions) and independent variables is statistically significant (Sig. < 0.05). Purchasing decision dependency variables are correlated favorably with variables Credit levels between partners, Power of partners, Distance between partners, Government Policies, Partnership Strategies of Partners, and Information Sharing. So other statistics can be used to find a link between independent variables and dependent variables.

Table 3. Correlation matrix between factors in the model

		TN	QL	KC	CS	CL	TT	HT
TN	Correlation coefficient	1	0.387**	0.136*	0.407**	0.310**	0.429**	0.601**
	Level of meaning		0.000	0.014	0.000	0.000	0.000	0.000
QL	Correlation coefficient	0.387**	1	0.284**	0.296**	0.298**	0.497**	0.680**
	Level of meaning	0.000		0.000	0.000	0.000	0.000	0.000
KC	Correlation coefficient	0.136*	0.284**	1	0.262**	0.227**	0.295**	0.388**
	Level of meaning	0.014	0.000		0.000	0.000	0.000	0.000
CS	Correlation coefficient	0.407**	0.296**	0.262**	1	0.324**	0.364**	0.513**
	Level of meaning	0.000	0.000	0.000		0.000	0.000	0.000
CL	Correlation coefficient	0.310**	0.298**	0.227**	0.324**	1	0.362**	0.517**
	Level of meaning	0.000	0.000	0.000	0.000		0.000	0.000
TT	Correlation coefficient	0.429**	0.497**	0.295**	0.364**	0.362**	1	0.610**
	Level of meaning	0.000	0.000	0.000	0.000	0.000		0.000
HT	Correlation coefficient	0.601**	0.680**	0.388**	0.513**	0.517**	0.610**	1
	Level of meaning	0.000	0.000	0.000	0.000	0.000	0.000	

Note: (**) meaningful correlation at 0.01 (1%)

Source: Authors' compilation from primary data

The linear regression equation with dependent variable is international supply chain cooperation:

$$HT = 0,226TN + 0,413QL + 0,129KC + 0,145CS + 0,189CL + 0,158TT$$

In it:

TN: Level of trust between partners

QL: The power of partners

KC: Distance between partners

CS: Government policy

CL: Cooperation strategies of partners

TT: Information sharing

HT: Cooperation in the international supply chain

The model consists of 6 independent variables TN, QL, KC, CS, CL, TT, and one HT dependent variable (International Supply Chain Cooperation). Based on the standardized Beta coefficient, the authors found that the Power factor of the partners had the strongest impact on the International Supply Chain Cooperation of Vietnamese seafood enterprises (Beta = 0.413). In contrast, the Distance factor between partners (Beta = 0.129). At the same time the Sig. value of the elements is less than 0.05, all hypotheses are accepted.

Table 4. Analysis of factors affecting international supply chain cooperation of Vietnamese seafood enterprises

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	Constant	0.767	0.171		4.474	0.000		
	TN	0.226	0.031	0.253	7.214	0.000	0.704	1.421
	QL	0.413	0.040	0.367	10.354	0.000	0.689	1.451
	KC	0.129	0.035	0.119	3.730	0.000	0.855	1.170
	CS	0.145	0.033	0.149	4.367	0.000	0.745	1.342
	CL	0.189	0.032	0.197	5.965	0.000	0.798	1.253
	TT	0.158	0.037	0.158	4.262	0.000	0.632	1.583

Source: Authors' compilation from primary data

The results of the study showed that there are 6 factors affecting the International Supply Chain Cooperation of Vietnamese seafood enterprises, in which the power of partners is most powerful.

4. Discussion and Conclusion

4.1. Factors affecting cooperation in the international supply chain of Vietnamese seafood enterprises

After studying the influencing factors, we can conclude that the cooperation in the international supply chain of seafood enterprises in Vietnam is directly affected by the factors of trust level between the enterprises. partners, the power of partners, the distance between partners, government policies, cooperation strategies of partners, information sharing. These factors directly affect cooperation in the long run. We can draw the following conclusions:

First, the level of credibility affects international supply chain cooperation. Like previous studies by Corbett et al. (1999), the level of trust between partners has a positive effect on international supply chain cooperation. When you don't trust each other, cooperation is very unlikely. The more partners trust and trust each other, the more favorable and beneficial cooperation is.

Second, there is a positive relationship between the power of partners and supply chain cooperation. According to the study, the team found similarities to previous studies by Hingley (2005) and Joyce and Mattew (2002). Moreover, the study also agrees with Kumar (1996) that the higher power party will have a greater influence on the actions and decisions to cooperate. Furthermore, the higher the power of the partner will positively affect cooperation, which is similar to the research of Heide (1994) and Lusch and Brown (1996).

Third, there is a positive relationship between the gap between partners and supply chain cooperation. The gap between partners here is not just geographical distance, cultural differences, and organizational structure in a supply chain. This was demonstrated in Van Donk's

research (2010). The more geographical distance is appropriate, the differences in culture and way of organizing, the less business style businesses will trust and be more confident in the decision to cooperate, which also helps the cooperation process become favorable.

Fourth, there is a positive relationship between government policy and supply chain cooperation. The authors support the results of previous studies by Tate et al. (2010b). Government policies can be detrimental or favorable to the business activities of businesses depending on the type of business, their origin, or the culture of the business. Thereby, it can create difficulties and risks for cooperation in the chain.

Fifth, the strategy in cooperation has a great impact on international supply chain cooperation. The results of the study are quite similar to the research results of Huynh Thi Thu Suong (2013) and Doan Thi Hong Van (2008). The business strategies of partners and strategies applied in a cooperative relationship directly affect the decision to cooperate and the effectiveness of cooperation. When the partners' strategies are appropriate and convenient businesses will tend to agree to cooperate in the higher supply chain.

Sixth, information sharing has a positive impact on decisions and cooperation in international supply chains. This conclusion coincides with the results of research by Kim et al. (2006), Sundram et al. (2018), Pamulety, and Pillai (2011). Previous studies have shown that sharing information improves operational efficiency. When cooperating, information sharing helps partners cooperate and handle work faster and more accurately, thereby improving the efficiency of international supply chains. Sharing information also increases the trust of partners, but it also needs to be carefully controlled when important information cannot be disclosed to other individuals or organizations.

4.2. Some policy implications from the study results

4.2.1 Recommended to state management agencies

To improve cooperation in the international supply chain of Vietnamese seafood enterprises, the authors make several recommendations to state management agencies as follows:

Firstly, there should be clear legal mechanisms and reform of administrative procedures such as reducing the burden on enterprises in complying with regulations related to fees, fees, accounting regimes, and simplifying financial statements while perfecting dispute handling solutions in the implementation of economic contracts.

Secondly, the State should issue support mechanisms and policies so that enterprises can easily cooperate in development with other enterprises, encourage cooperation, promote trade as well as create all favorable conditions to make Vietnam's seafood industry truly become the economic spearhead of the country.

Thirdly, it is necessary to further strengthen the propaganda and advocacy and training for enterprises in cooperation in the seafood supply chain; encourage models of organization, linkage, cooperation, production joint ventures, trade between the fields of seafood production, between raw material producers, processors, traders, seafood exporters, credit investors ... according to the supply chain of goods industry with the participation of management and organization of industry associations and associations.

Fourthly, promote the role of professional associations such as the Vietnam Tuna Association, Vietnam Seafood Processing, and Export Association, Vietnam Fisheries Association,... in conjunction with task force 970 of the Ministry of Agriculture and Rural Development informing information channels on seafood supply chains for enterprises, especially providing up-to-date information on legal mechanisms; advising businesses in the process of cooperation and handling if disputes occur... so that enterprises and cooperatives can link and cooperate, contributing to promoting effective production and consumption.

4.2.2. Recommendations to the Vietnam Fisheries

Association To enhance cooperation capacity for our seafood enterprises, the authors make several recommendations for VASEP as follows:

Firstly, it is necessary to promote the organization of trade promotion programs that are carried out periodically annually and publicly announced in the mass media, support enterprises, and production facilities to participate.

Secondly, regularly organize seminars to exchange experiences of the Law on Cooperatives in 2012 and relevant documents on how to organize and operate effective agricultural cooperative models, how to approach markets for consumption of aquatic products, build links between cooperatives, professional associations, and businesses.

Thirdly, actively build and develop the capacity to forecast the world seafood market in terms of changes in import policies, regulations on food safety and hygiene standards, quarantine requirements, import conditions for seafood products, prices and product types, demands and consumption trends, market fluctuations and product quality need to promptly supply businesses and manufacturers.

Fourthly, step by step build representative offices and distribution networks of Vietnamese seafood products. The Association needs to focus its trade promotion resources on major markets such as the EU, the US, Japan ... and emerging markets such as China, Hong Kong, Eastern Europe, The Middle East, North Africa, and South America. Fifth, it is necessary to promote the key role of the Association in negotiating and agreeing on international cooperation to ensure the rights and legality of the fisheries sector and seafood export products to improve the value of agricultural products and exports.

4.2.3. Recommendations to Vietnamese seafood enterprises

From the research results combined with the experience of cooperation in the supply chain of seafood enterprises in the world, the authors make several recommendations for Vietnamese seafood enterprises as follows:

First, build a business brand to increase credibility. To build trust for cooperation, what Vietnamese seafood enterprises need to do is focus on building a business image. Before cooperating, partners will usually consider several criteria, including brand, size, financial ability, how to pay, payment method,... Especially, for small and medium-sized enterprises, it is necessary to build a brand for themselves through the selection of quality products and services, ensuring the progress of delivery as well as type and quality; And especially on time to pay,...

Second, strengthen the building of corporate power. Strengthening the power of the business will enhance its position with partners while creating the motivation for cooperation in a more certain way. Accordingly, enterprises need to have a clear specific business strategy, at the same time increasing investment in upgrading modern machinery and technology to increase the value of supply products, improve productivity in business activities of enterprises...

Third, enhance information sharing between components of the supply chain in a way that is fair, transparent, fast, and efficient. Information sharing is key to improving the ability to respond to changes in customer needs and market uncertainty, which helps reduce the communication gap between members and can reduce supply chain performance. Observed practice shows that suppliers often do not offer exclusive to a single customer; Non-close cooperation relationships can cause shortages of materials.

Fourth, applicating of information technology in supply chain operations. With the support of information technology systems, the supply chain will operate more efficiently by ensuring the smooth flow of information, making more accurate supply chain decisions, and ensuring that the information posted is accurate and detailed. To be able to exploit this common data source, Vietnam's seafood supply chain can apply Blockchain technology - a database containing information that is simultaneously managed by multiple participants in the same system. In addition, in terms of the issue of traceability of fisheries to increase the level of trust between businesses, businesses can apply RFID technology to improve and improve the efficiency of supply chain management instead of documents and papers. In addition, with GIS technology, through information sharing, managers can collect and analyze hundreds of supply chains, develop and compare contingencies of plans, better control warehouse space to suit production strategies, forecast and balance supply and demand as well as manage potential risks.

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THE IMPACT OF HUMAN CAPITAL ON SOCIAL MOBILITY IN VIETNAM

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Abstract

The paper investigates the impact of human capital on social mobility in Vietnam during the 2010–2018 period. Using data from the Vietnam Household Living Standard Survey in 2010, 2014, and 2018, it finds that human capital not only plays an important role in increasing upward mobility but also contributes to decreasing downward mobility. Besides, ethnicity and geography have a substantial impact on social mobility. The result serves as the basis for the authors' recommendations to the government in order to increase upward mobility for the disadvantaged group in Vietnam.

Keywords: *human capital, social mobility, income mobility, employment mobility*

1. Introduction

Social mobility is considered as the movement across different social positions of an individual or a household over time (Blau and Duncan, 1967; Torche, 2015). There are many ways to approach social mobility. For example, in the status-oriented approach, social mobility can be “upward” or “downward” in direction of an individual from one social position to another (vertical social mobility); or backward or forward movement of a group in the same social status (horizontal social mobility) (Fitcher, 1938). Besides, in the structure-oriented approach, Rooney Stalk (1985) has divided social mobility into structural social mobility (which is the movement in social status between the upper and lower position of society) and non-structural social mobility (which takes place when some individuals have

a decrease in position/ social status creating opportunities for other individuals to moving forward, take their place in the social hierarchy). Moreover, social mobility can be either a movement of position/ social status of a person into adulthood in comparison with their parents (intergenerational social mobility); or over the years in the life cycle (intragenerational social mobility) in the generation-oriented approach (Nguyen, C. V., & Nguyen, L. T., 2019). This approach is often applied within the household and is considered a clear, reliable measurement (David, 1991). In order to match the research objective and the scope of research in the household in Vietnam, this paper will also approach social mobility in the generation.

Human capital plays a very important factor in social mobility (Psacharopoulos and Patrinos, 2004). Approaching human capital from an individual perspective, Schultz (1961) states that human capital is not only the knowledge, skills but also other factors such as physical, mental, and moral characteristics (Gableta, 1998), attitudinal and behavioral factors (Rastogi, 2002) associated with an individual. Broadly, OECD (2012) agrees that human capital is the knowledge, skills, abilities, and characteristics belonging to individuals, which can facilitate the creation of welfare for persons, society, and the economy. Approaching human capital from an enterprise perspective, human capital is considered a resource helping enterprises gain competitive advantage and operate effectively (Barney, 1991). Human capital can be expressed through creativity and problem solving, leadership ability, management skills, or the synthesis of knowledge, skills, and abilities of an individual (Grodzicki, 2003). Although the concept of human capital is used widely with complicated and different definitions, the OECD concept of human capital from an individual perspective not only fully refers to the components of human capital such as knowledge, and experience but also emphasizes the benefit of human capital to both individuals and the economy. Therefore, this paper will approach human capital based on the OECD concept.

When studying the influence of human capital on social mobility, most research relies on two hypotheses: First, the educational hypothesis indicates that human capital is considered as a formation by investment in skills through formal education and/or experience. In other words, the important factors of human capital are knowledge and skills that can be improved through an increase in educational quality, thereby boosting productivity and income individual and social mobility (Psacharopoulos and Patrinos, 2004; Schultz, 1997, 2002). Specifically, Blau and Duncan (1963) measured human capital by taking education as the central mechanism through which advantages/disadvantages are passed from generation to generation, then concluding the impact of the education system on improving social mobility. Similarly, Oxfam (2018) demonstrates that the higher the education of the householder is, the more likely the movement from low-income groups to higher-income groups of families is. Second, the income hypothesis shows a relationship between social mobility and human capital (which is measured by the economic, social, and educational status of parents in comparison with their children, but the conclusions are still contradictory). Most research in the twentieth century reveals that the more affluent families are, the more likely attention to their children's education is. As a result, their children get

better grades, set higher ambitions for the future, and have advantages when entering the labor market (Sewell and Hauser, 1980). Moreover, Goldthorpe (2013) also argue that upper-class parents can find better jobs for their children because of their influence and power. This increases the gap in education and income between their children from prosperous families and from needy families, thereby decreasing the opportunities for social mobility of disadvantaged groups. Other studies show that the social mobility of disadvantaged groups can be hindered by education (especially privileged/discriminatory education), depending on the specific background of each country in each period and policy for each social group... (Mitnick et al., 2013; Blanden and Macmillan, 2014)

While most studies indicate that human capital has a positive impact on social mobility (Deininger and Squire, 1998; Glewwe, 2002; Goldthorpe, 2013), there are some research find a negative relationship (Mitnik et al., 2013; Blanden and Macmillan, 2014). From the above contradiction, this paper is expected to shed new light on the theory of the influence of human capital on social mobility. At the same time, the function of education in upward social mobility is limited or even tends to decrease in Vietnam-a developing country (Brand-Weiner 2015). Specifically, the average income of an individual with a post-secondary degree is only 40-50% more than that of an individual with a primary school degree (Baulch et al., 2012). Therefore, this paper also is expected to serve as a reference basis for managers to make better decisions about the quality of education, thereby promoting social mobility in Vietnam. The structure of the article includes 4 sections: The research method are mentioned in part 2, after the introduction, the third part is the research results; finally, the discussion and conclusion are presented in part 4.

2. Method

2.1. Sample and data collection

In order to achieve the objectives, the data used in this paper were collected from VHLSSs in 2010,2014, and 2018. The VHLSSs are conducted by the GSO every two years. In this paper, we use the three VHLSSs to analyze the change over 2010–2014 and the change over 2014–2018. The surveys contain household-level and individual-level data. Data include basic demography, employment and labor force participation, education, health, income, expenditure, housing, lands, and participation of households in poverty alleviation programs.

The number of households sampled in the VHLSSs 2010, 2014, and 2018 is 9399, 9398, and 9396, respectively. The number of individuals from these sampled households in the VHLSSs for 2010, 2014, and 2018 is 36,999, 35,520, and 35076, respectively. The VHLSSs are representative at the urban/rural and regional levels. There are panel households (1914 households) between the 2010 VHLSS and 2014 one. There are also panel households (1912 households) between the 2014 VHLSS and 2018 one. However, there are a few panel households between the 2010 VHLSS and 2018 one. As a result, we don't use panel data for this research.

2.2. Variables and measurements

Independent variables. This paper uses different variables to examine social mobility. Social mobility is divided into income mobility and employment mobility. Income

mobility includes upward mobility, downward mobility, and income change. Employment mobility contains occupation skills, wage jobs, and employment sectors.

Dependent variable. Human capital is measured by two items:

The highest education level, including Less than primary education; Primary; Lower-secondary; Upper-secondary; Technical degree

The schooling years.

Control variables. are measured by using information from the VHLSSs.

Gender: is a dummy variable that equals 1 for male and equals 0 for female.

Age: is the age of the household head or individual

Ethnic: is a dummy variable that equals 1 for Kinh, Hoa, and equals 0 for rural.

Urban: is a dummy variable that equals 1 for urban and equals 0 for rural.

Several previous studies have shown that demographic characteristics consisting of gender, age, ethnicity, and geographical location have an impact on intergenerational mobility, especially in high-income countries, e.g. Black and Devereux (2010); Corak (2013a); etc

Household size: is calculated by the number of household members.

Proportion of children below age 15: is measured by the ratio of the number of children below age 15 and the number of household members.

Proportion of members above age 60: is measured by the ratio of the number of members above age 60 and the number of household members.

Empirical studies point out that family structure and household size can affect children's human capital and indirectly influence their mobility (Becker and Lewis, 1973; Becker and Tomes, 1976).

2.3. Research Method

Both descriptive statistics and regression analysis were utilized for our research objectives. First, we compared social mobility across other groups: gender, age, education, rural/urban, and ethnicity. Regression analysis using OLS Equation was employed to examine the impact of human capital on social mobility, controlling for other factors in the models. Firstly, we model the income mobility as follows:

$$Income_{j,\Delta t} = \beta_0 + \beta_1 Human\ capital_{j,t-1} + \beta_2 X_{j,t-1} + \epsilon_{j,\Delta t} \quad (1)$$

where $Income_{j,\Delta t}$ is the dependent variable indicating the mobility of household j across income quintiles between years t and $t-1$. As explained in the next section, we measure income mobility by both upward and downward mobility; that is an increase and a decrease in income between years t and $t-1$. The explanatory variables are measured in the original year; that is, year $t-1$. $X_{j,t-1}$ is a vector of household j 's head and household j characteristics including age, gender, ethnicity, household size, proportion of children below age 15, proportion of members above age 60. $Human\ capital_{j,t-1}$ is the human capital of household j 's head.

We use the panel data between the 2010 and 2014 VHLSSs to define the income mobility of households over the 2010-2014 period, the panel data between the 2014 and 2018 VHLSSs to define the income mobility of households over the 2014-2018 period.

There are a few panel households between the 2010 VHLSS and 2018 one. Thus, we cannot use panel data techniques such as household fixed-effects or random-effects regressions. Instead, we append two above panel data and use OLS regression to estimate model I.

We also model the intra-generational mobility of employment of individuals using the following regression:

$$Employment_{i,j,\Delta t} = \beta_0 + \beta_1 Human\ capital_{i,j,t-1} + \beta_2 X_{l,j,t-1} + \epsilon_{j,\Delta t} \quad (2)$$

where $Employment_{i,j,\Delta t}$ is the dependent variable measuring the employment mobility of individual i in household j over the period $t-1$ and t . X is a vector of individual i and household j characteristics including age, gender, ethnicity, household size, proportion of children below age 15, proportion of members above age 60. $Human\ capital_{i,j,t-1}$ is the human capital of individual i in household j . It should be noted that we estimate equation I using household-level data and equation II using individual-level data. The mobility of employment is defined by the change in employment over the 2010–2014 period and by the change over the 2014–2018 period. In both Equations (1) and (2), we use the Robust standard errors to fix the defect in the model.

3. Results

3.1. Income mobility

Descriptive Analysis

Table 1. Income mobility of households over 2010 – 2014, 2014 – 2018

Groups	Upward mobility		Downward mobility		Income change	
	% moving up from the bottom 20% to a higher quintile	% moving up from the bottom 40% to a higher quintile	% moving down from the top 40% to a lower quintile	% moving down from the top 20% to a lower quintile	Absolute change in per capita income	Relative change in per capita income
Genders						
Male	38.41	26.75	32.32	48.39	16080.13	66.99
Female	38.84	27.44	29.76	42.5	12650.08	57.78
Age						
Age 15-30	18.18	11.89	33.85	56	8255.49	49.69
Age 31-60	41.72	28.82	30.26	43.68	13807.29	60.60
Education						
Less than primary school	31.43	19.32	51.85	60.61	10156.57	65.66
Primary	41.05	28.15	42.75	55.10	12157.58	64.63
Lower-secondary	48.5	33.25	30.96	49.04	14031.48	61.61
Upper-secondary	50.00	40.58	21.94	44.16	17532.3	64.29
Technical degrees	46.67	46.88	18.1	33.21	17584.63	49.71
Rural/urban						
Rural	38.26	25.11	36.14	50.15	11752.56	61.45
Urban	46.00	46.34	23.13	38.48	18308.20	57.70
Ethnicity						
Kinh, Hoa	52.96	35.48	29.42	43.3	14963.89	60.63
Ethnic minorities	23.62	10.40	50.00	66.67	6363.78	54.60
Total	38.75	27.3	30.42	44.14	13448.87	59.57

Source: Estimates from VHLSS 2010, 2014, and 2018

Table 1 shows the proportion of households moving up and down across income quintiles over the 2010-2014 and 2014-2018 periods. We choose the two bottom quintiles to analyze how households below the average improve their economic position over time. Furthermore, our purpose is to examine the characteristics of people who can move from the poorest and near poorest quintiles to higher quintiles.

The results reveal that there is a large difference in income mobility among population groups. Specifically, around 52.96% of Kinh and Hoa households in the poorest quintile moved to a higher income quintile, while this figure for ethnic minorities was only 23.62%. In addition, urban households are more likely to move up than rural households, the proportion is 46.00% and 38.26%, respectively.

The results also present that income mobility is related to characteristics of household heads, including gender, age, and level of education. Regarding the gender of the household head, there is no significant disparity in the upward mobility of income between male-headed households and female-headed households. In terms of household head age, households with old heads are relatively more likely to be mobile than those with younger heads. During the 2010-2014 and 2014-2018 period, the percentage of households with heads aged 31-60 moved from the bottom quintile to a higher quintile is 41.71%, while only 18.18% of households with heads below the age of 31 moved from the bottom quintile to a higher quintile. Because of less experience, young people find it difficult to move up.

Education, especially post-secondary education (college and above) plays an important role in income mobility. 50% is the percent of households with a head with post-secondary education moved from the bottom to a higher income quintile over the period of 2010-2014 and 2014-2018. For households with heads with a lower level of education, these figures are only 31.43% and 41.05%, correspondingly.

We also consider the downward movement from the highest income quintile to the lower-income quintile. Kinh and Hoa are less likely to have downward mobility than ethnic minorities. Households with young heads and male-headed households are more likely to move down. Moreover, education is a vital factor in reducing the downward mobility of households.

In the last two columns of Table 1, we assess the relative and absolute income mobility indexes (Fields and Ok, 1996, 1999). The absolute change index is equal to the average of the absolute difference between the 2010 income and the 2014 income, between the 2014 income and the 2018 income. The relative change index is equal to the average of the absolute change divided by the per capita income in the base year. Table 1 shows that male-headed households have higher mobility than female-headed households. Households with young heads are less likely to move than households with older heads. Households with highly educated heads have higher absolute mobility than those with low education. However, as the basic income of households with highly educated heads is higher, their relative mobility is lower.

Impact of Human capital on Income mobility

The impact of human capital on income mobility is given in Table 2 & Table 3. Table 2 reports the impact of the highest education level, while the impact of the number of formal schooling years is reported in Table 3.

The results present that human capital has a positive and statistically significant impact on the upward mobility of income and a negative and statistically significant impact on the downward mobility of income regardless of how it is measured. Specifically, in Table 2, households with highly educated heads are more likely to move from the poorest and near-poorest groups to higher-income groups. The probability of upward income mobility also increases with more years of schooling.

Unlike the statistical analysis described in Table 1, the regression results have not proven the influence of the household head's age on income mobility. The results show that the gender of the household head and household size have a negative and statistically significant impact on household income mobility. Furthermore, ethnicity is also correlated with income mobility. Specifically, compared with Kinh households, ethnic minority households are more likely to move down but less likely to move up in income mobility. In addition, households with more children and more elderly people tend to move down to a lower income quintile. Obviously, more dependents would increase the economic burden for households and hinder their income. Finally, the regional variables are correlated with income mobility, urban households are more mobile than rural households.

Table 2. The impact of the highest education level on income mobility over 2010-2014, 2014-2018

Explanatory variables	Dependent variables					
	Moving up from the bottom 20% to a higher quintile	Moving up from the bottom 40% to a higher quintile	Moving down from the top 40% to a lower quintile	Moving down from the top 20 % to a lower quintile	Absolute change in per capita income (Fields and Ok (1999) index)	Relative change in per capita income
sexhead	0.0742 (0.0471)	0.0058 (0.0300)	-0.0032 (0.0287)	-0.0675 (0.0448)	-2,242.44* (1,169.99)	-0.0819* (0.0468)
agehead	0.0010 (0.0017)	-0.0004 (0.0010)	0.0005 (0.0015)	0.0014 (0.0023)	-1.68 (30.51)	-0.0013 (0.0019)
ethnic	0.3033*** (0.0411)	0.2439*** (0.0230)	-0.1869*** (0.0603)	-0.2201** (0.0905)	5,927.54*** (678.55)	0.0565 (0.0521)
Primary	0.0327 (0.0387)	0.0404 (0.0269)	-0.0880* (0.0505)	-0.0341 (0.0860)	1,023.29 (1,038.71)	-0.0534 (0.0637)
Lower-secondary	0.0767 (0.0480)	0.0497* (0.0283)	-0.1898*** (0.0492)	-0.0768 (0.0786)	1,808.27** (872.64)	-0.0880 (0.0555)
Upper-secondary	0.0651 (0.0957)	0.1093* (0.0565)	-0.2591*** (0.0521)	-0.1166 (0.0894)	4,074.85** (1,637.86)	-0.0920 (0.0741)
Technical degrees	0.0875 (0.1218)	0.1818*** (0.0579)	-0.3140*** (0.0474)	-0.2313*** (0.0768)	4,007.19*** (1,225.83)	-0.2614*** (0.0576)
hhsiz	-0.0162 (0.0107)	0.0018 (0.0077)	-0.0065 (0.0099)	-0.0036 (0.0155)	-523.24** (240.90)	0.0055 (0.0129)
pchild	-0.3310*** (0.0915)	-0.3155*** (0.0618)	0.2083*** (0.0793)	0.2547** (0.1281)	-11,190.23*** (1,860.17)	-0.2465** (0.1180)
pelderly	-0.3906*** (0.0875)	-0.3314*** (0.0481)	0.0932 (0.0639)	0.0132 (0.0945)	-6,152.37*** (1,637.76)	-0.1753** (0.0793)
urban	0.0148 (0.0687)	0.1439*** (0.0404)	-0.0853*** (0.0263)	-0.0733* (0.0428)	4,072.24*** (1,109.86)	-0.0352 (0.0437)
Constant	0.3175*** (0.1019)	0.1917*** (0.0650)	0.6734*** (0.1054)	0.7746*** (0.1654)	12,899.10*** (2,136.19)	0.9280*** (0.1287)
Observations	787	1,590	1,397	666	3,826	3,826
R-squared	0.145	0.137	0.089	0.060	0.048	0.010

*** p<0.01, ** p<0.05, * p<0.1

Source: Estimates from VHLSS 2010, 2014, and 2018

Table 3. The impact of the number of formal schooling years on income mobility over 2010-2014, 2014-2018

Explanatory variables	Dependent variables					
	Moving up from the bottom 20% to a higher quintile	Moving up from the bottom 40% to a higher quintile	Moving down from the top 40% to a lower quintile	Moving down from the top 20 % to a lower quintile	Absolute change in per capita income (Fields and Ok (1999) index)	Relative change in per capita income
sexhead	0.0671 (0.0467)	0.0074 (0.0302)	0.0075 (0.0284)	-0.0610 (0.0450)	-2,404.67** (1,155.00)	-0.0810* (0.0463)
agehead	0.0013 (0.0017)	-0.0002 (0.0011)	-0.0003 (0.0014)	0.0006 (0.0023)	6.63 (31.10)	-0.0016 (0.0019)
ethnic	0.2930*** (0.0417)	0.2413*** (0.0234)	-0.1607*** (0.0598)	-0.1922** (0.0927)	5,620.73*** (718.05)	0.0643 (0.0521)
Schooling years	0.0123** (0.0052)	0.0087*** (0.0031)	-0.0370*** (0.0041)	-0.0285*** (0.0068)	425.83*** (101.07)	-0.0174*** (0.0054)
hhsz	-0.0157 (0.0106)	0.0017 (0.0078)	-0.0084 (0.0097)	-0.0034 (0.0156)	-508.40** (242.28)	0.0060 (0.0128)
pchild	-0.3217*** (0.0909)	-0.3098*** (0.0615)	0.2056*** (0.0784)	0.2384* (0.1280)	-10,895.38*** (1,848.62)	-0.2581** (0.1181)
pelderly	-0.3891*** (0.0868)	-0.3284*** (0.0482)	0.0863 (0.0631)	0.0034 (0.0961)	-5,961.60*** (1,622.20)	-0.1876** (0.0791)
urban	0.0098 (0.0676)	0.1509*** (0.0407)	-0.0799*** (0.0259)	-0.0719* (0.0426)	4,156.59*** (1,055.66)	-0.0542 (0.0433)
Constant	0.2767*** (0.1040)	0.1704*** (0.0657)	0.8162*** (0.1011)	0.9210*** (0.1665)	11,326.30*** (2,362.35)	0.9786*** (0.1319)
Observations	787	1,590	1,397	666	3,826	3,826
R-squared	0.148	0.134	0.097	0.058	0.048	0.007

*** p<0.01, ** p<0.05, * p<0.1

Source: Estimates from VHLSS 2010, 2014, and 2018

3.2. Employment mobility

Descriptive Analysis

Table 4. Employment mobility of households over 2010 – 2014, 2014 – 2018

Groups	Occupation mobility		Wage-job mobility		Sector mobility	
	% moving up from unskilled to skilled and non-manual	% moving down from skilled and non-manual to unskilled	% moving from self-employed to wage jobs	% moving from wage jobs to self-employed	% moving from agricultural to non-agricultural	% moving from non-agricultural to agricultural
Genders						
Male	21.52	22.35	11.35	20.32	16.05	14.44
Female	24.21	19.34	16.92	20.36	18.05	14.72
Age						
Age 15-30	24.23	16.12	23.24	15.16	20.93	12.54
Age 31-60	22.32	22.16	11.38	22.91	15.81	15.35
Education						
Less than primary education	14.7	42.22	9.99	29.04	9.62	30.18
Primary	22.22	28.64	13.27	27.79	15.32	18.38
Lower-secondary	25.02	22.25	15.21	23.51	21.63	18.05
Upper-secondary	36.33	18.92	18.11	18.38	28.8	8.53
Technical degrees	43.33	7.58	17.74	11.61	25.38	5.56
Rural/Urban						
Rural	21.35	26.4	13.77	24.4	16.42	21.46
Urban	34.68	11.13	14.54	12.9	24.05	4.01
Ethnicity						
Kinh, Hoa	29.78	19.01	14.58	18.72	20.92	11.37
Ethnic minorities	10.45	44.19	12.21	35.56	9.74	47.6
Total	22.83	20.71	13.91	20.34	17.03	14.59

Source: Estimates from VHLSS 2010, 2014, and 2018

Table 4 shows the employment mobility of households over the period 2010-2014, 2014-2018. The results reveal that there is substantially large occupation mobility: 22.83% of unskilled workers became skilled or non-manual workers. However, there was also downward mobility: 20.71% of skilled and non-manual workers had unskilled jobs. Meanwhile, wage-job mobility has a smaller difference: a 13.91% increase in self-employed workers switching to wage jobs; in the opposite direction, the percentage of people switching wage jobs to self-employed jobs relatively decreased to 20.34%. Finally, the proportion of sector mobility is still low, the movement from agriculture to non-agriculture employment is 17.03% and from non-agriculture to agriculture is 14.59%.

There is only a small difference in employment mobility between men and women. In terms of age, older people had lower movement from self-employed to employed employment, from skilled or non-manual jobs, and higher movement from employed to self-employed employment, from skilled or non-manual jobs than young people. Higher levels of education help people find a skilled or non-manual job and reduce the downward mobility

from a skilled to an unskilled job. Rural people and ethnic minorities are less likely to move up and more likely to move down in employment than urban, Kinh and Hoa people.

Impact of Human capital on Employment mobility

The impact of human capital on employment mobility is given in Table 5 & Table 6. The dependent variables include the change in occupation, employment status, and economic sectors. The meaning of occupational skills is similar to Brand-Weiner et al. (2015). The categories are unskilled manual, skilled manual (e.g. craft and related trades workers, machine operators), and non-manual (e.g. service and sales workers, technicians, managers). Non-manual occupation is considered highly skilled. The employment sector is classified into agriculture, industry, and services. Workers in the agricultural sector tend to have lower skills and income than workers in the other two sectors. Table 5 reports the impact of the highest education level, while the impact of the number of formal schooling years is reported in Table 6.

In all models, the coefficients on human capital variables are statistically significant and positive. For instance, an additional year of formal schooling would increase the probability of moving up from unskilled to skilled or non-manual, moving from self-employed to wage jobs, and moving from agricultural to non-agricultural. In Table 5, the result indicates that the probability of moving up from unskilled to skilled or non-manual, moving from self-employed to wage jobs, and moving from agricultural to non-agricultural also increases with a higher level of qualification.

We also found that gender has a significant effect on employment mobility. Specifically, men are less likely to move down from skilled and non-manual occupations to unskilled occupations than women. They are also more likely to move from self-employed to wage jobs than women.

Table 6 shows that there is an U-shaped non-linear relationship between age and moving down from skilled and non-manual to unskilled, from wage jobs to self-employed and from non-agricultural to agricultural employment. Specifically, the higher the age is, the higher the ability to move down from skilled and non-manual to unskilled, from wage jobs to self-employed, from non-agricultural to agricultural is. This is shown by the positive correlation between age and moving down from skilled and non-manual to unskilled, moving from wage jobs to self-employed, moving from non-agricultural to agricultural. However, when age increases to a certain threshold, the ability to move down from skilled and non-manual to unskilled, moving from wage jobs to self-employed, moving from non-agricultural to agricultural increases. The research shows the opposite effect of the age squared variable and the moving down variable from skilled and non-manual to unskilled, from wage jobs to self-employed, from non-agricultural to agricultural.

In addition, ethnicity also has an influence on employment mobility. Compared with ethnic minorities, the Kinh and Hoa ethnic groups have more ability to move up from unskilled to skilled and non-manual, from self-employed to wage jobs, from agricultural to non-agricultural and vice versa.

Geographically, urban residents are less likely to move down from skilled and non-manual to unskilled, moving from wage jobs to self-employed, moving from non-agricultural to agricultural in comparison with people in rural areas.

Household size, proportion of children below age 15, Proportion of members above age 60 have barely demonstrated an effect on employment.

Table 5. The impact of the highest education level on employment mobility over 2010-2014, 2014-2018

Explanatory variables	Dependent variables					
	% moving up from unskilled to skilled and non-manual	% moving down from skilled and non-manual to unskilled	% moving from self-employed to wage jobs	% moving from wage jobs to self-employed	% moving from agricultural to non-agricultural	% moving from non-agricultural to agricultural
sex	0.0221*	-0.0237*	0.0486***	-0.0156	0.0107	-0.0029
	(0.0133)	(0.0121)	(0.0104)	(0.0163)	(0.0127)	(0.0107)
age	0.0036	-0.0123**	-0.0083**	-0.0168***	0.0031	-0.0142***
	(0.0044)	(0.0058)	(0.0034)	(0.0065)	(0.0040)	(0.0047)
agesq	-0.0001	0.0002**	0.0000	0.0003***	-0.0001*	0.0002***
	(0.0001)	(0.0001)	(0.0000)	(0.0001)	(0.0001)	(0.0001)
ethnic	0.1856***	-0.2294***	0.0472***	-0.1579***	0.1075***	-0.3310***
	(0.0195)	(0.0388)	(0.0164)	(0.0416)	(0.0178)	(0.0404)
Primary	0.0185	-0.1004***	0.0071	0.0329	0.0191	-0.0637**
	(0.0186)	(0.0368)	(0.0143)	(0.0339)	(0.0173)	(0.0273)
Lower-secondary	0.0368*	-0.1609***	0.0223	-0.0153	0.0784***	-0.0649**
	(0.0208)	(0.0365)	(0.0152)	(0.0334)	(0.0187)	(0.0280)
Upper-secondary	0.1458***	-0.1693***	0.0325	-0.0402	0.1381***	-0.1287***
	(0.0344)	(0.0395)	(0.0232)	(0.0384)	(0.0335)	(0.0272)
Technical degrees	0.2085***	-0.2825***	0.0486*	-0.1112***	0.1208***	-0.1556***

Explanatory variables	Dependent variables					
	% moving up from unskilled to skilled and non-manual	% moving down from skilled and non-manual to unskilled	% moving from self-employed to wage jobs	% moving from wage jobs to self-employed	% moving from agricultural to non-agricultural	% moving from non-agricultural to agricultural
	(0.0490)	(0.0349)	(0.0261)	(0.0313)	(0.0391)	(0.0266)
hhsz	-0.0056	0.0021	-0.0061	-0.0046	-0.0046	-0.0058
	(0.0059)	(0.0057)	(0.0042)	(0.0069)	(0.0046)	(0.0053)
pchild	0.0231	-0.0283	-0.0001	0.0656	-0.0273	0.0098
	(0.0438)	(0.0436)	(0.0350)	(0.0521)	(0.0409)	(0.0383)
pelderly	0.0088	-0.0172	0.0615	0.1360*	0.0930	0.0536
	(0.0696)	(0.0631)	(0.0527)	(0.0712)	(0.0681)	(0.0571)
urban	0.0723**	-0.1075***	0.0028	-0.0754***	0.0493	-0.1338***
	(0.0329)	(0.0170)	(0.0163)	(0.0183)	(0.0351)	(0.0126)
Constant	0.0734	0.8060***	0.3509***	0.5969***	0.1040	0.7999***
	(0.0829)	(0.1138)	(0.0712)	(0.1258)	(0.0770)	(0.0923)
Observations	3,355	3,182	4,207	2,330	3,247	3,290
R-squared	0.076	0.114	0.035	0.077	0.054	0.167

Source: Estimates from VHLSS 2010, 2014, and 2018

Table 6. The impact of the number of formal schooling years on employment mobility over 2010-2014, 2014-2018

Explanatory variables	Dependent variables					
	% moving up from unskilled to skilled and non-manual	% moving down from skilled and non-manual to unskilled	% moving from self-employed to wage jobs	% moving from wage jobs to self-employed	% moving from agricultural to non-agricultural	% moving from non-agricultural to agricultural
sex	0.0233*	-0.0262**	0.0494***	-0.0104	0.0090	-0.0040
	(0.0134)	(0.0123)	(0.0104)	(0.0162)	(0.0127)	(0.0107)
age	0.0035	-0.0131**	-0.0083**	-0.0175***	0.0031	-0.0144***
	(0.0045)	(0.0058)	(0.0034)	(0.0064)	(0.0040)	(0.0048)
agesq	-0.0001	0.0002***	0.0000	0.0003***	-0.0001*	0.0002***
	(0.0001)	(0.0001)	(0.0000)	(0.0001)	(0.0001)	(0.0001)
ethnic	0.1777***	-0.2156***	0.0466***	-0.1427***	0.1025***	-0.3250***
	(0.0196)	(0.0394)	(0.0166)	(0.0423)	(0.0180)	(0.0408)
Schooling years	0.0100***	-0.0272***	0.0031*	-0.0123***	0.0111***	-0.0145***
	(0.0024)	(0.0029)	(0.0018)	(0.0029)	(0.0022)	(0.0022)
hhsz	-0.0053	0.0009	-0.0061	-0.0051	-0.0043	-0.0059
	(0.0059)	(0.0056)	(0.0042)	(0.0069)	(0.0046)	(0.0053)
pchild	0.0232	-0.0426	-0.0001	0.0599	-0.0284	0.0036
	(0.0440)	(0.0439)	(0.0351)	(0.0529)	(0.0410)	(0.0381)
pelderly	-0.0043	-0.0306	0.0603	0.1310*	0.0862	0.0454
	(0.0698)	(0.0626)	(0.0527)	(0.0715)	(0.0679)	(0.0577)

Explanatory variables	Dependent variables					
	% moving up from unskilled to skilled and non-manual	% moving down from skilled and non-manual to unskilled	% moving from self-employed to wage jobs	% moving from wage jobs to self-employed	% moving from agricultural to non-agricultural	% moving from non-agricultural to agricultural
urban	0.0818**	-0.1102***	0.0048	-0.0860***	0.0512	-0.1398***
	(0.0332)	(0.0168)	(0.0164)	(0.0184)	(0.0351)	(0.0126)
Constant	0.0458	0.8969***	0.3434***	0.6744***	0.0779	0.8421***
	(0.0855)	(0.1145)	(0.0715)	(0.1262)	(0.0784)	(0.0934)
Observations	3,355	3,182	4,207	2,330	3,247	3,290
R-squared	0.069	0.111	0.034	0.069	0.051	0.163
Robust standard errors in parentheses						
*** p<0.01, ** p<0.05, * p<0.1						

Source: Estimates from VHLSS 2010, 2014, and 2018

4. Discussion and Conclusion

4.1. Discussion

In this paper, we examine the impact of human capital on social mobility of employment and income in Vietnam over the 2010-2014 and 2014-2018 periods.

The result shows that human capital has a positive impact on income mobility. In particular, the higher the education of the householder is, the more likely the movement from low-income groups to higher-income groups of this family is. Additional years of formal schooling also increase the probability of a household's income mobility. Moreover, human capital not only plays an important role in increasing upward mobility but also contributes to decreasing the downward mobility of income. This conclusion is consistent with the research results of Psacharopoulos and Patrinos (2004), Schultz (1997, 2002), Nguyen, C. V., & Nguyen, L. T. (2019).

The relationship between human capital and employment mobility is positive. The higher the person's educational attainment is, the more years of formal schooling, the more likely they move from agriculture to non-agricultural occupations (industry and services), from unskilled/ traditional workers to skilled workers. Furthermore, higher education reduces the downward mobility of employment. This conclusion is consistent with the research results of Sewell and Hauser (1980), Goldthorpe (2013).

In addition, ethnicity also affects social mobility. Specifically, ethnic minorities are more likely to shift downward mobility and less likely to shift upward mobility of income in comparison with Kinh and Hoa. Moreover, the ethnic minority group has a higher ability to change occupational mobility in the downward direction than the Kinh and Hoa groups. Besides, geography has a substantial impact on social mobility. Not only do having a higher ability to switch occupations from unskilled to skilled, from agriculture to non-agriculture employment, people in urban areas also have a lower probability to shift downward mobility of income than people in rural areas. This conclusion is consistent with the research results of Black and Devereux (2010), Corak (2013a).

4.2. Recommendation

The research results show that human capital affects not only income mobility but also employment mobility, and upward mobility for ethnic minorities and people in rural areas is more difficult. Therefore, the research focuses on the following four solutions to increase upward mobility for the disadvantaged group. Specifically:

First, improved access to upper secondary education: graduating from upper secondary school is an important factor and a huge opportunity for young people, especially the poor and the ethnic minorities to gain access to skilled jobs and increase income mobility. As a result, it is necessary to have more effective, supportive policies for upper secondary schools to increase enrolment rates among poor and ethnic minority students.

Second, career-oriented programs for students, especially for high school students should be the main problem focus: The problem with poor families is when they have spent too much on their children's education, but their children have been unable to find high-

paying jobs. The lack of career orientation as well as the choice of majors, and levels of study is the main reason for this problem. Therefore, depending on the student's strengths and weaknesses, other conditions, and factors, both parents and school give some clear and specific advice in their children's careers to connect higher education with the labor demand of the market.

Third, subsidies and preferential loans for poor and disadvantaged students: Although the poor and ethnic minorities in Vietnam receive a reduction in tuition fees, tuition fees only account for a relatively small percentage of the total educational expense. Therefore, educational subsidies and preferential loans are essential for poor and disadvantaged students.

Fourth, reducing the quality gap in education: the existence of a large gap in the educational quality between children from wealthy families and from poor families, the Kinh, and ethnic minorities, in rural and urban areas is tremendously serious because it shows the lack of fairness in education for disadvantaged groups. These measures should be started from the smallest level (kindergarten) to the higher levels (such as high school and university). Furthermore, the elimination of language barriers for ethnic minority children is extremely difficult and necessary. The proportion of ethnic minority children who have access to the national language will increase if the government has efficient policies on building a bilingual learning environment (in national and ethnic minority languages), improving the quality as well as the number of teachers through incentive policies on salary and bonus, especially for local ethnic minority teachers.

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IMPORTANCE OF CUSTOMER SERVICE AND LAST MILE DELIVERY IN ORDER MANAGEMENT OF E-COMMERCE B2C VIETNAM

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Abstract

This study is an identification of the need for a "last mile delivery" logistics model in e-commerce enterprises in the current period in Việt Nam. In addition, it is emphasized that "Customer service" and "last mile delivery" are the keys to help the order management in e-commerce development.

Keywords: *last mile delivery, order management, e-commerce B2C, customer service*

1. Introduction

Firstly, in the 4.0 era, Vietnam is having a lot of opportunities for Vietnam's e-commerce to participate in the electronic and high-tech logistics chain. However, according to (Duong Hong Ngoc, 2020) on tapchitaichinh.vn, one of the main obstacles is logistics, because 34.1% of consumers are not satisfied with the delivery service of commercial enterprises. e-commerce in Vietnam.

Secondly, the benefit of efficient logistics in e-commerce has been identified as a source of competitive advantage, and today it is a prerequisite in businesses (Arkadiusz Kawa, 2017).

Thirdly, according to (Duong Ngoc Hong, 2020) in the article "E-commerce in economic development in Vietnam", the author pointed out that dissatisfaction in the delivery experience is a common thing that is happening. In terms of e-commerce activities, the transaction speed in our country is the second slowest in Southeast Asia.

2. Literature Review

2.1. E-commerce

E-commerce refers to a wide range of online business activities including the activities of products and services. It can take the form of "any form of business transaction" in which parties interact via electronic devices instead of face-to-face exchanges. E-commerce is typically associated with buying and selling over the Internet or conducting any transaction involving the transfer of ownership or right to use goods or services through an intermediate computer network. E-commerce is the use of electronic communications and digital information processing technology in business transactions to create, transform, and redefine relationships to create value between or between organizations and between organizations and individuals (Anjali Gupta, 2014).

According to (Anjali Gupta, 2014) B2C is a business model, used exclusively in the field of e-commerce (e-commerce). B2C is an acronym for business-to-consumer, is a commercial activity between companies and consumers, individuals, after collecting information about customers buying physical goods (such as books or consumer products) or information goods (or goods of electronic documents or digitized content, such as software, or e-books); and sales transactions are done through the electronic network.

2.2. Logistics models in e-commerce

According to (Kawa 2014), there are four logistics models in e-commerce:

(i) Insourcing logistics: this model is the most popular, especially in Poland. Accordingly, small, and medium-sized e-commerce businesses will have their own logistics process, not outsourcing, they can better control the business and be independent from subcontractors. However, it is important that they prepare in advance for sudden growth when the number of orders increases, when they need to hire more warehouses or need to increase staff.

(ii) Drop shipping: drop shipping involves shipping goods directly from the warehouse (manufacturer, distributor) to the customer without using the supplier's warehouse (Zajac, 2014).

(iii) Fulfillment: the e-commerce business will delegate part of the logistics processes to an external supplier.

(iv) One stop–ecommerce: in addition to logistics, there are additional services. This concept implies the logistics process not only in the logistics sector but also in the areas of customer service, marketing, information technology, solutions and finance and accounting of a company (Ciechomski 2014). For example, call centers, where inquiries, complaints, etc., integrate processes in one location, the process is delegated to a partner.

2.3. Last mile delivery

According to Morganti et al. (2014b) and Gevers et al. (2009), there are many descriptive terms about last mile delivery such as: last mile delivery, home delivery, door-to-door delivery. They all emphasize certain aspects of last-mile delivery, direct-to-consumer service delivery(B2C).

In U.S.A

Punakivi M (2001) identified the factors contributing to the success of last-mile e-commerce grocery delivery in the US. Weigel D. et al. (1999) showed that algorithms for vehicle routing and scheduling can be used to improve costs in the home delivery business.

In Italy

Maliheh Ghajargar and Giovanni Zenezinib (2017) in the study pointed out the evolution of demand and the need of customers for "last mile delivery" services. In addition, the research team also shows that "last mile delivery" increases the safety of the package and the reliability of the order. The goods are very diverse including: Clothing, Food and Beverage, Entertainment, Electronics, Editorial, Health and Cosmetics and Insurance.

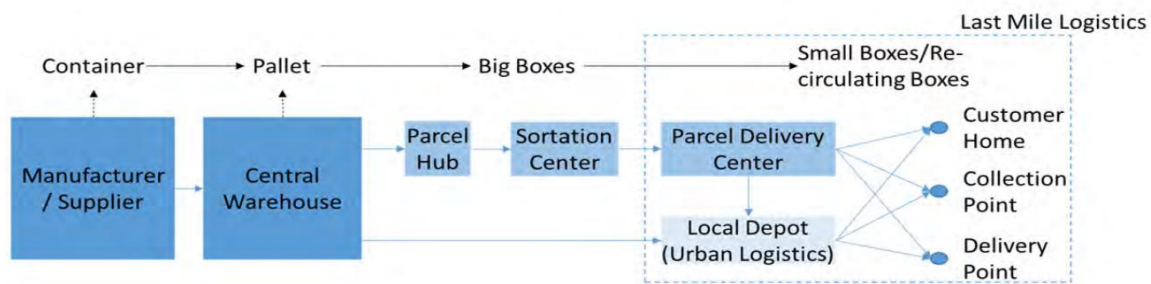


Figure 1. E-commerce logistics activities

Source: TLI The Logistics Institute Report (2016)

Avinashi Unnikrishnan & Miguel A. Figliozzi (2020) also researched and found that COVID-19 has a direct impact on home delivery, nearly 55% have ordered extra “last mile delivery” during the COVID lockdown. -19 in the US. More than 60% of households have “last mile delivery” more one to two times in the 30 days than before COVID-19, the customer’s order products with more “last mile delivery” after COVID-19.

2.4. Order management

John J.Coyle (2016) in Supply chain management - A logistics perspective showed that order management refers to the management of various activities related to the order cycle; order cycle refers to the time from when a customer places an order to when it is received. The final stage of the order cycle is delivery, which refers to the time from when the carrier arrives to receive the shipment until when the customer receives the goods.

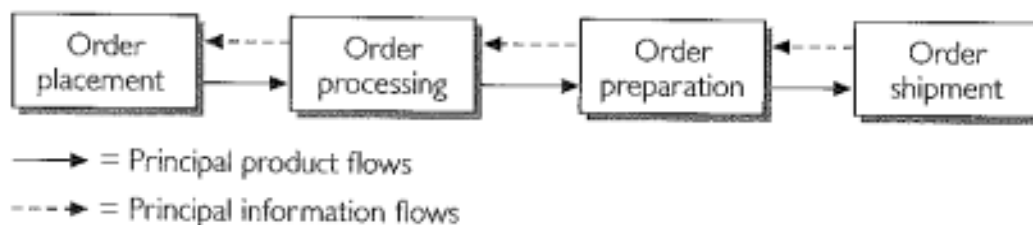


Figure 2. Major components of the Order Cycle

Source: Supply chain management - A logistics perspective, John J. Coyle (2016)

2.5. Relationship between order management, last mile delivery and customer service

Order management or order fulfillment is the interface between buyers and sellers in the market, specifically here in B2C e-commerce is the relationship between the e-commerce company and the customer buying the goods. Therefore, order management in e-commerce will directly affect customer service. While last mile delivery is a part of “order management”, good management of last mile delivery will contribute to customer satisfaction.

Perceived order fulfillment services have significant positive associations with customer satisfaction (Daugherty et al. & Frank Biocca, 1998). Thus, studies show that it is necessary to improve service quality (process and results) to satisfy customers, thereby creating customer trust, so that customers have trust and loyalty to return.

It is very expensive to change the whole thing, the whole process of order management (John J. Coyle, 2016), so changing and improving last mile delivery and customer service at last mile delivery will be a better choice for an organization.

3. Method

3.1. Study overview

The logistics model is applied popularly in e-commerce. Last-mile delivery is available in many regions around the world for a wide variety of items. In addition, theories also show that last-mile delivery brings advantages to businesses and determines the success or failure of that business. Especially when the economic situation is unstable due to the Covid pandemic, the need for "last mile delivery" is even more important.

3.2. Research gaps

In the TLI Report of the Logistics Institute (2016), it was said that one of the key challenges in e-commerce logistics is that the current practice for last mile e-commerce logistics is mostly inefficient. The main factors contributing to the inefficiency such as high delivery failure rate, increasing the logistics cost due to unconsolidated services, waiting time in delivery due to low utilization of critical logistics resources in dense cities.

Mikko Punakivi and Juha Saranen (2001) in Finland show that one of the important factors for the success or failure of e-commerce is "last mile delivery". Logistics plays an important role in e-commerce. However, there is no study to point out the importance of customer service in last mile delivery or the improvement of customer service on last mile delivery to improve obstacles in e-commerce. A gap still exists today how to link between e-commerce logistics performance and customer's expectation.

3.3. Objectives and research questions

Question 1: So, what is the difficulties of the logistics model in e-commerce in Vietnam, can "last mile delivery" be applied to e-commerce in Vietnam?

Question 2: Develop customer service in "last mile delivery" can improve these difficulties in e-commerce Vietnam?

3.4. Research method

To ensure comprehensiveness, objectivity and accuracy, the research uses a combination of both primary and secondary data research methods:

(i)Secondary data for the research paper includes data, journals, annual reports on the development of e-commerce in Vietnam and worldwide. They are published on the website of the Vietnam E-commerce Association, Specialized journals of the e-commerce of Vietnam by foreign and Vietnamese authors, or from national and international scientific conferences related to e-commerce and economy in Vietnam then analyzing data according to defined goals.

(ii)The primary data to be collected and analyzed is the data that reflects the current situation of Vietnam e-commerce. Primary data is collected by interviewing methods on delivery methods in logistics at organizations or discussing with experts of logistics.

4. Results

4.1. Customer service in e-commerce in Vietnam

In any form of business, customer satisfaction plays an important role in the success of the business because it enhances customer confidence (María Fuentes Blasco & nnk., 2012), plays a role as original for word of mouth and to ensure repeat purchases (K.K. Kyung & Bipin Prabhakar, 2004).

The trust of customers when buying online is a factor to create a sustainable role of B2C e-commerce in Vietnam, responsiveness is clearly shown to have a direct impact on customer loyalty. customers (Yongrok Choi & Do Quynh Mai, 2018).

Thus, the customer service relationship will contribute to creating trust and determining customer loyalty in e-commerce, which will bring profits to the business.

In the TLI Report of the Logistics Institute (2016), customer service is a challenging element in ecommerce logistics delivery

The key elements of customer service are time, reliability, communication and convenience (John J.Coyle, 2016).

Customer Service Dimension	Measure
Time	Order cycle time
	Inquiry response time
Dependability	Perfect order
	On-time delivery
Communication	Customer complaints
	Order status information
Convenience	Returns process
	Response to emergency situations

Figure 3. Customer Service Dimension

Source: Supply chain management - A logistics perspective (John J. Coyle)

4.1.1. Time

Lead Time or Order cycle time refers to the time from when a customer places an order to when it is received (John J. Coyle,2016). In Vietnam, studies show that, on average, it takes 5-6 days for products to be delivered to buyers (TLI Report of the Logistics Institute (2016).

4.1.2. Dependability

The reason why customers do not shop online is because it is difficult to verify the quality of goods (47%), they do not trust the seller (40%), fear of revealing personal information (38%), and the second slowest transaction speed in Asia (Vietnam E-Commerce Association, 2019).

4.1.3. Communication

Three types of communication exist between buyer and seller: (i) pre-transaction, (ii) transaction, and (iii) post-transaction. Pre-Transaction information includes product availability and delivery dates. Transaction information includes order-specific details. Post Transaction information regarding repair, assembly, or return.

Obstacles to online shopping mainly occur in post-transmission information, specifically poor products, quality compared to advertising accounts for 72% (Vietnam E-Commerce Association, 2019), so it is necessary to focus on the final delivery stage in order management in e-commerce. In addition, poor delivery service accounted for 23%, complicated payment accounted for 12%.

4.1.4. Convenience

(i) Flexibility in service level policies should be ensured and is a factor in determining how buyers perceive “ease of doing business” with sellers. Convenience is another way of saying how flexible logistics should be. Basically, the logistics requirements are different regarding the packaging, shipping method and carrier required by the buyer, routing and delivery times routing, and delivery times (John J. Coyle, 2016).

According to the report of the Ministry of Industry and Trade (2019), in Vietnam 11% think that shopping at a convenience store, 47% think it is difficult to check the quality of goods, 40% do not trust the seller, 38% are afraid of revealing personal information, 23% do not have enough information. For decision making, 13% do not have any kind of payment, 11% think that ordering online is troublesome.

(ii) The service of return or recovery concept is being used by organizations today to help identify service failure areas in their order management process and develop plans to resolve them quickly and exactly and includes all activities that affect information, product, and cash flows between the organization and its customers (John J. Coyle, 2016).

In Vietnam, 72% think that the product is of poor quality with advertising, 47% think that it is difficult to check the quality of the goods, so the role of return service in logistics and customer service at the last mile delivery stage is very important.

Although the level of satisfaction with online purchases increased to 55% (2020) compared to 48% (2018), very satisfied 16% (2019) while only reaching 7% (2018), but customers still have problems and hesitate to buy goods online, in which customer service, ordering method, shipping service, website form, payment method ranges from 12-27 %, most of them think buying at convenient stores. more convenient (55%), (according to the Ministry of Industry and Trade, Department of E-commerce, and Digital Economy, 2020).

Thus, customer service in ecommerce in the Vietnam market is not good. The report also showed that 27% said that customer service was poor. 67% buy online through friends' recommendations, and 56% look at online reviews to decide whether to buy e-commerce or not. Therefore, the element of customer service management in order management of e-commerce in Vietnam is important.

4.1.5. Last mile delivery

Using the logistics model is a trend in e-commerce. The logistics model depends on the company's size and strategy, but there is no theory that proves that geographical factors must be like use a similar logistics model. Use existing models depending on the strategy and size of the company. The common point is that these e-commerce companies all tend to use their own fulfillment centers to bring goods closer to consumers or called as last mile delivery.

In the Report of TLI The Logistics Institute (2016), in Vietnam, customers want the company to bring goods closer to consumers. According to VECOM, 26% customers use online shopping more than before Covid-19 period, these are essential consumer goods groups during the epidemic period. The COVID-19 epidemic quickly changed consumption and shopping habits. Consumers prefer to shop online. In 2019, according to Nielsen's research on the impact of Covid on Vietnamese people, 45% more food is stored at home, 50% reduced the frequency of visits to supermarkets, shops, grocery stores, markets, 25% increased online shopping activities, and 25% reduced outside dining activities. It means that consumers and buyers want to be provided the last mile delivery after Covid period.

5. Discussion and Conclusion

5.1. The necessity of Vietnam e-commerce last-mile delivery logistics model

Firstly, e-commerce makes a significant contribution to promoting the flow of goods and services, supporting businesses, in the context of deep integration and the spread of the Industrial Revolution 4.0, according to the Ministry of Industry and Trade, Department of e-commerce and digital economy. According to the Vietnam E-commerce Department, B2C revenue (billion USD) contributes to quite high economic growth of 23% (2016), 25% (2019), of which the total revenue of B2C brings to the economy was 10.1 billion USD in 2019.

Secondly, for many years, the percentage of businesses that sell goods on social networks tends to increase gradually, 28% (2015) and 41% (2017) (Vietnam E-commerce Association, 2019). The return of e-commerce floors has become more and more obvious. Accordingly, in 2020 up to 22% of enterprises participating in the survey will have an e-commerce exchange up 5% compared to 2019.

Thirdly, the screening, harsh competition of Vietnamese e-commerce companies with foreign e-commerce companies. In 2019, the market has witnessed the "departure" of many online sales brands such as Robins.vn, Adayroi.vn (of Vin group) (according to tapchitaichinh.vn).

Fourth, the benefits of the logistics model and "last mile delivery" to improve the customer service in e-commerce B2C.

(Sunil Chopra and Meindl, 2011, p.80) discovered that last mile delivery response times are very fast, given the variety of products. Very good customer service, especially for bulky items. Time-to-market is much faster than a distributor's pre-shipment storage time when using a carrier's package service. Order visibility is less of an issue and easier to fulfill. Returns are easier to implement than using carriers when outsourcing. Thus, door-to-door delivery is an indispensable part of e-commerce, the whole process of delivering orders to customers will go through many steps, even orders are returned to the business after being delivered. Therefore, Vietnamese commercial enterprises cannot help but focus on the after-delivery service, also known as the 'last-mile delivery' process, to be effective because last-mile delivery brings benefits to customers businesses, overcome the current situation of e-commerce in Vietnam.

5.2. Emphasis on service quality improvement in order management at last mile delivery

Order management can be measured in a variety of ways. Traditionally, however, buyers would measure the effectiveness of order management using order cycle time and reliability as metrics, while sellers would use order cycles (John J. Coyle, 2016).

Dina Ribbink & nnk., (2004), customer satisfaction is expected to have a positive influence on customer trust and loyalty. From a business perspective, trust is a consumer's expectation that a supplier will keep its word or promise and will not cause any harm to the consumer in the future (Inge Geyskens & nnk., 1999).

E-commerce in Vietnam is also very suitable for last-mile delivery because of the variety of products and goods. The current situation of e-commerce in Vietnam as mentioned above is that customers lack trust and safety in transactions, while the use of the logistics model with last-mile delivery as demonstrated above is increasing trust. customers, thereby increasing the opportunity to develop e-commerce in Vietnam, thus consistent with the studied theories.

However, in Vietnam, winning in e-commerce depends on many other factors such as (i) information flow (ii) coordination between infrastructure, resources, information, and communication. Information creates efficiency in the implementation model (iii) delivery location because of the current situation of e-commerce development in Vietnam, there are many factors hindering the purchase that the author has not considered in this article such as: payment methods, information technology, website form. In addition, it is also necessary to study more about the "trade off" trade-off when applying logistics models in Vietnam and improving customer service at the expense of businesses.

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TRADE RELATION BETWEEN VIETNAM AND THAILAND: EVIDENCE FROM TRADE INDICES

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Abstract

This study explores the trade relation between Vietnam and Thailand based on the calculation for the period 2010 - 2020 a number of indicators commonly used in international trade studies, namely the revealed comparative advantage index (RCA), the export similarity index (ES), the trade intensity index (TI) and the trade complementarity index (TC). The data used for the calculation is collected from the UNcomtrade database. Trade analysis tools on the one hand help each country review the products they have comparative advantage when exporting, on the other hand determine whether these two economies are competitors or complements in their trade.

Keywords: *export similarity, comparative advantage, Thailand, Vietnam*

1. Introduction

Vietnam and Thailand are two close neighbors in Southeast Asia, which own similar political, economic, social and technological aspects (Quynh, 2021). They are two economies of scale and dynamic development in the Asia-Pacific region, with much potential to further promote bilateral trade as well as cooperation in various related fields. These countries are also members of many free trade agreements within the framework of the Association of Southeast Asian Nations (ASEAN) and ASEAN +1, the Regional Comprehensive Economic Partnership (RCEP). Noteworthy, Thailand is Vietnam's largest trading partner in ASEAN, is Vietnam's largest export market in ASEAN, and is the 9th largest investor in Vietnam. Statistics show that their bilateral trade turnover is estimated at about 10 billion USD in the first six months of 2021 (Phan & Viet, 2021) and is expected to achieve the goal of 25 billion USD (Bao Chinh Phu, 2022). Meanwhile, Vietnam is Thailand's second largest trading partner in ASEAN (Ngoc & Huu, 2022).

The existing free trade agreements (FTAs) are creating advantages for Southeast Asia in general as well as Vietnam and Thailand in particular to attract and receive investment flows. However, this 45-year-strategic-partnership is facing with profound changes in the region and the world, namely the trade tensions between major countries, the conflict in Ukraine, the unfavorable energy market, the restructuring of the production network in the Asia-Pacific region, the trend of digital transformation, energy transformation and the development of the Industrial Revolution 4.0. Thus, these factors are currently posing both opportunities and challenges for the two economies of Vietnam and Thailand to strengthen

their economic connectivity and cooperation in the framework of supply chains and regional production networks to effectively exploit FTAs (Ngoc & Huu, 2022).

Prior studies discover economic factors of Vietnam and Thailand from diverse perspectives, but they often observe two countries' characteristics together with other members of associations like ASEAN (Van Hoa, 1997). When it comes to the bilateral partnership, authors often select single factors to examine such as trade linkages in shrimp exports (Kagawa & Bailey, 2006), trade barriers (Doanh & Heo, 2007) and products mapping (JDE, 2017). However, to the best of authors' understanding, up to now there are no studies about the current trade relation between Vietnam and Thailand from trade indices. The potential in their bilateral trade requires deeper analysis into the two countries' export structures and export patterns to take full advantage of each side. This paper, therefore, aims to evaluate the most up to date situation of trade relation between Vietnam and Thailand using generalized potential indicators. By this way, outcomes of trade policy could be forecasted in advance. While the approach cannot be exact given the complexity of the Vietnamese economy, it is important to warn policymakers or negotiators about what general economic trends may be led by the implementation of FTAs regarding efficient resource allocation. This information can help determine which industries deserve special attention in negotiating market access in an FTA (Cassing et al., 2010).

The paper is structured as follows. Section 2 examines methodology and data collection. The empirical results are presented in Section 3. Section 4 summarises some concluding remarks and further discussion.

2. Method

Generalized potential indicators are considered as efficient tools to evaluate the trade relation between two countries or groups of countries (Cassing et al., 2010). Particularly, generalized potential indicators include multiple trade flow metrics at the aggregate level based on highly detailed data, which likely provides a clue whether a condition is more or less favorable for a successful FTA. These indicators are also implemented in the study of Hoekman et al. (2002) and other studies (Mikic, 2005). Additionally, a number of more detailed industry-level indicators such as revealed comparative advantage are often used as indicators of industry potential or challenges in trade liberalization (Balassa, 1965; Iapadre, 2001).

Therefore, this paper uses four trade indices to examine the trade relation between Vietnam and Thailand. First, the revealed comparative advantage index is applied to determine comparative advantage export products of the two countries and any changes in their trade structure. Second, the export similarity index is employed to describe the degree of similarity in terms of export between Vietnam and Thailand in the world market as well as in the US market. Third, the trade intensity index helps figure out whether the value of trade between Vietnam and Thailand is larger or smaller than expected on the basis of their importance in world trade. Finally, the trade complementarity index is a useful tool to assess the compatibility between two studied countries' trade structures as an exporter and importer, then diagnose if the prospect of their trade expansion is favorable.

Data for analysis in this paper are completely collected and processed from the UNcomtrade database for the period from 2010 to 2020 using the Standard International Trade Classification Revision 3 (SITC Rev.3). The export data extracted is analyzed at 1-digit SITC level. SITC0-4 are primary products, SITC5-9 are manufactured goods, SITC5 and SITC7 are almost capital or technology intensive manufacturing products, and SITC6 and SITC8 are almost labor-intensive manufacturing products (Wang & Liu, 2015).

2.1. Revealed Comparative Advantage Index (RCA)

First coined by Balassa (1965), the revealed comparative advantage is intended to measure a country's comparative advantage pattern by analyzing its export structure because trade performance of a nation is commonly dominated by the commodities in which it has comparative advantages. In symbols, the formula is:

$$RCA_{ij} = \frac{x_{ij}/X_{it}}{x_{wj}/X_{wt}}$$

Where:

RCA_{ij} : reveal comparative advantage of country i with respect to product j;

x_{ij} : export value of product j for country i;

x_{wj} : export value of product j for the world;

X_{it} : total exports of country i;

X_{wt} : total export of the world.

The RCA index illustrates the comparative advantages (and disadvantages) of a particular product for a country and is applied to evaluate the potential of the country' export in those products. If $RCA > 1$, country i tends to be a competitive producer and exporter of commodity j while $RCA < 1$ means that country i is at a comparative disadvantage or does not have an export strength in commodity j. In case $RCA > 1$, the higher the index is, the more relative advantages the country enhances in product j (Sejkora & Sankot, 2017).

If countries share similar values of RCA, they are unlikely to witness a high bilateral trade intensity without the involvement of intra industry trade (L. H. Tran, 2017); as a result, the trade between them would be less affected by FTA (Cassing et al., 2010). By computing this index, trade structure and changes in trade structure between Vietnam and Thailand will also be observed (Nguyễn, 2016).

2.2. Export Similarity Index (ES)

In order to identify the degree of similarity in terms of export between two countries or more in the world market or the third market, Finger & Kreinin (1979) put forward the calculation formula of export similarity. It is defined by the formula:

$$ES(ij, k) = \left\{ \sum_l \min \left(\frac{x_{ik}^l}{x_{ik}}, \frac{x_{jk}^l}{x_{jk}} \right) \right\} \times 100$$

Where:

$ES(ij, k)$: export similarity between country i and country j in market k;

- x_{ik}^l : export value of product l from country i to market k;
- x_{jk}^l : export value of product l from country j to market k;
- x_{ik} : total exports of country i to market k;
- x_{jk} : total exports of country j to market k.

The ES index provides an indication of the export structure between one country and its trading partners. It takes on values from 0 to 100. When $ES = 0$, country i and country j are totally different in terms of exporting commodity i to market k, while $ES = 100$ implies that these two countries are perfectly the same when exporting that product to market k. The higher the value of ES is, the harsher the two countries' competition is in the third market (Finger & Kreinin, 1979).

Accordingly, when an economy has a low index of export similarity with a trading partner, that economy has an increased potential to export to the partner's market in the future. On the contrary, if the index of export similarity between that economy and the partner is high, or the export structure is similar, then the export ability of that economy to the partner is limited (Tran et al., 2020). In other words, ES could provide a realization whether one nation can become another country's opponent within a certain FTA (Cassing et al., 2010).

A merit of this index over other applications is that ES demands only international trade statistics, which is available and accessible for all countries on a standardized basis. By taking ES into consideration, two partners countries or groups of countries' tendency to be more similar or more divergent with regard to their export structure could be revealed (Yihong & Weiwei, 2006), and the rapid economic growth of a country can also be reflected (Bang & Tuo, 2013).

2.3. Trade Intensity Index (TI)

The trade intensity index is used to identify whether the value of trade between two countries is greater or smaller than would be expected on the basis of their importance in world trade. The formula for the TI index is:

$$T_{ij} = \frac{x_{ij}/X_{it}}{x_{wj}/X_{wt}}$$

Where:

- T_{ij} : trade intensity between country i and country j;
- x_{ij} : export value of country i to country j;
- x_{wj} : export value of the world to country j;
- X_{it} : total exports of country i;
- X_{wt} : total export of the world.

When $TI > 1$, bilateral trade flows are greater than expected while $TI < 1$ indicates that bilateral trade flows are smaller than expected. In this sense, the larger the value, the better for the FTA (Cassing et al., 2010).

2.4. Trade complementarity (TC)

The potential and prospects for expanding trade between countries depends on the degree of complementarity between countries. When two countries have complementary economic structures, they have greater potential to expand trade and vice versa (Nguyễn, 2016). Complementarity in the structure of trade between countries is often assessed through the index of trade complementarity assert by Michaely (1996). This index determines the degree of compatibility between a country's export structure and a partner country's import structure:

$$TC_{jk} = 100 - \sum abs(m_{ik} - x_{ij})/2$$

Where:

TC_{jk} : complementary level of trade between country j and country k;

x_{ij} : share of product i in country j's exports;

m_{ik} : share of product i in country k's imports.

TC outlines the outlook for intra-regional trade by showing how a country's export and import structure fits together. It ranges from 0 to 100. If $TC = 0$, country j exports products that country k does not import, or none of the goods exported by one country are imported by another, which means that the trade structure between the two countries is not complementary at all. On the contrary, $TC = 100$ implies that country j has the same export structure as the partner country k, or the proportions of exports and imports match. The higher the value, the greater degree of compatibility between the trade structures of the exporting country and the importing country, and therefore the greater the prospect of trade expansion (Nguyễn, 2016) or the better the FTA proposal is (Cassing et al., 2010).

3. Results

3.1. Revealed Comparative Advantage of Vietnam and Thailand

According to Table 1, two out of ten Vietnam's commodity codes at 1-digit SITC level have, on average, value larger than 1, which reveal Vietnam's comparative advantages in those two sections. The two sections are SITC0 Food and live animals with a mean of 2.16 and SITC8 Miscellaneous manufactured articles with a mean of 2.56. This high value of RCA reflects the fact that Vietnam has usually been the main exporter of food and some traditional labour-intensive products such as wearing apparel, footwear and furniture as reported by Tran (2017) and Phan & Le (2018). Vietnam also has strong potential in SITC7 Machinery and transport equipment as its RCA value is nearly 1. Whereas, Thailand owns comparative advantages in four sections, namely SITC0 Food and live animals, SITC2 Crude materials, inedible, except fuels, SITC6 Manufactured goods classified chiefly by material and SITC7 Machinery and transport equipment. For the full statistics RCA indices for Vietnam and Thailand's commodities at 1-digit SITC Rev.3 level (2010 – 2020), see Appendix A and Appendix B.

Generally, the overlap in comparative advantage between Vietnam and Thailand is low, only in section Food and live animals. In detail, the two countries' most noticeable products in this commodity section are fish fillets, crustaceans, molluscs and processed fish.

Table 1. Mean RCA indices for Vietnam and Thailand's commodities at 1-digit SITC Rev.3 level (2010 – 2020)

Commodity Code	Commodity	Vietnam	Thailand
0	Food and live animals	2.16	2.04
1	Beverages and tobacco	0.40	0.81
2	Crude materials, inedible, except fuels	0.79	1.33
3	Mineral fuels, lubricants and related materials	0.36	0.36
4	Animal and vegetable oils, fats and waxes	0.26	0.47
5	Chemicals and related products, n.e.s.	0.24	0.91
6	Manufactured goods classified chiefly by material	0.87	1.01
7	Machinery and transport equipment	0.97	1.21
8	Miscellaneous manufactured articles	2.56	0.79
9	Commodities and transactions not classified elsewhere in the SITC	0.12	0.48

Source: Authors' computation based on UNcomtrade database.

In order to review changes in trade structure of products that have comparative advantage of Vietnam and Thailand, three mentioned commodity codes for Vietnam and four mentioned commodity codes for Thailand as indicated in Table 2 are chosen for a deeper analysis.

Table 2. RCA indices for selected Vietnam and Thailand's commodities at 1-digit SITC Rev.3 level (2010 – 2020)

Commodity Code	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Mean
Vietnam												
0	3.28	3.14	2.85	2.34	2.31	1.94	1.86	1.80	1.65	1.40	1.22	2.16
7	0.46	0.60	0.82	1.01	0.96	1.03	1.07	1.13	1.15	1.17	1.27	0.97
8	3.16	2.96	2.57	2.56	2.57	2.43	2.44	2.42	2.47	2.37	2.17	2.56
Thailand												
0	2.16	2.28	2.19	2.01	2.05	1.98	1.88	1.91	1.98	2.06	1.90	2.04
2	1.41	1.77	1.37	1.36	1.21	1.23	1.25	1.47	1.29	1.21	1.07	1.33
6	0.94	0.97	1.02	1.07	1.02	1.00	0.99	0.99	1.03	1.08	0.98	1.01
7	1.23	1.16	1.24	1.29	1.28	1.23	1.22	1.21	1.21	1.12	1.13	1.21

Source: Authors' computation based on UNcomtrade database.

As shown in Figure 1, despite their current high value in terms of RCA, Vietnam's comparative advantage in Commodity Code 0 and 8 have decreased remarkably over the period studied and express a tendency of declining constantly for coming years. In contrast,

the RCA value of Vietnam's commodity code 7 increased at a steady rate and literally reached 1 for several years. This sign is supposed to base on the event that Vietnamese manufacturing industries have been better linked to global production networks since Vietnam's participation in WTO in 2017. As a result, Vietnam has engaged in small fragments of the production process such as component and final goods assembly and becomes one of the biggest electronic processing centers in the world (Phan & Kieu, 2017).

On the other hand, the RCA values of all Thailand's four Commodity Code maintain their comparative advantage position during the period 2010 – 2020 with section 0 being the leading one among the country's exports. Specifically, except SITC6, the three other sections all experienced a downward trend. However, despite their negligible decline, their indices have always been stable and above 1.

To sum up, while Thailand has kept the stability in comparative advantage, Vietnam has witnessed the fluctuation over time, which is in line with the previous studies (Tran, 2017).

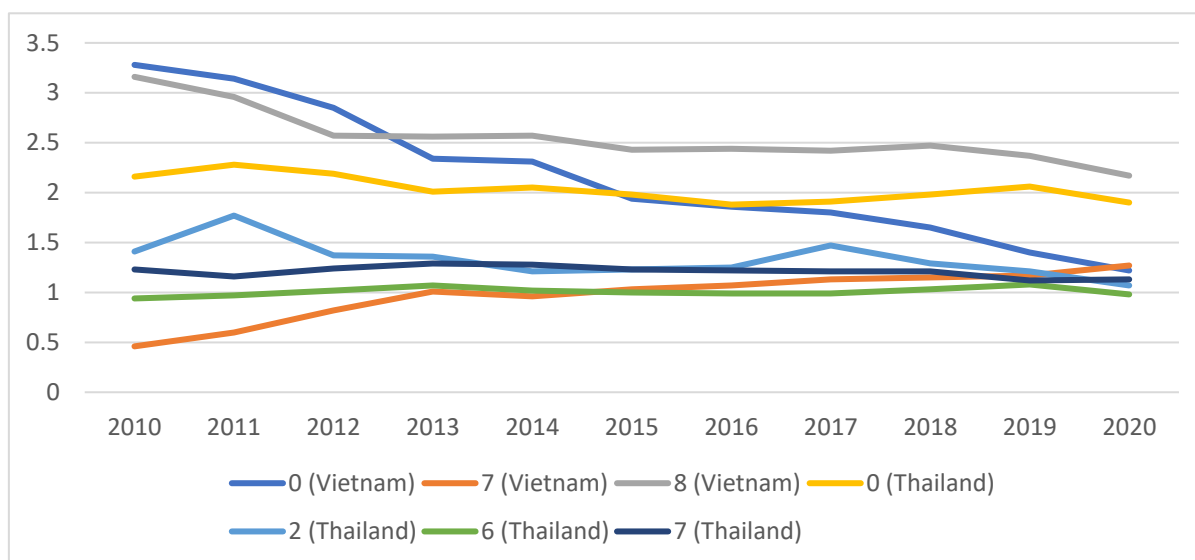


Figure 1. RCA indices for selected Vietnam and Thailand's commodities at 1-digit SITC Rev.3 level (2010 – 2020)

Source: Authors' computation based on UNcomtrade database.

3.2. Export Similarity between Vietnam and Thailand

Apart from the world market, this paper chooses the US as the third market because this developed country has consecutively been the largest export destination of both Vietnam and Thailand (Observatory of Economic Complexity, 2021) and has a relatively good representative of their export condition (Wang & Liu, 2015).

Figure 2 illustrates the export similarity index of Vietnam and Thailand in the world market and the US market. From a broad perspective, Vietnam and Thailand possess a high level of ES which is beyond 50. This outcome confirms that these two ASEAN countries share many similarities in their export commodities and their export structure, which typically proposes an export competition between two nations. For full ES indices between Vietnam and Thailand in the US market and in the world market (2010 – 2020), see Appendix C and Appendix D.

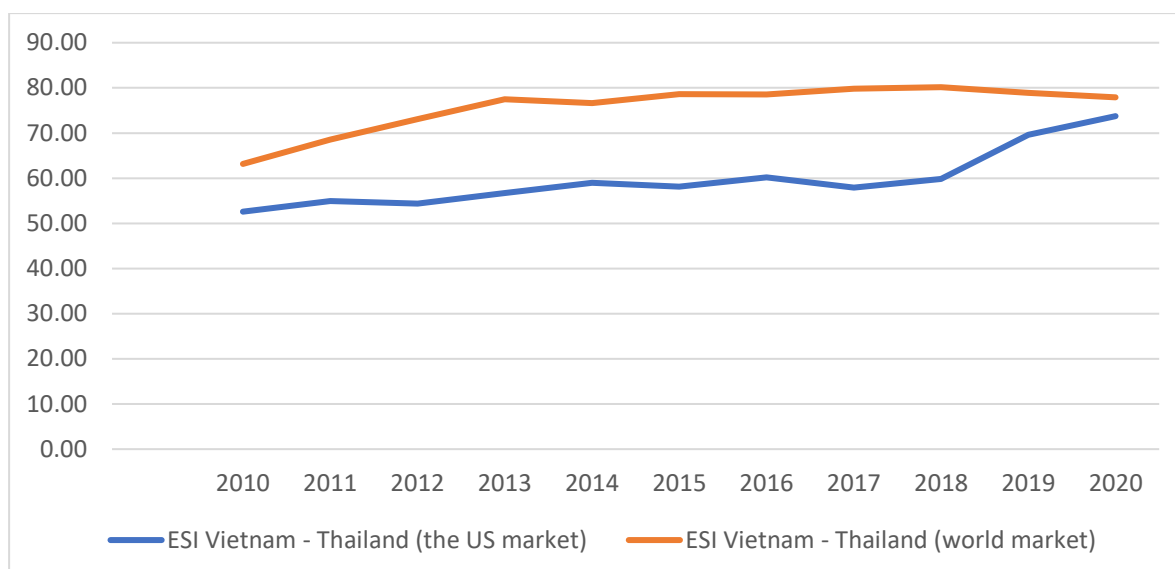


Figure 2. ES indices between Vietnam and Thailand in the US market and in world market (2010 – 2020)

Source: Authors' computation based on UNcomtrade database.

In the US market, the ES index of Vietnam and Thailand observes an upward trend during the period 2010 – 2020. From the value of 52.59 in 2010, this index grows firmly and then rises moderately in 2018 before reaching its peak at 73.74 in 2020. On average, SITC7 Machinery and transport equipment escalated noticeably and accounts most of the similarity, followed by SITC8 Miscellaneous manufactured articles, SITC6 Manufactured goods classified chiefly by material and SITC0 Food and live animals.

The same situation can be viewed in the case of the world market as the third market. However, values of the ES index in this circumstance are significantly higher, which are always above 60 and sometimes even 80 or more. The trend of export similarity between Vietnam and Thailand developed gradually during the period 2010 - 2020 with a mild drop in recent years and eventually finished at 77.91 (2020). The most similar export products of Vietnam and Thailand are also commodity code SITC0, SITC6, SITC7 and SITC8. To sum up, this figure demonstrates a fierce competition of products from Vietnam and Thailand to the US and even a more intense scenario when the two countries' export destination is the world as the whole market. Interestingly, the level of competition shows no sign of easing recently.

3.3. Trade Intensity between Vietnam and Thailand

It is illustrated from Table 3 that Vietnam's trade intensity with Thailand is above one for the whole studied period, from 2010 to 2020. This finding implies the importance and influence of Thai markets for Vietnam as the value of trade between Vietnam and Thailand is larger than expected on the basis of their importance in world trade. The value of TI index increased consecutively from 1.62 in 2010 to 2.27 in 2014 but then fluctuates moderately to finally get 1.61 in 2020. The outcome can be partly explained by the suggestion that countries have a tendency to trade more with their neighbors and close proximate partners. Likewise, the TI index probably reduces once the geographical distance is adjusted (Tran, 2017).

Table 3. TI indices between Vietnam and Thailand (2010 – 2020)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
TI	1.62	1.99	2.21	2.15	2.27	1.81	1.91	1.99	1.91	1.72	1.61

Source: Authors' computation based on UNcomtrade database.

3.4. Trade Complementarity between Vietnam and Thailand

The trade complementarity of Vietnam and Thailand with Vietnam as the exporter and as the importer is depicted respectively in Table 4. Overall, the degree of complementarity between Vietnam's exports and imports from Thailand is high, with values above 55. Meanwhile, the import complementary index shows that the degree of complementarity between Vietnam's imports and Thailand's exports is much greater, with values above 70 over the period from 2010 to 2020. Accordingly, in both cases, Vietnam's trade structure is increasingly compatible with Thailand's trade structure, which means that the goods exported by Vietnam are imported by Thailand and vice versa.

Table 4. TC indices between Vietnam and Thailand (2010 – 2020)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Vietnam as the exporter	55.79	59.05	64.67	66.82	66.83	69.52	69.95	67.17	66.64	68.76	70.26
Vietnam as the importer	74.47	77.48	81.37	85.57	83.77	86.37	85.54	87.49	87.98	87.85	85.52

Source: Authors' computation based on UNcomtrade database.

4. Discussion and Conclusion

With the approach of using trade indicators currently being widely applied in international trade studies, this study has illustrated the existing trade relationship between Vietnam and Thailand during the period 2010 – 2020. First, the revealed comparative advantage index concludes that on average of 11 years, Vietnam has comparative advantages in exporting products belonging to SITC0 Food and live animals and SITC8 Miscellaneous manufactured articles while Thailand owns comparative advantages in SITC0, SITC2 Crude materials, inedible, except fuels, SITC6 Manufactured goods classified chiefly by material and SITC7 Machinery and transport equipment. However, each country has experienced such a different trend in comparative advantage. While Thailand has kept the stability in comparative advantage, Vietnam has witnessed the fluctuation over time, which is in line with the previous studies (Tran, 2017). Moreover, the overlap in comparative advantage between Vietnam and Thailand is low, only in section Food and live animals. Second, the export similarity index proposes that there is a fierce competition of products from Vietnam and Thailand to the US and even a more intense scenario when the two countries' export destination is the world as the whole market. Interestingly, the level of competition shows

no sign of easing recently. Third, the trade intensity index implies the importance and influence of Thai markets for Vietnam as the value of trade between Vietnam and Thailand is larger than expected on the basis of their importance in world trade. Finally, the trade complementarity index shows that Vietnam's trade structure is increasingly compatible with Thailand's trade structure, which is a promising premise of their trade expansion.

This paper's empirical results suggest that within bilateral trade, Vietnam and Thailand both play the role of each other's core export destinations, with a high degree of compatibility between the trade structures of the exporting country and the importing country, and therefore the prospect of trade expansion is promising. However, when the two Southeast Asia close neighbors export to a third market, which is the world market or the US market, there will certainly be fierce competition as Vietnam and Thailand share a highly similar export structure and have comparative advantage in some popular export products.

In conclusion, the present paper seeks to contribute to the international trade literature through an analysis based on four trade indices: the revealed comparative advantage index, the export similarity index, the trade intensity index and the trade complementarity index. However, the research approach is limited at providing trend impact analysis. This research needs to be developed and combined with quantitative methods such as the SMART (Single Market Partial Equilibrium Simulation Tool) Model and the CGE (Computable General Equilibrium) Model to show specific quantifiable impact results.

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Appendix A: RCA indices for Vietnam's commodities at 1-digit SITC Rev.3 level (2010 - 2020)

Commodity Code	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Mean
0	3.28	3.14	2.85	2.34	2.31	1.94	1.86	1.80	1.65	1.40	1.22	2.16
1	0.54	0.50	0.52	0.53	0.46	0.42	0.35	0.30	0.27	0.28	0.19	0.40
2	1.13	1.13	0.92	0.92	0.74	0.73	0.67	0.63	0.63	0.64	0.54	0.79
3	0.73	0.66	0.58	0.43	0.40	0.29	0.22	0.24	0.15	0.14	0.13	0.36
4	0.28	0.37	0.47	0.37	0.34	0.34	0.17	0.13	0.14	0.14	0.13	0.26
5	0.24	0.28	0.32	0.29	0.27	0.23	0.20	0.20	0.21	0.22	0.19	0.24
6	0.90	0.86	0.86	0.86	0.88	0.83	0.82	0.83	0.90	0.91	0.90	0.87
7	0.46	0.60	0.82	1.01	0.96	1.03	1.07	1.13	1.15	1.17	1.27	0.97
8	3.16	2.96	2.57	2.56	2.57	2.43	2.44	2.42	2.47	2.37	2.17	2.56
9	0.13	0.12	0.07	0.07	0.07	0.07	0.02	0.02	0.25	0.28	0.17	0.12

Source: Authors' computation based on UNcomtrade database.

Appendix B: RCA indices for Thailand's commodities at 1-digit SITC Rev.3 level (2010 - 2020)

Commodity Code	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Mean
0	2.16	2.28	2.19	2.01	2.05	1.98	1.88	1.91	1.98	2.06	1.90	2.04
1	0.45	0.52	0.62	0.72	0.81	0.85	0.88	0.89	0.96	1.15	1.04	0.81
2	1.41	1.77	1.37	1.36	1.21	1.23	1.25	1.47	1.29	1.21	1.07	1.33
3	0.33	0.33	0.38	0.37	0.34	0.37	0.32	0.37	0.39	0.36	0.36	0.36
4	0.36	0.56	0.49	0.68	0.50	0.31	0.28	0.50	0.54	0.48	0.43	0.47
5	0.81	0.95	0.98	1.05	1.04	0.90	0.83	0.84	0.93	0.90	0.75	0.91
6	0.94	0.97	1.02	1.07	1.02	1.00	0.99	0.99	1.03	1.08	0.98	1.01
7	1.23	1.16	1.24	1.29	1.28	1.23	1.22	1.21	1.21	1.12	1.13	1.21
8	0.93	0.98	0.77	0.79	0.77	0.74	0.73	0.73	0.74	0.79	0.74	0.79
9	0.66	0.49	0.53	0.23	0.23	0.32	0.56	0.39	0.27	0.57	0.98	0.48

Source: Authors' computation based on UNcomtrade database.

Appendix C: ES indices between Vietnam and Thailand's commodities at 1-digit SITC Rev.3 level in the US market (2010 - 2020)

Commodity Code	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
0	12.44	13.01	11.86	11.45	11.38	8.91	9.03	8.56	7.84	5.38	4.67
1	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.03	0.04	0.05	0.04
2	0.70	0.79	0.57	0.50	0.33	0.35	0.25	0.28	0.29	0.22	0.19
3	1.58	2.88	1.96	1.41	1.44	0.02	0.03	0.16	0.14	0.00	0.01
4	0.01	0.01	0.01	0.01	0.02	0.03	0.02	0.02	0.03	0.02	0.01
5	0.33	0.31	0.42	0.48	0.42	0.34	0.36	0.33	0.47	0.52	0.42
6	5.64	6.63	7.09	7.28	6.91	6.99	7.60	7.36	8.53	7.53	7.43
7	10.30	10.76	13.17	15.71	18.95	23.12	26.19	26.17	26.69	34.88	43.22
8	21.56	20.50	19.32	19.86	19.51	18.33	16.72	15.03	15.82	21.03	17.75
9	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ESI	52.59	54.92	54.41	56.72	58.97	58.09	60.21	57.94	59.86	69.64	73.74

Source: Authors' computation based on UNcomtrade database.

Appendix D: ES indices between Vietnam and Thailand's commodities at 1-digit SITC Rev.3 level in world market (2010 - 2020)

Commodity Code	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
0	12.26	13.02	12.59	11.92	12.65	12.41	12.43	11.75	10.32	9.07	8.50
1	0.34	0.37	0.41	0.41	0.36	0.35	0.31	0.25	0.23	0.24	0.16
2	4.56	4.84	3.71	3.59	2.75	2.52	2.34	2.37	2.30	2.34	2.15
3	4.94	5.62	6.51	6.26	5.27	3.08	2.03	2.25	1.61	1.38	0.95
4	0.15	0.23	0.28	0.20	0.18	0.16	0.10	0.08	0.07	0.07	0.08
5	2.60	2.96	3.27	2.90	2.81	2.53	2.27	2.18	2.39	2.48	2.41
6	11.62	11.10	10.59	10.44	10.93	10.47	10.13	10.28	11.09	10.88	11.02
7	15.89	19.44	26.81	32.59	32.37	37.38	39.66	41.85	42.00	41.18	42.67
8	10.17	10.34	8.52	8.74	8.98	9.34	9.12	8.68	8.55	9.53	8.94
9	0.64	0.65	0.40	0.46	0.37	0.39	0.14	0.14	1.60	1.69	1.03
ESI	63.16	68.56	73.08	77.51	76.66	78.64	78.53	79.82	80.15	78.86	77.91

Source: Authors' computation based on UNcomtrade database.

IMPACT OF FOREIGN DIRECT INVESTMENT ON EMPLOYMENT AND WAGE GAP BY GENDER IN VIETNAM

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Abstract

Foreign direct investment is one of the most important private financial flows that plays a key role in strengthening economic growth of a country. When economic development has reached a certain level, the quality of FDI inflows or the impact of FDI on sustainable development have attracted more attention from scholars and policy makers. Many recent studies show that FDI can support a country in achieving sustainable development goals, including gender equality. The study uses regression and decomposition methods to examine impact of FDI on the employment and wages of both male and female workers in the period 2008-2018 in Vietnam. Results show that FDI inflows play a positive role in creating jobs and improving workers' incomes in the country. Notably, women are the beneficiaries of this capital flow more than men. In addition, FDI inflows also contribute to reducing the gap in access to employment opportunities and wages between the sexes. Although this contribution is still relatively small, it tends to increase in recent years. Based on these results, the paper proposes some policy recommendations to reduce the gender gap in Vietnam's labor market through foreign direct investment in next time.

Key words: *FDI, gender, employment, wage, inequality*

1. Introduction

As international economic integration deepens, foreign direct investment (FDI) is considered to be one of the important drivers of economic development. Most studies show that FDI helps to supplement capital sources for countries, create jobs, break the vicious cycle of low savings - low income, and promote countries to join the global production network, etc. (Chaudhuri & Mukhopadhyay, 2014). In recent years, when economic development has reached a certain level, the quality of FDI inflows or the impact of FDI on sustainable development have attracted more attention from scholars and policy makers. Many studies have begun to examine the impact of FDI on narrower aspects of sustainable development such as environment, human resource development, innovation and gender equality.

Regarding the gender aspect, studies on the impact of international economic integration on women or gender effects of transnational companies, export processing zones or the effects of structural adjustment have been existing around for decades. However, there has not been a common theory or model used to explain the impact of FDI on the difference between men and women so far. Several studies have attempted to include gender dimensions

in production and income distribution in terms of the relationship between globalization and inequality or between FDI and the labor market. For example, research by UNCTAD (2014) has incorporated gender-related effects in the effects of FDI on the host country. Economic studies on the labor market by gender often emphasize supply-side determinants of employment and wages inequality, including gender differences in human capital (human capital theory). Meanwhile, a number of other studies approach the impact of FDI on gender inequality from theories on the impact of globalization on gender issues such as Heckscher-Ohlin's theory and Becker's theory of discriminatory (1957) (Niklas Potrafke & Heinrich W. Ursprung, 2012; Aguayo-Tellez, 2011).

Based on the above theories, a number of studies have proposed mechanisms through which FDI can influence the difference between men and women in the labor market such as Siegmann (2006), Chen et al. (2013) or Ouedraogo and Marlet (2017). Siegmann (2006) argues that FDI can affect the gender dimension of the labor market through three characteristics: export orientation, mobility and technological progress. Similarly, Chen et al. (2013) show that globalization in general and FDI in particular can affect gender inequality in the labor market in many ways: offers more employment opportunities for women; increases competitive pressure, thereby reducing gender discrimination in wages and employment; and other channels through which globalization can indirectly affect gender inequality in the labor market, such as economic growth, investment in girls' human capital, technology innovation and decisions in the household. On a broader scale, two authors Ouedraogo and Marlet (2017) mentioned four main channels through which FDI can affect gender issues, including: government revenue, the demand for female workers, technology spillovers to local partners as well as suppliers, and corporate social responsibility.

Regarding empirical studies, many publications on the impact of FDI on gender development and gender inequality have been published; however, the number of studies is quite limited. Most of these studies focus on female employment and gender pay gaps (Oostendorp, 2004; Siegmann, 2006; Rasekhi & Hoseinmardi, 2012; Chen et al, 2013; Helble & Takeda, 2020;) On a broader scale, some studies focus on the impact of FDI on women's economic and social rights (Eric Neumayer & Indra de Soysa, 2011) or on gender development (Ouedraogo and Marlet, 2017). More particularly, as follows:

At the global level, the publication of Oostendorp (2004) is one of the few studies that uses multinational data to assess the impact of globalization on gender and industry wage disparities. The study used survey data on wages in 83 ILO countries for the period 1983-1999 and used both the OLS method and the instrumental variable method for estimation. Research results show that the gender wage gap by occupation tends to decrease as the economy is growing, at least in richer countries, and tends to decrease with trade and FDI in rich countries, but no clear effect was found in poor countries. Research by Rasekhi & Hoseinmardi (2012) using panel regression with a sample of 21 developing countries from 2000 to 2007, shows that FDI inflows reduce gender wage gaps. However, the authors also warn that the gender pay gap could widen as some companies seek to benefit only from female workers, who have lower wages and weaker bargaining power.

At the country level, Siegmann (2006) uses both qualitative (focus group discussions) and quantitative methods (OLS regression and Oaxaca decomposition techniques) to assess the impact of FDI on the labor market by gender in rural Indonesia. Research results show that FDI positively affects employment of female workers in the agricultural sector, but negatively affects this group of workers in the manufacturing and hotel sectors. Chen et al. (2013) using China's 2004 national economic census data also found that foreign and export-oriented firms create more job opportunities for female workers and help to reduce gender pay gaps. Also studying China, Braunstein and Brenner (2007) examine the impact of FDI on the wages of women and men in urban areas at two different time points, 1995 and 2002. After controlling for individual, corporate and provincial characteristics, the study found that FDI benefits both men and women in provinces with higher levels of FDI in total investment. However, this changes over time. Specifically, in 1995, women received higher wages than men; but, in 2002, the gender wage advantage was reversed due to upgraded occupations and gender discrimination in employment.

Using household data from the Cambodia Socio-Economic Survey and FDI data from the Central Bank of Cambodia, Helble & Takeda (2020) applied the instrumental variable method to study the impact of FDI inflows on women's wages in relation to men's in manufacturing. The two authors use exogenous changes in FDI inflows into provinces related to spatial differences as a tool to determine the causal effect of FDI on labor market output. The results show that FDI increases wages and employment probability in the formal sector, both in the garment sector and in all other manufacturing sectors, but there is no evidence that FDI reduces the gender pay gap. One reason for the higher wages may be that foreign companies tend to be more productive than their domestic counterparts. Therefore, attracting FDI can help Cambodia increase overall productivity and promote growth. Sharma (2020) in her study used both household-level and plant-level data to estimate the impact of industry-level FDI inflows on employment, wages, and gender wage gap among unskilled and skilled female workers in India. In addition, the study also examines whether there are any "cultural transfers" or spillover of gender norms from more gender-equal countries through this FDI. The main finding of this study is that FDI contributes to job creation of unskilled female workers, but this capital inflow widens the gender wage gap. Furthermore, there is no firm evidence of cultural spillovers for highly skilled female workers.

With regard to Vietnam, research on the gender impact of FDI on employment and wages has been interested by some authors, but the number is very small. The study by Anh Pham et al. (2020) used data from the Household Survey and the annual new foreign investment (greenfield) data from UNCTAD to examine how the interaction between foreign direct investment and technology availability affects labor market outcomes for women in Vietnam. Research results show that FDI is associated with increased employment and wages in high-tech sectors. In sectors with weak technology, foreign investment is associated with fewer jobs and lower wages, especially for men. These results demonstrate the importance of absorptivity; that is, in order to really benefit from foreign investment, the domestic economy needs a good education system and technology background. The study also finds that the increase of foreign investment in high-tech

provinces leads to higher wage growth for men than for women; in other words, foreign investment can increase the gender wage gap.

Also taking Vietnam as a case study, Coniglio et al (2017) analyze the difference in employment and wages of female workers between domestic and foreign firms using an enterprise-level dataset of UNIDO and Industry Investor Survey in Vietnam. This study also examines the creation of employment opportunities for female workers at different levels in foreign enterprises. The results show that foreign enterprises tend to hire more female workers in low-skilled positions. In other words, FDI in developing countries contributes mainly to job creation for low-skilled women in labor-intensive and export-oriented manufacturing industries, with a relatively limited impact on demand for highly qualified labor.

Through the literature review of domestic and foreign works, it can be seen that the studies on the impact of FDI on gender inequality mainly use the gap in employment and wage as variables representing gender inequality. However, the number of studies is small and certain disadvantages exist. Therefore, this study will contribute more evidence on the impact of FDI on gender differences in employment and wages in a developing country with large FDI inflows like Vietnam by using the Oaxaca regression and decomposition method - Blinder (1973) - is a widely used method in analyzing the difference between the two groups, specifically in this study is the difference between males and females based on data set of household survey in Vietnam from 2008 to 2018. This has great significance in formulating or adjusting policies to attract FDI in the coming time because it is time for Vietnam to focus on the social and environmental impacts of FDI, not just pay attention to economic impact of this capital inflow.

2. Method

The study uses regression and decomposition methods to examine the direct and spillover effects of FDI on the employment and wages of male and female workers in Vietnam. First, based on the Mincer wage model and research by Sharma (2020), Helble and Takeda (2020), the article uses the following regression model:

$$Y_{i,p,t} = \alpha + \beta X_{i,p,t} + \gamma FDI_{p,t} + \theta(FDI_{p,t} * X_{i,p}) + \varepsilon_{i,p,t} \quad (1)$$

Where: Y is the wage of individual i in province p and in year t (years 2008, 2012, 2016, 2018); FDI is the variable representing foreign direct investment registered in each province in year t; X are the control variables representing the demographic characteristics of each individual (such as age, sex, education, marriage); and ε are the standard errors.

The Oaxaca-Blinders method was then used to examine whether foreign direct investment would help reduce gender wage disparities. Accordingly, the regression models for men and women are respectively:

$$Y_M = \alpha_M + X_M \beta_M + \gamma_M FDI_M + \varepsilon_M \quad (2)$$

$$Y_F = \alpha_F + X_F \beta_F + \gamma_F FDI_F + \varepsilon_F \quad (3)$$

The model to estimate the wage gap between men and women has the following form:

$$\begin{aligned} \Delta \hat{E}[Y] &= \hat{E}[Y_M] - \hat{E}[Y_F] = (\hat{\alpha}_M + \bar{X}_M \hat{\beta}_M + \overline{FDI}_M \hat{\gamma}_M) - (\hat{\alpha}_F + \bar{X}_F \hat{\beta}_F + \overline{FDI}_F \hat{\gamma}_F) \\ &= (\bar{X}_M - \bar{X}_F) \left(\frac{\hat{\beta}_M + \hat{\beta}_F}{2} \right) + (\hat{\beta}_M - \hat{\beta}_F) \left(\frac{\bar{X}_M + \bar{X}_F}{2} \right) + (\overline{FDI}_M - \overline{FDI}_F) \left(\frac{\hat{\gamma}_M + \hat{\gamma}_F}{2} \right) + (\hat{\gamma}_M - \hat{\gamma}_F) \left(\frac{\overline{FDI}_M + \overline{FDI}_F}{2} \right) + (\hat{\alpha}_M - \hat{\alpha}_F) \end{aligned}$$

Where: $\hat{\alpha}$, $\hat{\beta}$, and $\hat{\gamma}$ are estimates of the parameters in the model (2) and (3)
 \bar{X}_M , \bar{X}_F are the mean values of the explanatory variables for men and women, respectively.

Table 1. List of variables used in the model

	Name of variable	Meaning
1	<i>lnWage</i>	Logarithm of wages of members participating in the labor market
2	<i>Lnfdipercapita</i>	Logarithm of foreign direct investment per capita
3	<i>Age</i>	Age of members
4	<i>Marriage</i>	The member's marital status (= 1 currently married; = 0 other)
5	<i>Education</i>	The member's highest degree (=1 elementary school; =2 junior high school; = 3 high school; =8 college; = 9 university; = 10 masters; = 11 doctorate; = 12 others)
6	<i>Gender</i>	Gender of household member (=1 if member is male; =0 if member is female)
7	<i>Lnfdipercapita_Gender</i>	The interaction variable between the variable <i>Lnfdipercapita</i> and the variable <i>Gender</i>
8	<i>Lnfdipercapita_Age</i>	The interaction variable between the variable <i>Lnfdipercapita</i> and the variable <i>Age</i>
9	<i>Lnfdipercapita_Marriage</i>	The interaction variable between the variable <i>Lnfdipercapita</i> and the variable <i>Marriage</i>
10	<i>Lnfdipercapita_Education</i>	The interaction variable between the variable <i>Lnfdipercapita</i> and the variable <i>Education</i>

Based on the VHLSS dataset of 2008, 2012, 2016, 2018

To conduct research, the topic exploits two main data sources, which are: Household Living Standards Survey (VHLSS) in 2008, 2012, 2016 and 2018; and provincial FDI data from the Statistical Yearbooks of the respective years. The Household Living Standards Survey (VHLSS) is conducted by the General Statistics Office every two years to monitor the living standards of households and basic socio-economic conditions. The survey was conducted nationwide with a sample size of 9189 households in 2008 and 9399 households in 2012. The dataset provides complete demographic information of household members (such as age, gender, ethnicity, marital status) as well as information on employment, education, health care, income, spending, etc. In addition, the study also uses the data of foreign direct investment at the provincial level and the population of the provinces in the respective years from the Statistical Yearbook to calculate the data on FDI per capita in 63 provinces and cities across the country.

3. Results

Using probit regression model to consider the impact of FDI on employment, the study got the results as shown in the table below. Accordingly, the results show that most of the variables mentioned in the model are statistically significant and have certain effects on the employment status of individuals. Specifically, table 2 shows that FDI has a positive

effect on employment, but this effect is quite limited (a 1% increase in FDI per capita increases the probability of having a job by 0.0818). The variable *Education* has a positive coefficient, which means that the more qualified an individual is, the greater the probability of having a job. Similarly, the variable *Age* has a positive coefficient and is statistically significant, implying that the older an individual is (with more working experience), the greater the chance of getting a job.

Regarding the gender aspect, it is worth noting that FDI has a positive effect on both male and female workers, but the employment probability of women is higher than that of men. This proves the point stated above that foreign investment contributes to more employment opportunities for women (a 1% increase in FDI per capita increases the probability of women having more jobs 0.0774 compared to just 0.00467 for men). In addition, female workers with higher qualifications have more job opportunities than men, as shown by a positive and statistically significant coefficient of the variable *Education* for women.

Table 2. Probit regression results on the impact of FDI on employment

Employment (yes =1; no = 0)	Total	Male	Female
<i>Lnfdipercapita</i>	0.0818*** (0.0062)	0.00467*** (0.0075)	0.0774*** (0.0083)
<i>Gender</i>	0.7473*** (0.0626)		
<i>Education</i>	0.2353*** (0.0157)	0.1957*** (0.0228)	0.2784*** (0.0223)
<i>Age</i>	0.0090*** (0.0020)	0.0021 (0.0034)	0.0126*** (0.0027)
<i>Marriage</i>	1.3613**** (0.0807)	1.8052*** (0.1344)	1.0398*** (0.1042)
<i>Lnfdipercapita _Gender</i>	-0.0382*** (0.0053)		
<i>Lnfdipercapita _Age</i>	-0.0015*** (0.0001)	-0.0015*** (0.0002)	-0.0015*** (0.0002)
<i>Lnfdipercapita _Marriage</i>	0.0137*** (0.0068)	0.0071 (0.0114)	0.0195** (0.0088)
<i>Lnfdipercapita _Education</i>	-0.0057*** (0.0013)	-0.0043** (0.0019)	-0.0069*** (0.0018)
<i>Constant</i>	-1.9815*** (0.0735)	-1.1500*** (0.0875)	-2.0080*** (0.0978)
<i>Number of observations</i>	63,717	33,519	30,198
<i>Pseudo R²</i>	0.2707	0.2741	0.2659

Source: Author's calculation from VHLSS data for the years 2008, 2012, 2016, 2018

Note: **, *** are statistically significant at 5%, 1% levels, respectively.

Similar to the analysis above, the study conducts OLS regression to examine the impact of FDI on wages of both male and female employees. The regression results presented in Table 3 show that most of the coefficients are statistically significant and affect wages. The variable FDI has a positive coefficient for both men and women, implying that foreign investment contributes to the increase in average wages in general and the wages of both male and female workers in particular, but the increase in women's wages is higher than that of men (0.0746 versus 0.0668). Moreover, the wage is directly proportional to the education level of the workers, in which women with advanced degrees will receive a higher increase than men.

Table 3. OLS regression results on the impact of FDI on wages

Wage	Total	Male	Female
<i>Lnfdipercapita</i>	0.0697*** (0.0022)	0.0668*** (0.0029)	0.0746*** (0.0035)
<i>Gender</i>	0.2266*** (0.0097)		
<i>Education</i>	0.0877*** (0.0016)	0.0845*** (0.0022)	0.0921*** (0.0024)
<i>Age</i>	-0.0024*** (0.0004)	-0.0041*** (0.0006)	-0.0010 (0.0006)
<i>Marriage</i>	0.1490*** (0.0117)	0.2135*** (0.0166)	0.0085*** (0.0168)
<i>Constant</i>	7.2302*** (0.0310)	7.5158*** (0.0389)	7.1532*** (0.0491)
<i>Number of observations</i>	28,238	16,567	11,671
<i>R²</i>	0.1399	0.1212	0.1505

Source: Author's calculation from VHLSS data for the years 2008, 2012, 2016, 2018

Note: *** is statistically significant at the 1% level.

Next, the estimation results from the Oaxaca-Blinder decomposition show the difference in wages between male and female workers over the years. The decomposition results show that the average wage of male workers is always higher than that of female workers during the whole study period but tends to decrease. Analyzing the detailed decomposition results, it can be seen that the E component contributes to reducing the difference between the sexes; while component C widens the wage gap between men and women.⁵ Among the factors that can be explained, the factor of education has the largest contribution to reducing the wage gap between the sexes; followed by the factor of foreign investment capital (in the period 2012-2018).

⁵ Factors causing this difference include: E (Endowment) is observable characteristics account for the difference; C (Coefficient) is the unobserved characteristics such as social prejudice on gender, stratification in the labor market, institutions and policies, discrimination,...; EC is the interaction component between the two components (due to the difference in both observable and unobserved characteristics).

Table 4. Wage disparity decomposition results between men and women, 2008-2018

Wage	2008	2012	2016	2018
Difference				
Male	9.6247***	8.0180***	8.3388***	8.5672***
Female	9.4576***	7.8263***	8.2088***	8.4108***
Gap	0.1671***	0.1917***	0.1299***	0.1564***
Decomposition				
E	-0.0175	-0.0483***	-0.0793***	-0.0772***
Lnfdipercapita	-0.0023	-0.0077***	-0.0082***	-0.0114***
Age	0.0384***	-0.0010	-0.0075***	-0.0050**
Marriage	-0.0015	-0.0042***	-0.0091***	-0.0054**
Education	-0.0521	-0.0353***	-0.0544***	-0.0553***
C	0.2154***	0.2478***	0.2145***	0.2269***
EC	-0.0307***	-0.0079	-0.0052	0.0066
Number of observations	4,790	7,181	7,792	8,453

Source: Author's calculation from VHLSS data for the years 2008, 2012, 2016, 2018

*Note: *, **, *** are statistically significant at the 10%, 5% and 1% levels, respectively.*

In general, the regression results show that FDI inflows play a positive role in creating jobs and improving workers' incomes in our country in the period 2008-2018. Notably, women are the beneficiaries of this capital flow more than men. In addition, FDI inflows also contribute to reducing the difference in access to employment opportunities and wages between the sexes. Although this contribution is still relatively small, it tends to increase in recent years. Another noteworthy point is that unobserved factors such as gender stereotypes, discrimination in the labor market, or policy institutions, etc. have a major impact on the gender gap in terms of employment and wage in Vietnam.

4. Discussion and Conclusion

Through analysis above, it can be concluded that FDI inflows contribute to job creation and income growth for workers across the country (especially female workers) in the period 2008-2018. However, the impact of this capital inflow is still very limited, reflected in the coefficient of impact of FDI on employment and wages (FDI per capita increase by 1% increases the probability of having a job by 0.0279 and wages increased by 0.0748%). This means that the number of jobs created from FDI inflows is very small.

Regarding indirect as well as spillover effects, it is difficult to accurately assess the number of jobs created in the economy according to the backward and forward linkage or vertical and horizontal linkages with the FDI sector, but the quantitative analysis shows that overall results are positive. This implies that FDI inflows create positive spillover effects in

creating job, but the effect is still limited. The first reason must be mentioned is that the capacity of domestic enterprises is still low. Most of the domestic enterprises are small, with low innovation capacity, and the workforce is not fully equipped with knowledge and skills in foreign languages, management, technology, etc. This limitation makes it difficult for domestic enterprises to meet the requirements of product quality, price as well as reliability. Although, the government has introduced many policies to support domestic enterprises from technological innovation, skills training to market development, helping them to join cooperation with FDI enterprises, but the programs, policies are overlapping and have not yet yielded clear results due to the lack of monitoring mechanisms and a comprehensive evaluation system (Ninh Thi Hoang Lan, 2019).

In addition to the issue of the quantity of jobs and wages, there are many other issues worth noting in creating decent jobs and reducing gender inequality such as issues of working conditions, social security, etc. In fact, in Vietnam today, the quality of workers is generally still low, although it is improving. The number of qualified and skilled workers or high-quality workers is far short of the demand. The proportion of workers without a degree or training certificate in FDI enterprises accounts for 80% of the total number of employees and this number has remained almost unchanged from 2011 to present (Dang Thi Ngoc Anh et al., 2020). Low qualification and skills make it more difficult for workers to implement new technology and grasp new knowledge. In addition, the behavior and labor discipline of a large part of employees is still weak, forcing FDI enterprises to take a long time to re-train before being officially recruited.

In the coming time, in order for FDI inflows to create more jobs and improve the living standard of workers, especially female workers, and at the same time contribute more to the goal of reducing gender inequality in the labor market, the study proposes the following recommendations:

Firstly, it is necessary to further promote the attraction of quality FDI projects to the provinces and cities but need to be managed in such a way as to obtain as many positive benefits as possible. Theoretical and empirical studies as well as practices in Vietnam have shown that foreign investment inflows play a certain role in promoting gender equality, not only as an important source of additional capital, but also in creating more jobs and improving living standards for workers, especially female workers. Therefore, attracting many quality FDI projects is a prerequisite for the country to be able to take advantage of foreign capital as well as the benefits generated from this capital towards achieving the desired goals in the socio-economic development of the country. Along with attracting FDI in terms of quantity, the government needs to manage and direct this capital flow into industries, sectors or localities so that it not only meets economic development goals but also ensures social and environmental goals at the same time. For example, setting up policies to attract FDI inflows to industries that need a lot of female workers or environmentally friendly industries with certain requirements will contribute to providing more jobs and a better working environment for women.

Secondly, the government needs to mainstream gender provision in strategies and policies, from education, health care, infrastructure development to trade and investment. These policies need to be approached in a coordinated and integrated manner to ensure the achievement of development goals relevant to women. Policies and mechanisms also need to be developed in the direction of encouraging employment to benefit female workers, contributing to promoting gender equality in the labor market. More specifically, the government can enhance opportunities for female workers in FDI enterprises through a number of policies such as: providing adequate, accessible and affordable infrastructure and social protection (transportation, education, health care, child care, maternity benefits, ...) to create favorable conditions for women; ensure that minimum labor standards and working conditions are consistent with ILO conventions and applied to all workers, in particular vulnerable workers; encourage companies to appoint a special inspector (or female inspector) to oversee gender equality issues in the workplace. In addition, as mentioned above, the export sector will affect gender equality in the labor market. Therefore, policymakers need to incorporate a gender perspective into strategies to negotiate with foreign investors or support export strategies.

Thirdly, strengthen training and enhance the quality of the female workforce regularly. The above quantitative analysis shows that the qualification of workers has a positive relationship with job opportunities, especially the probability of employment and wage growth is higher among educated women than men. Therefore, the Government should pay more attention to human resource development in general and women in particular; there are appropriate investment in training, skill improvement, human resource development and prepare for both quantity and quality of the next class. With good policies, foreign investment will be a strong catalyst providing more job opportunities as well as better employment conditions for workers. Currently, the development of technology and the knowledge economy, associated with an increasing dependence on automation, will help to blur the line between men and women, creating conditions for high qualified workers. Therefore, women who already have higher education will benefit from this trend. The increasing participation of women in science and technology industries is the basis for them to diversify their labor fields, exploit opportunities from industries that are usually dominated by men, and at the same time help them to better prepare for knowledge-intensive labor markets.

Finally, making use of corporate culture, social standards and labor laws to eliminate gender stereotypes and encouraging men to play a more active role in the family. When men participate more in household chores and share responsibilities, it helps to reduce the burden on women and promote gender equality. Although changing gender stereotypes as well as social notions about women is a long process, it is a goal that policy makers and governments need to pay attention to. In addition, promoting a working environment where women hold senior and managerial positions will also put pressure to change gender norms in the workplace and create models for the future female workers to follow./.

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DETERMINANTS OF TOTAL FACTOR PRODUCTIVITY OF DOMESTIC SUPPORTING INDUSTRY FIRMS IN VIETNAM

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Abstract

In the context of economic integration and Global Value Chain participation, domestic supporting industry has played a crucial role for the Vietnam economy. Improving productivity of domestic supporting industry firms is in dire need to promote the supporting industry development. The paper is aiming at investigating the determinants of TFP of domestic supporting industry firms. There are three groups of the determinants as internal and external and firm characteristic factors. After estimating TFP ($\ln TFP$) of domestic supporting industry firms, a panel model of TFP and the determinants is run. The findings show that internal factor such as labor quality and capital intensity have opposite impacts on TFP. While FDI customers have helped the domestic firms increase the TFP, FDI competitors have negative impacts. Domestic demands have also negative impacts. Other findings on institutional environment factors and firm characteristic factors also provide further insights on domestic supporting industry firms.

Keywords: *FDI, institutional environment, supporting industry, TFP*

1. Introduction

Supporting industry (SI) is the industry that provides components, spare parts and inputs for the production of finished products. SI has played an important role in industrial development in particular and economic development in general, especially in the context of economic integration and promotion of participation in global value chains (GVC).

Given the importance of SI, the Government has issued policies to promote the development of SI. Some important policies of the Government can be mentioned such as the Strategy on Industrial Development of Vietnam to 2025, with a Vision to 2035 (Prime Minister, 2014); the Master plan on the development of SI to 2020, vision to 2030 (Ministry of Industry and Trade; 2014); Decree of the Prime Minister (Prime Minister, 2015) on the development of SI and the recent resolution of the Government on measures for SI development (Government of Vietnam, 2020). These policies have introduced many specific measures to support SI firms, which are expected to create a push to promote SI's development.

With the wave of foreign investment and support from the Government, Vietnam's SI has made its improvements. The number of SI firms has been constantly increasing. According to the Report of the Ministry of Industry and Trade based on the survey results in 2019 (MOIT, 2019), the majority of SI firms are located in the Southeast region and the Red River Delta with a ratio of 51% and 34% respectively. The number of SI firms in the mechanical industry accounted for a large proportion, over 60%; followed by a number of firms in the textile, leather and footwear industries (22%), electronics (10%). Domestic SI firms account for more than 70% of the total number of firms, in which most are small and medium firms. Currently, SI firms accounted for 4.5% of the total number of enterprises in the processing and manufacturing industry, creating jobs for about 600,000 employees, accounting for 8% of employees in the whole processing and manufacturing industry with their net revenue of more than 900,000 billion VND, contributing to 11% of the revenue of the whole industry. Some local SI firms have good capacity in such fields as manufacturing molds, components for motorbikes and bicycles; electrical cables, plastic components - technical rubber, tires. These products partly meet the market demand and exports. The development of SI firms also contributes to an increase in the localization rate of a number of products such as household electronics (30-35%), electronics for cars and motorbikes (40%); some types of cars such as trucks (55%), buses (40%) (Nguyễn Đình Quyết, 2021).

However, domestic SI firms still have many weaknesses. The majority of domestic SI firms are small and medium-sized (accounting for 88%), with low production capacity and efficiency, limited financial capacity, low technological level, and unsatisfactory human resources. Currently, there have been 2,000 firms producing spare parts and components, of which only about 300 enterprises can participate in the production network of multinational corporations. Therefore, although attracting many FDI firms, inputs, components for the final products producing FDI firms are mainly imported or supplied by FDI SI firms. The low localization rate is the weakness of Vietnam's SI. Specifically, the textile and garment sector has a localization rate of about 40%-45%, that of the leather and footwear sector is also only 40%-45%; in electronics, informatics, telecommunications; specialized electronics and high-tech industries, the localization rates are much lower at 15% and 5%, respectively (Nguyễn Văn Nhật, 2021).

It can be seen that domestic SI firms mainly produce simple components with low value, and only receive contracts from FDI SI firms. It means that the domestic SI firms have mostly participated in the second or third-tier suppliers for FDI exporting firms which are usually multinational companies and corporations (MNCs) (WB, 2017). Therefore, it is difficult for domestic supporting industry enterprises to receive technology spillover from MNCs.

Improving Total Factor Productivity (TFP) of domestic SI firms is in dire need, especially in the context of integration to promote Vietnam's participation in global value chains. It requires a deeper understanding of the determinants of the TFP of these firms.

SI is a multidisciplinary and relatively complex concept and has not yet been defined uniformly. In this study, we use the concept of SI as mentioned in Decision 9028/QĐ-BCT. Accordingly, supporting industries are divided into 7 sub-sectors, which are (1) Textile,

garment, and footwear supporting industry (Textile SI); (2) Plastic-rubber components (Plastic-rubber SI); (3) Fabricated metal mechanical components (Fabricated metal SI); (4) Electronic components (Electronic SI); (5) Electrical components (Electrical SI); (6) Machine-transportation components (Machine-transportation SI); (7) High-tech supporting industry (High-tech SI).

Currently, there have been a few studies on TFP and determinants of TFP of domestic SI firms, but there have been studies on factors affecting the development of SI firms, as well as studies on factors affecting TFP of enterprises in general. TFP is an important factor in promoting firms' development. Therefore, it can be seen that the factors affecting TFP are also the factors promoting the development of local SI firms. Some determinants of TFP of domestic SI firms are summarized as follows:

Market demand: according to Ohno (2007), market size plays a decisive role in the existence and development of SI, because SI firms must have a large enough amount of orders to participate in the market. Huyèn (2018) demonstrates the positive impact of market size on revenue growth of electronics SI.

Human resources quality: labor quality is confirmed to be an important factor affecting TFP of all firms (Newman, Rand, Talbot, & Tarp, 2015); (Moralles & Moreno, 2020); including SI firms (Ohno, 2007). SI firms use a lot of machines, requiring skilled workers to be able to effectively use the machine's capacity (Ohno, 2007). Therefore, due to the characteristics of SI firms as being small and medium-sized enterprises, the human factor plays an even more important role in improving firms' productivity. The skills and experience of workers have a positive influence on the development of SI firms in Bac Ninh province (Nhạn, 2019)).

Capital intensity: initial heavy investment is one of the requirements for many SI firms. The capital intensity measured by capital per worker also shows the firms' capacity and competitiveness (Ohno, 2007).

The link between domestic SI firms and FDI firms: Ohno (2007) pointed out that narrowing the information gap between the domestic SI firms and FDI customer firms would boost domestic SI development. FDI in the downstream market is one of the factors contributing to the development of domestic SI. Information is a factor also mentioned in many studies such as Huyèn (2018), Nhạn (2019). Besides, linkages with FDI firms also create spillover effects on TFP productivity of firms in general (Newman et al., 2015; Sari et al., 2016; Sur & Nandy, 2018).

Institutional environment: This factor includes a stable policy environment, preferential policies, and narrowing the gap in awareness and information between domestic SI suppliers and foreign enterprises. These are the factors that ensure comprehensive SI development (Ohno, 2007). Huyèn (2018) affirmed that policies and information systems are the factors that create a favorable business environment for SI firms in Vietnam's electronics industry. Information connection and tax policy are also confirmed to have a positive impact on the development of SI firms in Bac Ninh province (Nhạn, 2019).

In addition, other factors affecting the performance of enterprises in general and SI enterprises in particular should be mentioned such as firm size, firm age, geographical location of operation, typical feature of particular sub-sector.

In this study, the determinants are categorized into three groups such as internal, external and firms characteristic factors to get insights of TFP of domestic SI firms. Internal factors are labour quality and capital intensity; external determinants include FDI presence, market demand and institutional environment; and firms characteristic factors are firm size, geographical location of operation and typical feature of particular sub-sector.

2. Method

2.1. Method of TFP estimation

TFP derived from the Cobb-Douglas production function was initiated by Solow in 1957 and developed into many different schools. Solow (1957) with three assumptions about the production function: (i) economies of scale; (ii) capital and labor are exogenous and (iii) production is efficient, all firms are on the production frontier. With these three assumptions, TFP is the residual of the production process after accounting for the contribution of labor and capital inputs.

With the parametric approach, the Cobb-Douglas production function of the form CES (constant elasticity of substitution production function) is a production function with constant input substitution elasticity. The CES production function is a linear homogeneous function with constant input substitution elasticity. The CES function satisfies the condition (i) of Solow. To relax this condition, the transcendental logarithmic production function (translog function) developed since 1967 (Kmenta, 1967) has the advantage of more flexible assumptions. The translog function does not assume constant input substitution elasticity and converts from a linear relationship between output and input to a non-linear relationship. There are studies that estimate TFP growth from the transcendental logarithmic production function (Francis, Karalashvili, Maemir, & Meza, 2020); (Le, Nguyen, & Do, 2020). Canh & Phúc (2022) found out that the forecast results of Vietnam's GDP using the Translog function is more reliable results than the forecast using the Cobb-Douglas function.

Besides, realizing that inputs such as investment capital and raw materials are endogenous with TFP, Solow's hypothesis (ii) is violated, economists continue to develop semi-parametric methods to estimate quantity of TFP with two main representatives, Olley & Pakes (1996) and Levinsohn & Petrin (2003). Olley & Pakes (1996) developed a semi-parametric method to overcome the endogenous phenomenon of investment capital, while Levinsohn & Petrin (2003) overcame the endogenous phenomenon of input materials. Following this approach, Wooldridge (2009) proposed a method of using instrumental variables to estimate the coefficients of the production function. In these methods, past input decisions (for instance the choice to invest in capital) are used to proxy for the current production and use of inputs. However, lagged variables requires balanced panel data which is difficult to have in firms' data base from survey.

Therefore, in this paper, with the data availability, we use the translog production function to estimate TFP.

A Cobb-Douglas production function in the log-linear can be written as follows:

$$\ln VA_{it} = \beta_0 + \beta_1 \ln K_{it} + \beta_2 \ln L_{it} + \varepsilon_{ijt} \quad (1)$$

and for the case of the trans-log production function, we employ:

$$\ln VA_{it} = \beta_0 + \beta_1 \ln K_{it} + \beta_2 \ln L_{it} + \beta_3 (\ln K_{it})^2 + \beta_4 (\ln L_{it})^2 + \beta_5 (\ln K_{it})(\ln L_{it}) + \varepsilon_{it} \quad (2)$$

In which,

- VA_{it} is the value-added of the firm i of the subsector j in year t , and it is measured in millions of Vietnamese Dong (VND). VA is estimated by income method, in which VA of a firm consists of 4 components (i) labour income, (ii) firm profit, (iii) depreciation, and (iv) indirect taxes minus subsidies

- K_{it} is the net capital of the firm i in time t . It is measured in VND million and estimated by the fixed asset of the firm.

- L_{it} is labour, which is measured in person, representing the total employment in the firm i in year t .

- ε_{it} is an unanticipated shock or random error term, assuming to follow the normal distribution

In order to decide whether the translog form is better, F-test for joint significance of translog terms (all interaction and square terms) are conducted.

From the production functions, Firms' (logged) TFP is estimated as a sum of the constant and the residual:

$$\ln \widehat{TFP} = \widehat{\beta}_0 + \widehat{\varepsilon}_{it} \quad (3)$$

2.2. Determinants of TFP

The equation for TFP determinants can be as follows:

$$\ln TFP_{it} = \delta_0 + \delta Z_{it} + \omega_{it} \quad (4)$$

In which Z_{it} is a vector of determinants to TFP ($\ln TFP$), including:

- (1) Internal factors: Labor quality, capital intensive
- (2) External factors: FDI horizontal effect, FDI backward spillover effect, domestic market demand, business environment
- (3) Firm characteristic factors: firm geographic location, firm size, sub-sector of firm

Variable construct:

(1) Internal factors

Labor quality ($\ln Hum$) is proxied by the firm's labor cost per worker as proposed by (Le HQ, 2011). In the model, we use natural logarithm of labor cost per worker

Capital intensive ($\ln Cl$) is measured by natural logarithm of the value of fixed asset per worker

(2) External factors

FDI horizontal effect ($HFSpill$) is the horizontal spillover effects from FDI to domestic firms' productivity in the same market. It is calculated as follows:

$$HFSpill_{jt} = \frac{\sum_{i \in j} FSh_{it} * L_{it}}{\sum_{i \in j} L_{it}}$$

In which FSh_{it} is the foreign equity share of firm j at time t , j describes the sub-sector of supporting industry

FDI backward effect ($BFSpill$) measures the backward spillover effects of FDI firms in the upstream industries that are supplied by one industry. FDI backward effect is calculated as follows:

$$BFSpill_{jt} = \sum_k b_{kl} * HSpill_{jt}$$

$BFSpill_{jt}$ is FDI Spillover effect of sub-sector j captures the presence of FDI firms from other industries which have firms in j sub-sectors as their suppliers. b_{kl} is drawn from IO-tables showing the backward linkages of other sectors on sector j .

Domestic market demand ($BSpill_ratio$) describes the impact of backward linkages of all firms in other sectors which have firms in sector j as their suppliers. The variable is calculated as follows:

$$BSpill_ratio_{jt} = \frac{\sum_k b_{kl} * L_{jt}}{\sum_{i \in j} L_{it}}$$

For business environment variables, we have two variables. They are competition variable and informal (charges) variables. The two variables are taken from sub-indices of Provincial Competition Index (PCI). Competition variable (*competition*) is the policy bias sub-index and the Informal variable (*informal*) is the Informal charges sub-index

(3) *Firm characteristic factor variables:*

Region variable (*Region*) is a dummy variable, receiving nominal value from 1 to 6 corresponding 6 regions in Vietnam. They are 1 "Red River Delta" 2 "Northern Midlands and Mountainous" 3 "Central region" 4 "Central Highlands" 5 "South East" 6 "Mekong River Delta"

Size variable (*SIZE*) is also a dummy variable with nominal values from 1 to 4, corresponding micro-firms (with number of workers less than 10), small firms (with number of workers ranging from 10 to 100), medium firms (with number of workers ranging from 100 to 200) and large firms (with number of workers more than 200)

Firm sector (*supind*) is dummy variable with nominal values from 61 to 67, corresponding to 7 sub-sectors of supporting industry as followa

- (1) textile-leather
- (2) rubber-plastic
- (3) fabricated mental
- (4) electronics
- (5) electrics
- (6) machine-transportation component
- (7) hightech component

The foundation for identifying the seven subsectors can be found in Appendix 1

2.2. Data

Vietnam General Statistics Office (GSO) conducts the annual enterprises survey (VES) every year from 2000 which comprise key information of firms such as fixed assets, number of workers, labour wage, net turnover, firm ownership, and other firm's economic activities. In this study, we use panel data in 5 years from 2014 to 2018.

In order to estimate backward linkage effect, we use IO table 2016.

3. Results

3.1. Descriptive statistics

After cleaning data, we have sample of 60,812 observations of domestic supporting industry firms in five years, in which 11,560 observations in 2014; 15,981 observations in 2015; 5,967 observations in 2016; 12,161 observations in 2017 and 15,143 observations in 2018.

Majority domestic SI firms in the sample located in the Red River Delta (40%) and South East Region (40%). 95% firms are micro-small and small firms. Around 60% number of firms are in the sub-sector of fabricated metal, followed by rubber-plastic and textile-leather firms

Descriptive statistics of variables in the model are as follows:

Table 1. Descriptive statistics of firms characteristic factors

No.	Variable		Year				
			2014	2015	2016	2017	2018
1	Region						
	1	number	5,390	6,404	1,891	5,353	5,978
		%	46.63	40.07	31.69	44.02	39.48
	2	number	357	447	59	578	656
		%	3.09	2.8	0.99	4.75	4.33
	3	number	1,202	1,323	167	1,343	1,482
		%	10.40	8.28	2.80	11.04	9.79
	4	number	148	131	11	139	186
		%	1.28	0.82	0.18	1.14	1.23
	5	number	3,747	6,806	3,463	3,878	5,939
		%	32.41	42.59	58.04	31.89	39.22
	6	number	716	870	376	870	902
		%	6.19	5.44	6.3	7.15	5.96
2	Size						
	1	number	6,523	9,485	2,602	6,346	8,671
		%	56.43	59.35	43.61	52.18	57.26
	2	number	4,532	5,946	2,960	5,176	5,852
		%	39.20	37.21	49.61	42.56	38.64
	3	number	347	379	287	463	430
		%	3.00	2.37	4.81	3.81	2.84
	4	number	158	171	118	176	190
		%	1.37	1.07	1.98	1.45	1.25
3	supind						
	61	number	1,187	2,033	934	1,378	1,857
		%	10.27	12.72	15.65	11.33	12.26
	62	number	1,921	3,359	1,551	2,570	3,173
		%	16.62	21.02	25.99	21.13	20.95
	63	number	7,068	8,785	2,705	6,853	8,423

No.	Variable		Year				
			2014	2015	2016	2017	2018
		%	61.14	54.97	45.33	56.35	55.62
	64	number	112	181	76	167	216
		%	0.97	1.13	1.27	1.37	1.43
	65	number	569	654	279	456	590
		%	4.92	4.09	4.68	3.75	3.9
	66	number	466	656	301	510	593
		%	4.03	4.1	5.04	4.19	3.92
	67	number	237	313	121	227	291
		%	2.05	1.96	2.03	1.87	1.92

Table 2. Descriptive statistics of internal and external factors

No.	Variable		Year				
			2014	2015	2016	2017	2018
Internal factor							
1	lnCl	Mean	4.15	4.58	4.05	4.01	4.15
		SD	1.15	1.22	1.52	1.52	1.52
2	lnHum	Mean	3.78	3.89	3.90	3.93	3.97
		SD	0.52	0.53	0.63	0.55	0.56
External factor							
3	HFSpill	Mean	0.42	0.44	0.45	0.43	0.44
		SD	0.13	0.12	0.13	0.14	0.14
4	BFSpill	Mean	0.32	0.31	0.29	0.32	0.32
		SD	0.11	0.11	0.12	0.11	0.11
5	BSpill_ratio	Mean	2.05	2.03	1.89	1.88	1.78
		SD	1.09	1.20	1.33	1.13	1.01
6	Informal	Mean	4.82	4.67	5.10	5.14	5.81
		SD	0.58	0.61	0.59	0.70	0.58
7	Competition	Mean	4.43	4.33	4.39	4.66	5.37
		SD	0.74	0.56	0.57	0.65	0.72

Mean = average, SD = standard deviation

3.2. Production function

(1) Linear Cob-Douglas production function or Translog production function

Running the OLS regression for the equation (2), then conducting F-test for joint-significance of three variables $[(\ln K_{it})^2; (\ln L_{it})^2; (\ln K_{it})(\ln L_{it})]$, we have the result of the F-test as follows:

$$F(3, 60806) = 219.90$$

$$\text{Prob} > F = 0.0000$$

With that result, we can conclude that with the significance level of 1%, we can reject the null hypothesis that one of the three coefficients equals zero. Accordingly, the translog-production function is proved to be better.

(2) Fixed effect or Random effect for the production function

We have unbalance panel data from 2014 to 2018, to consider firm-specific observable component, we use Hausman test to select fixed effect or random effect model. The Hausman test is as follows:

```
//chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
// = 475.62
// Prob>chi2 = 0.0000//
```

Therefore, we can reject the null hypothesis of the random effect model and select the fixed effect one.

(3) TFP estimation

Running fixed effect panel model (2) with robust standard errors, we get residuals and the constant-coefficient. Then LnTFP estimate for each firm is the sum of the firm’s residual from the production function and the constant-coefficient

3.3. TFP determinant model

In the equation (4), Z_{it} is a vector of determinants, including some variables of firm characteristics that are time-invariant. Therefore, we specify the random-effect panel model for equation (4) (rather than a fixed-effect model which takes into account time-invariant components). Running the random effect model with robust standard error for equation (4), we have the results are as follow:

Dependent variable: Ln(TFP)

Variable	Coefficient	Variable	Coefficient	Variable	Coefficient
lnHum	0.86*** (0.01)	62.supind	-0.25*** (0.07)	2.Region	0.01 (0.01)
lnCI	-0.01*** (0.00)	63.supind	-0.68** (0.31)	3.Region	-0.01 (0.01)
HFSpill	-0.23* (0.13)	64.supind	0.42*** (0.14)	4.Region	0.01 (0.03)
BFSpill	3.31** (1.38)	65.supind	-0.08 (0.27)	5.Region	0.05*** (0.01)
BSpill_ratio	-0.17*** (0.02)	66.supind	0.42* (0.25)	6.Region	0.12*** (0.01)
Informal	0.05*** (0.00)	67.supind	0.45 (0.45)	2.SIZE	0.10*** (0.00)
Competition	-0.01 (0.00)			3.SIZE	0.35*** (0.01)
				4.SIZE	0.49*** (0.02)
				Constant	-0.14 (0.27)

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

The result shows that labor quality (LnHum) have significantly positive impact on TFP (LnTFP), whereas investment in capital per worker (LnCl) has negative impact. For impact of foreign firms, while the backward-spillovers are significantly positive, the horizontal impact (HFSpill) is negative. Domestic demand (BSpill_ratio) has negative impact as well.

For business environment variables, informal charges (informal) have helped domestic SI firm to improve their TFP, whereas policy bias (competition) is insignificant.

For firm characteristic variable of sub-sector, firms in sub-sectors of electronics (64) machine-transportation components (66) have higher TFP, while firms of rubber-plastic (62) and fabricated metal (63) have lower TFP than that of textile-garment firms. Firms in South East Region (5.Region) and Mekong River Delta (6.Region) have higher TFP than firms in Red River Delta Region. TFP of micro-firms is the lowest.

4. Discussion and Conclusion

As mentioned in the results, internal factors have significant impacts on TFP of domestic SI firms. Firms with higher quality workers would have higher TFP while capital intensity have negative impact. One main feature of SI is that investment in machinery plays important role, the results may lead to the fact that domestic SI firms have not efficiently invested in machinery. With majority of micro-small and small domestic SI firms, they face a lot of difficulty in financial access. Inefficiently using capital may make the problem even worse.

FDI Horizontal effects is negative, showing that FDI SI firms put competitive pressure on their domestic counterparts, making the latter less efficient. It may be explained by the fact that the FDI SI firms are more competitive than the domestic ones, receiving more contacts from FDI customer firms in downstream industries. The result is shared by other studies about the FDI horizontal spillovers on domestic firms in manufacturing (Huynh, Nguyen, Trieu, & Tran, 2021) as well as other industries (Ni, Spatareanu, Manole, Otsuki, & Yamada, 2017); (Thang, Pham, & Barnes, 2016). On the other hand, foreign presence in backward linkages has positive impacts on domestic SI firms. It can be interpreted that FDI firms in downstream industries have promoted the productivity of domestic SI firms. Positive backward effects are found in manufacturing sectors (Huynh, Nguyen, Trieu, & Tran, 2021) and some services like retails, wholesales sectors (Rahman & Inaba, 2021). Among foreign firms in downstream markets, those from Asia, especially Taiwan and China bring more benefits to domestic suppliers (Ni, Spatareanu, Manole, Otsuki, & Yamada, 2017).

Domestic market demand has negative impacts, showing that increasing demand for supporting industry products reduces the productivity of domestic SI firms. As mentioned in the literature review, market demand is crucial for the development of SI. However, in the case of Vietnam's domestic SI, domestic market demand even impose negative impacts. That elaborates the fact that the increased domestic demand is met by FDI SI firms or imported inputs. This conclusion is also consistent with the negative horizontal impact from FDI SI firms.

For business environment, positive impact of informal charges on TE shows that informal charges are really a "lubricant" cost that helps domestic SI firms to be more favorable in production and business.

Among 7 sub-sectors of SI, firms of electronics and machine–transport components have higher productivity than firms of other SI sub-sectors. According to Eurostat indicators on the High-tech industry and Knowledge-intensive services (High-tech aggregation by NACE Rev.2), electronics and machine–transport components are categorized as sub-sectors of high-technology level. With many FDI projects in electronics and transport vehicles and the positive backward spill-overs show that electronics and machine-transportation sub-sectors are those which have made the most use of FDI/

Although many domestic SI firms are located in the Red river delta region and the South East region which are the two economic centers of Vietnam, the results show that those in the South would have higher efficiency than those in the North. The findings trigger further study to learn more about the situation of SI firms in the two economic centers.

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PROMOTE ECONOMIC COOPERATION WITH THE ASIA-PACIFIC REGION IN THE PROCESS OF VIETNAM'S ECONOMIC INTEGRATION

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Abstract

The Asia-Pacific region has always been playing a particularly important role in the integration and development of Vietnam. A substantial number of Vietnam's main trading partners are mostly countries in this region. Therefore, promoting Vietnam's economic cooperation with countries in this region should be the first priority in the upcoming time. This study has assessed Vietnam's economic cooperation with countries in the Asia-Pacific region through multilateral and bilateral cooperation as well as cooperation through the signing and implementation of FTAs, thereby recommendations to boost Vietnam's economic cooperation with the Asia-Pacific region in the coming time are suggested .

Keywords: *Economic cooperation, Asia - Pacific region, Economic integration.*

1. Introduction

The Asia-Pacific region is a large area, with the country ending in the North being Mongolia, South is New Zealand, East is the islands of Oceania and West is Pakistan. Asia-Pacific is a region of strategic importance. Asia - Pacific currently includes 21 countries, which are: (Australia, Brunei, Cambodia, China, Hong Kong, Macau, Taiwan, East Timor, Fiji, Indonesia, Kiribati, Laos, Nepal, Russia, Japan. , Malaysia, Micronesia, Mongolia, Myanmar, Nauru, New Zealand, PalauPapua New Guinea, Philippines, Marshall Islands, Solomon Islands, Samoa, Singapore, Thailand, North Korea, South Korea, Tonga, Tuvalu, Vanuatu , Vietnam, American Samoa, Guam, Northern Mariana Islands). This area is well-known for its incredibly richness in natural resources, especially oil, which accounts for more than 65% of the world's reserves, and is opened for many of the world's arterial roads passing through. In addition to its physical vastness, the region exhibits historical, cultural and ethnic diversity as well as many stages of political development and economic development.

Geographically and politically speaking, Vietnam has always maintained an important position in the Asia-Pacific region, which is a leading strategic region in the world. Southeast Asia is located on the most important transportation routes, maritime routes, and is one of the busiest areas in Asia, a land of great potential and one of the most dynamic development areas in the world. Vietnam is located at the lifeline of the regional economy where there are strong and dynamic economies that are the growth engine of the region and the world. Furthermore, Vietnam is the main bridge connecting the two continental economies of Southeast Asia and Asia. It is the gateway to the sea of Laos, Northeast Cambodia and Thailand, and Southwest China. Vietnam has favorable conditions to strengthen connectivity, promote cooperation and development in the region. Vietnam's

geographical position has always been the gateway to the region, making our country an area of geopolitical competition, establishing, and expanding influence among major powers. In the current new context, Vietnam's values and strategic role are meaningful to major countries in implementing and realizing the strategies of major powers in the region. This strategic value is an advantage for Vietnam to promote its strengths and potentials, attract a lot of investment capital, and at the same time, it is also a challenge in the economic development of the country and in the pursuit of sustainable development and protect national sovereignty.

Nowadays, as a common voice among the developed countries is nowhere to be found in multilateral forums (WTO, APEC, etc.), the globalization process is facing many new challenges. Particularly speaking, in the Asia-Pacific region, the risk of instability and fierce competition among great powers is on another level of complication. Changes in policies of some major countries in the field of cooperation, international economic integration changed, protectionism and populism rose. The Covid-19 epidemic has also severely affected the economy of all countries, interrupting the global supply chain, requiring countries in the Asia-Pacific region to cooperate in putting an end to this global disease, promoting economic development. Today's main trading partners of Vietnam are mostly major powers located in the Asia-Pacific region (China, the United States, Russia, Japan, South Korea...). These countries are holding some unreplaceable positions in the economic development of Vietnam in recent years and will remain unchangeable in the upcoming time. Therefore, grasping the relationship and cooperating with these countries in order to promote the economy should never be out of Vietnam's league.

2. Results

2.1. The importance of the Asia-Pacific region to Vietnam's economy

2.1.1. The world's manufactory

As the mention above, With the geographical and economic advantages, it is inevitable that countries should consider investing capital in the Asia-Pacific region. Currently, Asia - Pacific accounts for about 61% of world GDP; 48% of international trade; over 48% of the world's foreign direct investment. For developed countries, especially the United States, manufacturing enterprises are always looking for a variety of options to minimize the cost for labor and equipment, in order to maximize profits. Therefore, countries in the Asia-Pacific region, especially Vietnam and China, have been an ideal place for large enterprises to build up the workshops and factories. The trend of shifting manufacturing industry from China to Vietnam is taking place more and more clearly. Since before the China-US trading war, in fact some manufacturing in China has moved to Vietnam. As early as 2010, Vietnam, based on its cost advantage, replaced China as the world's largest production base for Nike sports shoes. Samsung's manufacturing industry has been "rooted" in China for many years, but soon built many manufacturing plants in Vietnam. In 2018, Samsung closed factories in Shenzhen and Tianjin, (China); In 2019, Samsung closed its Huizhou electronics factory - the last one in China. So far, Samsung's manufacturing industry has completely withdrawn from China, moving to Southeast Asia and South Asia. The

production shift within Southeast Asian countries shows that the prospects of the manufacturing industry in this region are still very large.

2.1.2. Exploitation potential in the East Sea

In the Asia-Pacific region, the importance of the East Sea area is well-known in the economic development of bordering countries in particular and in the region in general. The East Sea area also has important straits for many countries and with 4 out of 16 strategic roads of the world located in Southeast Asia. These straits' names are Malacca, Luzon, Lombok, Sunda, Makascha and Ombai-Wetar. Thanks to its strategic location, the East Sea helps maintain import and export activities between countries in the region and around the world.

2.1.3. Gateway to international trade

The international shipping route through the East Sea is considered to be the second busiest in the world. There are, every day, about 300 transport ships of all kinds pass through the East Sea, including 200 oil tankers, 50% of these ships have a tonnage of over 5,000 tons, more than 10% are from 30,000 tons or more. The sea lanes in this region are "most" for the exchange of goods of many Asian countries with a trade value of about 5.3 trillion USD. According to statistics from the US Energy Agency, one third of crude oil and more than half of liquefied petroleum gas are transported through the South China Sea. The amount of oil and liquefied petroleum gas transported through this sea is 15 times greater than that transported through the Panama Canal in Central America. There are about 70% of the volume of imported oil and about 45% of the volume of Japan's exports are transported through the East Sea annually. China has 29/39 maritime routes and about 60% of import and export goods, 70% of imported oil are transported by sea through the South China Sea. Countries located in this region, represented by Vietnam, hold a lifeline position with a thriving and dynamic economy, being the growth engine of the region and the world. Vietnam is a bridge between two maritime economic zones and continental economies of Southeast Asia and Asia, with favorable conditions to strengthen connectivity, promote cooperation and development in the region. Additionally, Vietnam is located on the Trans-Asian Road route in the project to build a highway, connecting the countries of Eurasia and Asia, approved by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) initiated. The contribution from this route in trade, transportation of goods and tourism between the two regions of Europe and Asia is known to be magnificent. With those advantages, the Asia-Pacific region increasingly attracts the attention and investment of many countries inside and outside the region.

2.2. Economic cooperation between Vietnam and the Asia-Pacific region through multilateral cooperation frameworks

2.2.1. Economic cooperation with the Asia-Pacific region through the framework of ASEAN, ASEAN+

ASEAN has long taken a central role in the Asia-Pacific regional architecture. It lies at the heart of the regional architecture and plays a leading role in many mechanisms. However, the structure of the Asia-Pacific region is changing in many ways. ASEAN is considered a launching pad to help Vietnam integrate into the regional and global playing

field. Therefore, Vietnam has already had a humongous number of chances to participated in many regional cooperation mechanisms, from ASEAN+ to regional free trade agreements (FTAs) in which ASEAN is the center... Up to this present day, Vietnam has built up many trade relations with most countries in the world, has a very large economic openness with an import-export turnover/GDP ratio of more than 200%. Vietnam has become a middle-income country for more than 10 years and the per capita income is nearly 3,000 USD. Additionally, Vietnam has always shown its activeness in promoting the joint cooperation mechanism.

Besides, Vietnam and ASEAN member countries also promote cooperation outside ASEAN with China, Japan, Korea, India, Australia, New Zealand. Along with continuing the implement and upgrade the FTAs signed with partners, Vietnam and its member countries negotiate and sign the Regional Comprehensive Economic Partnership (RCEP) - an agreement on economic cooperation, modern, comprehensive, high-quality, and mutually beneficial economy; establish an open trade and investment environment to facilitate the expansion of trade and investment in the region; contribute to enhancing ASEAN's role and contribution to global economic growth and development.

2.2.2. Economic cooperation with the Asia-Pacific region through the framework of APEC

APEC is a forum that brings together 15 out of 30 strategic partners, comprehensive partners and the leading economic and trade partners of Vietnam, accounting for more than 77% of trade and nearly 81% of direct investment and more than 85% tourism. Thirteen of the 16 Free Trade Agreements (FTAs) that we are implementing/ negotiating/ waiting for ratification are with APEC members. In which, 17 out of 20 APEC members are FTA partners of Vietnam. Joining APEC creates a premise for Vietnam to participate in larger and more committed playgrounds such as WTO and FTAs, including new generation FTAs with high standards. The implementation of international commitments is also a lever to realize the determination to build an incorruptible government, to create and act to serve people and businesses. As a developing member of APEC, Vietnam has proposed implementing and benefiting from technical assistance and capacity building programs. One of the three main pillars of APEC is economic and technical cooperation (ECOTECH), supporting developing economies to improve their capacity, economic reform, and regional integration, contributing to narrowing the gap between the development of the two countries.

2.2.3. Economic cooperation with the Asia-Pacific region through participation in regional FTAs

Facing the trend of international economic integration of the world and the region, as well as based on the need of integrating and developing the economy, Vietnam has actively promoted economic cooperation with countries around the world. many channels, many different fields, including the negotiation and participation in free trade agreements. This process begins with the process of joining international and regional organizations. Immediately after joining ASEAN, Vietnam also participated in the Common Effective Preferential Tariff Agreement (CEPT) to establish the ASEAN Free Trade Area (AFTA). As being one of an ASEAN members, Vietnam has in turn participated in the negotiation and signing of a Free Trade Agreement between ASEAN and its partners: China (ACFTA), Korea (AKFTA), Japan

(AJCEP), India (AIFTA), Australia and New Zealand (AANZFTA). Most recently, Vietnam and ASEAN members signed an FTA with Hong Kong (AHKFTA) in September 2017.

Currently, ASEAN and 6 partner countries: China, Japan, Korea, India, Australia, and New Zealand have signed the Regional Comprehensive Economic Partnership (RCEP) Agreement and will take effect on January 1, 2022, with a view to achieving a high-quality comprehensive agreement and contributing to deepening ASEAN's integration into the Asia-Pacific region. In addition to signing and participating in free trade agreements as an ASEAN member, Vietnam has gradually actively negotiated and signed FTAs as an independent party. The first free trade agreement that Vietnam negotiated and signed as an independent party was the Vietnam - Japan Economic Partnership Agreement (2008), followed by the Vietnam Free Trade Agreement. South – Chile (2011). In order to further promote the participation in FTAs, in August 2012, the Prime Minister issued a Decision to promulgate the Strategy on Participation in Free Trade Agreements until 2020, which clearly defines the views on negotiating FTAs is to "continue and actively participate in FTAs to integrate with countries in the region and the world, seize new opportunities for rapid and sustainable development".

Table 1. Regional and bilateral free trade agreements Vietnam has joined

Free Trade Agreements (FTAs) that Vietnam has joined			
No.	Abbreviations	Full name	Year of active
1	AFTA	ASEAN Free Trade Area	1993
2	ACFTA	ASEAN–China Free Trade Area	2003
3	AKFTA	ASEAN-Korea Free Trade Agreement	2007
4	AJCEP	ASEAN-Japan Comprehensive Economic Partnership	2008
5	VJEPA	Vietnam-Japan Economic Partnership Agreement	2009
6	AIFTA	ASEAN-India Free Trade Area	2010
7	AANZFTA	ASEAN-Australia-New Zealand Free Trade Area	2010
8	VCFTA	Vietnam-Chile Free Trade Agreement	2014
9	VKFTA	Vietnam-Korea Free Trade Agreement	2015
10	Vietnam-EAEU FTA	Vietnam-Eurasian Economic Union Free Trade Agreement	2016
11	CPTPP	Comprehensive and Progressive Agreement for Trans-Pacific Partnership	2018
12	AHKFTA	ASEAN – Hong Kong, China Free Trade Agreement	2019
13	EVFTA	EU-Vietnam Free Trade Agreement	2020
14	RCEP	Regional Comprehensive Economic Partnership	2022
15	Vietnam-EFTA FTA	Vietnam- European Free Trade Association Free Trade Agreement	Negotiating
16	VIFTA	Vietnam-Israel Free Trade Agreement	Negotiating

Source: Ministry of Industry and Trade (2022)

The participation of convention CPTPP is a stimulus for Vietnam to dev/improve the intrinsic value, diversify market (in order to/for the purpose of) compensating/coping with the impacts of the complicated world economy in which, currently following the direction of increasing commercial protectionism of major economies. Adapting the agreement, the growth of Vietnam's GDP in 2035 will be anticipated with 1,32%, in case of tariff reductions and service liberalization concurrency, there could be the upturn of 2,01% in GDP. With the commitments of CPTPP's participations, Vietnam's major export commodities: agricultural products, aquatic products, electricity and electronic should be tax-free after the agreement's legitimation. The total of Vietnam export values and imports values might grow up to 4,04% and 3,8% respectively with the sum of 20,000 and 26,000 employees in added-career.

The RCEP Agreement was signed by 10 ASEAN members and 5 ASEAN partner countries, namely China, Japan, South Korea, Australia and New Zealand on November 15, 2020, on the sidelines of the 37th ASEAN Summit. chaired by Vietnam. The Agreement will officially take effect 60 days after, at least, 6 ASEAN countries and 3 partner countries complete the ratification/approval of the Agreement and deposit with the ASEAN Secretary-General. As of November 2, 2021, 6 ASEAN countries (including Vietnam) and 4 partners: China, Japan, Australia, and New Zealand, have submitted their instruments of approval/ratification of the RCEP Agreement. country to the Secretary-General of ASEAN. Thus, the RCEP Agreement will officially take effect from January 1, 2022. The RCEP Agreement, when implemented by 15 members, will form a large market with 2.2 billion consumers, accounting for about 30% of the world's population, with GDP of 26.2 trillion USD, which constituted by 30 % of global GDP and will become the largest free trading area in the world. As such, ASEAN will have more accessibility of huge commodity trade markets in China, Japan, and Korea, far beyond from what ASEAN+1 FTAs have achieved. Additionally, the potential benefits of ASEAN are still at large, especially related to the field of e-commerce. Participation in FTAs is a great opportunity to promote Vietnam's economic growth as well as its position in the Asia-Pacific region, an essential link for Vietnam to integrate deeply into world economy.

The process of negotiating and signing FTAs is a part of Vietnam's current policy for opening and participating profoundly into the regional and world economy. Vietnam actively participates in and selectively negotiates FTAs to protect and promote the interests of the economy, ensuring FTAs have a higher and deeper level of integration than the WTO, in which the focus is on entering markets that have a complementary relationship in terms of imports and exports, limiting competition and exclusion each other. The country's enforcement capacity is the determining factor in what will be gained from the FTA. The development of resources and strengthening national competitiveness associate with FTAs to promote internal factors. FTAs are used not only as a tool to realize trade policy objectives, but also a mean of adjusting international market strategy and as a tool to implement the international competition strategy (in bilateral, regional and global levels) of the country.

2.3. Consideration on new international contexts that will affect Vietnam's economic integration in next period

Peace, cooperation, association, and development are still the major trends, but strategic competition among strong countries is complex and fierce; multipolar situation is becoming more notorious. Globalization and international integration are continuing to progress but faced many obstacles and challenges; the rise of protectionism and the threat of trading retaliation could negate severely the positive impact of fiscal policy initiatives on individual and world growth. As world economic growth and international trade, investment tend to decrease, global public debt increases, risks in financial markets and international currencies rise.

In the coming period, the trend of implementing application of assessment and technical barriers in trade are intended to protect trading and domestic manufacturing industries, with uncertainty in tendency of comprehensive adjustment of trade policy is expected; Trade in the direction of increasing trade protectionism of some major countries, especially the increased instability surrounding the US and EU's trade policies, will lead to negative effects on global trade growth. More and more countries are returning to the policy of promoting the production of industrial goods to replace imports, tightening regulations on localization rates and subsidizing export prices, and tighten trade barriers to protect goods and services, protect domestic productions.

The trend of increasing linkages and cooperation in production networks or regional/global value chains, with shifts in two main directions, namely: (i) Relocation of production chains and global supply to the member countries that have signed the FTA Agreement to take advantage of incentives, especially in tax and the removal of non-tariff technical barriers, along with the formation of multinational corporations of industrialized countries in developing countries in order to take advantage of and promote their comparative advantages in terms of labor and natural resources in each industry, leading to the displacement of production factors. Exports such as capital, labor and technology between regions, thereby forming and developing production, distribution and supply chains networks in the region; (ii) Ascended to higher value-added, in other words, it is the trend of adjusting the production structure from simple processing, preliminary processing, raw material supply to coordinate producing raw materials, participate in the processing and distribution of final products, thereby gain a solid position in the regional/global value chain.

The movement of shifting production out of China of the world's economies is boosted by the Covid-19 pandemic with three main scenarios: (i) Shifting production to domestic; (ii) Bring production activities to neighboring countries in the region (for example, the US brings production to Mexico, EU countries bring production to other countries in the alliance block); (iii) Continue to globalize production, but shift manufacture to countries other than China (such as ASEAN).

In summary, in the coming period, economic-trade association will continue to be the dominant trend, strongly promoted, devoted in the foundation for the development of the Asia-Pacific region. ASEAN continues to assert itself as an important unit, continues to be

enlisted by major countries to exert influence and be able to play as a central role, linking economies in the evolving regional structure. Economic cooperation in the Asia-Pacific region will continue to grow strongly, encouraging regional and global economic cooperation and connection. Vietnam and other economies in the region will continue to build a tranquil, stable, dynamic, creative, cohesive, and sustainable Asia-Pacific region.

3. Discussion and Conclusion

First of all, promote digital technology in commercial activities: The pandemic has also accelerated the shift to the digitization of trade, so member countries also need to make more efforts to take advantage of digital technology, to streamline customs procedures and electronic information exchange, simultaneously implement national and regional single-window mechanisms for document submission and clearance. Digitization and trade facilitation will make trade more sustainable and inclusive, leaving no one behind, especially for SMEs. The pandemic has highlighted the role of trade facilitation in ensuring the rapid delivery of medical and other essential goods. Trade facilitation has been known as an effective tool for mitigating negative impacts. It is also necessary to further develop digital infrastructure, accelerate digital transformation, strive to close the digital divide, and promote the development of a comprehensive digital economy. With the increase of digital competitiveness, digital risk management is also a matter of concern for countries. Digitization can add value, but only when applied in the right processes, at the right time, and in the right department of the organization, with special attention to cyber security to managing threats, which are foreseen to increase as more consumers and businesses adopt digital technology.

Second, focus on effectively exploiting international commitments, building mechanisms and policies for trade remedies, prevention, and settlement of international disputes; have appropriate policies to support areas with low competitiveness to rise; strengthen training, improve staff capacity, international law qualifications, build technical barriers, and take appropriate proactive defense measures. Continue to improve and expand the network of links and economic integration bilaterally and multilaterally with partners and organizations around the world, making Vietnam become the center of global economic linkages, in line with international standards, foreign policy of independence, self-reliance, peace, friendship, cooperation and development, diversification and multilateralization of foreign relations of the Party and State. Effectively implementing Directive No. 25-CT/TW, dated 8/8/2018, of the Secretariat, on "Strengthening and raising the level of multilateral the foreign relations to 2030" once again emphasized the need to "Continue to develop effectively mobilize and exploit its membership of the ASEAN Economic Community", "Promoting Vietnam's position in building the ASEAN Political-Security Community 2025, strengthening ASEAN's central role in the region". region and enhance the position and presence of the Community in the international arena". Closely combining multilateral cooperation and bilateral cooperation, while participating in ASEAN cooperation, we simultaneously promote bilateral cooperation relations between us and countries in ASEAN as well as ASEAN's partners, especially neighboring countries, and major countries. Currently, Vietnam has relatively fully signed up with the main trading partners in the region. However, with the United States, Vietnam has just signed a trade agreement. In the coming

period, if possible, Vietnam can negotiate to upgrade the above agreement. During the proposal process, it is necessary to strengthen coordination between ministries and branches in selecting fields and developing negotiation plans. Enhance opportunities for enterprises to participate in the process of developing plans and negotiating through a consultation mechanism between state management agencies and the business community.

Third, take full advantage of the Joint Statement on "Overcoming Covid-19 and Accelerating Economic Recovery" unanimously adopted by APEC Economic Leaders in July 2021 to quickly bring Vietnam to overcome the pandemic and move towards recovery and development of domestic production. Strengthen the implementation of macroeconomic policies, policies to support women, micro, small and medium enterprises, respond to climate change... to create jobs, improve economic productivity, and renovate the creativities, which contributes to facilitating the economic recovery process.

Fourth, the international trade policy needs to be planned in the direction of maximum support for export activities, this is because, in the past period, Vietnam's economy has grown and developed heavily based on export activities. We should choose the most beneficial products and markets to develop and expand international trade relations. Restructuring exports in the direction of reducing exports of raw materials, agricultural and aquatic products, increasing the proportion of industrial goods, especially manufactured goods such as electronics, telecommunications, construction materials, and furniture. ... Focus on developing the market for products with great competitiveness, high added value, or product groups with a large proportion of turnover. Exploiting market-opening opportunities from international economic integration commitments to boost exports and major markets such as the United States, Japan, China, Korea, ASEAN...

Fifth, on the side of businesses: Vietnamese businesses need to be better prepared for the changing dynamics of the industry and consumer demand to bring greater added value to brands that establish new supply chains in the area. This requires a greater focus on innovation that enhances agility and productivity while meeting the changing needs of Asia Pacific. Businesses need to take advantage of the opportunity provided by Covid-19 to redesign legacy systems and build innovative new solutions that enable stronger growth. While businesses need to foster an innovation agenda, government support will also be crucial in building a stronger innovation ecosystem by strengthening infrastructure and improving support policies to promote the cooperation of related members.

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THE CURRENT SITUATION OF VIETNAM'S SEAFOOD EXPORTS TO EU MARKET: BARRIERS AND DIRECTIONS

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Abstract

Seafood is one of Vietnam's leading export products, and the European Union (EU) is one of the five most important markets. The successful signing of the EU-Vietnam Free Trade Agreement (EVFTA) has opened up many opportunities for Vietnamese seafood in this market, along with difficulties, notably illegal, unreported and unregulated fishing (IUU) yellow card, and food safety and hygiene regulations. Hence, this research aims to clarify the situation of Vietnamese seafood in the EU market and offer solutions to mentioned difficulties. This is a qualitative secondary research, based on data, information and figures provided by official sites and previous researches in order to reach further conclusions. Predictions about the market trends were involved, emphasizing the outstanding challenges and opportunities in the seafood industry, which leads to recommendations for four main targets: removing IUU yellow card, ensuring food safety standards, encouraging green business strategy and products promotion.

Keyword: *European Union (EU), Vietnam seafood export,, Illegal unreported and unregulated fishing activities (IUU), Sanitary and Phytosanitary Measures (SPS).*

1. Introduction

In recent years, trade liberalization has been developing strongly in the world. The quick advancement in worldwide trade contributes to economic development and welfare advantage in all members, particularly the developing countries. However, the disparity of distribution of the profit from global trade in different countries could lead to tensions in international trade. It could prompt protectionism policies to maximize trade benefits at the cost of loss in trade partners. Although, in theory, the WTO only recognizes tariffs as the

only legal protection tool, the reality has proven that governments are constantly using new non-tariff measures. The appearance of environmental standards and sanitary and phytosanitary requirements in trade agreements is partly due to the relationship between trade and the environment. The clause paved the path for future trade agreements to include commitments and requirements on environmental issues. Up to the present time, the world's trade and environmental issues focus mainly on technological aspects, sanitary and phytosanitary measures, tariffs, and primarily technical elements.

There have been studies on the export status of agricultural products of different countries and the technical barriers imposed on products from these countries. In the same year of 1998, Calvin and Krissoff investigated the role of TBs in the highly contentious U.S.-Japanese apple trade dispute, and James and Anderson chose to research Australia's prohibition on banana imports. With the same issue of agricultural product import and export, Weyerbrock and Xia studied the case of the US/Europe and the SPS and technical barriers applied in these markets. For the recent research, Yao et al. (2021) evaluated the impact and coping strategy of technical obstacles on China's exports from different types of technical barriers in different industries and countries. Vietnam has also conducted several studies on this issue, including Thu and Phuong's (2014) detailed research about the sanitary and phytosanitary measures and technical barriers to trade that Vietnam's essential commodities face in some Asian countries and two studies by Nguyen and Hoa et al. (2012) on the technical barriers applied by Japan to Vietnam's seafood products and the current situation of Vietnam's seafood exports. The listed studies all have in common that they all focus on critical national commodities and assess technical barriers and sanitary and phytosanitary requirements for these commodities. Some of the above articles also mention why importing countries apply non-tariff measures on imported goods and then explain the necessity of such policies. However, until now, studies have not deeply assessed the regulations applied to export products, the impacts, and solutions to overcome these regulations. This article analyzes the current situation of Vietnam's seafood exports to EU countries, challenges, and recommendations to remove barriers imposed by these countries. Aside from the literature review on the relationship between trade and the environment and non-tariff barriers, the content of the article will focus on four main groups, including the current status of Vietnam's seafood exports to the EU, Regulations on food safety and environment of EU in seafood import hygiene and food safety, Challenges for Vietnam's seafood export industry facing with EU regulations and Solutions recommended for Vietnam.

2. Method

This study includes an overview of Vietnam's seafood exports to the world markets in general and the EU market in particular, through which there can be a correlation, comparison, and difference between markets. Other markets and the EU market. This study focuses on the EU market, so other aspects of this market are also analyzed. The method used in the research process is the method of analysis and synthesis. The authors have made every effort to look at different aspects, going from the general context to each problem, from which it is possible to draw correct conclusions and reasonable solutions—small sections into a complete study, ensuring the connection between the sections.

3. Result

3.1. Current status of Vietnam's seafood exports to the EU

For many years, the European Union (EU) has always been known as one of Vietnam's leading seafood export markets. In 2016, the total export turnover of Vietnamese seafood to the EU reached 1.16 million USD and until 2019, it reached 1.29 million USD (VASEP, 2020). The growth of Vietnam's seafood export turnover to the EU from 2016 to 2019 is shown in the following graph

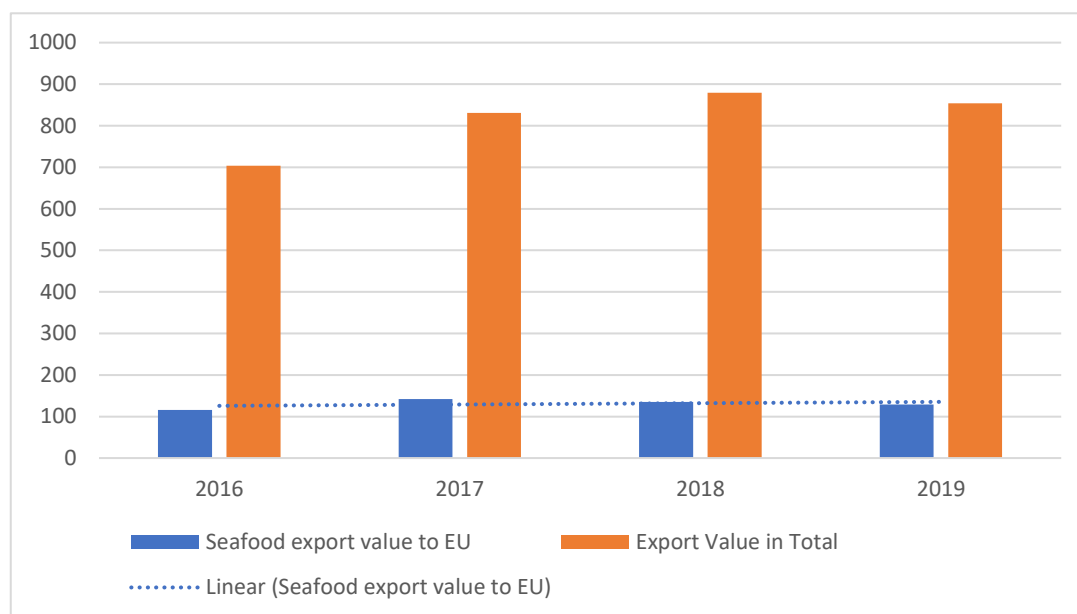


Figure 1. Total seafood exports of Vietnam to the EU (Million USD)

Source: MOIT, 2020

On August 1, 2020, the Vietnam - European Union Free Trade Agreement (EVFTA) officially took effect, which is expected to create a breakthrough opportunity for Vietnam's seafood exports to the market (Tuan & Trang, 2020). Thanks to a series of commitments on preferential tariffs, the EU has made Vietnamese seafood more competitive in price than similar products in neighboring countries. FDI attraction is expected to increase, production technology and product quality are focused on improving to meet EU standards; The business and institutional environment is ensured in a more stable and transparent direction because the legal system has also been adjusted and supplemented with regulations to be consistent with the signed FTA. In the first six months of 2021 alone, Vietnam's seafood was exported to 25/27 EU markets with a total export volume of 104.3 thousand tons, worth \$485.3 million, up 16% in volume (MOIT, 2021), which is 20% higher than the same period last year. Export turnover to the EU market accounted for 11.8% of the total seafood export turnover of the country. The largest export markets in this market block are the Netherlands, Germany, Italy, Belgium, and France. This is a relatively positive result, especially in the context that the global economy was severely affected by the Covid-19 pandemic, freight rates increased to record highs while exporting Vietnamese seafood. Vietnam's seafood exports to the EU have faced many difficulties, including food safety standards and import tariffs (Duijn, Beukers, & Pijl, 2012).

3.2. Regulations on food safety and environment of EU in seafood import hygiene and food safety

Regardless of the E.C. Europe and the Council of Ministers. Finally, the new regulation is published in the official European Union journal and influential. The scientific research and assessment of Food Safety threats are increasingly guiding the creation of novel measures in Food Safety and Hygiene. Before drafting a legislative proposal, the European Commission usually requests that the European Food Safety Authority conduct a risk study. The General Food Law is based on the framework of European food regulation. It stipulates that all food sold in the European Union must be hygienic. Other E.U. food regulation is built on these principles, which constitute a horizontal framework. The new legislation on importing new food goods in general, fisheries or agricultural commodities in particular, is mirrored in four E.U. legal systems, with the dominating law, law 178/2002/E.C., and four supplementary laws, including 852/2004/E.C., 853/2004/E.C., 882/2004/E.C., and 854/2004/E.C (VASEP, 2013).

a. Regulation 882/2004/EC: Official Control Procedures

Control procedures to guarantee that food and feed regulation is followed. Developing countries that export food to the E.U. must disclose details on how their national food inspection systems are organized and administered and ensure legal conformity. Food additive requirements (Directives 89/107/EEC and 95/2/EC); Labeling requirements (Directive 2000/13/E.C.); Animal health standards for goods of animal origin imported from foreign countries (Directive 2002/99/E.C.); Maximum permitted residue levels (Regulation 396/2005/E.C.; Regulation 2377/90/E.C.; Regulation 2073/2005, as revised by Regulation 1022/2008/E.C.; Directive 96/22/EEC and Directive 97/98/EEC); Chemical residue control programs for aquaculture (Directive 96/22/E.C. and Directive 96/23/E.C.) (E.C, 2004).

b. Regulation 852/2004/EC: Regulation of general hygiene requirements for all food business establishments

Update food hygiene standards to provide a consistent and comprehensive policy covering all farm food to the customer's point of sale. It excludes topics such as nutrition, food components, and food quality. Community or similar hygienic standards will prepare food imported into the Community. Animal-derived foods exported outside the Community must at the very least meet the rules that would apply if they were sold in the Community, as well as any additional restrictions that may be imposed. The importing country has placed an order. Basic food hygiene requirements include basic production requirements, technical requirements, HACCP standards for food handling and processing, registration/licensing for establishments that manufacture food, and national guidelines for good practice. Regulation (E.C.) 852/2004 specifies requirements based on the HACCP standard but does not mandate its application to primary production; however, the mandatory HACCP standard applies to packers in the case of a recall. Ho Chi Minh City meets the fundamental standards for food safety and hygiene under E.U. laws for processing, registration, inspection, and trade. HACCP for pre-processing, processing, and packing (852/2004/E.C.) – optional for pre-processing (E.C, 2004)

c. Regulation 853/2005/EC: Specifies additional requirements specific to establishments that process food of animal origin, including raw bivalve mollusks and aquatic products

Animal-derived foods specified in this regulation may pose microbiological and chemical risks. These rules go hand in hand with Regulation 852/2004 on food hygiene, essentially concerned with operator approval. This regulation applies to unprocessed and processed animal-derived goods, except foods containing a component of plant-derived products (E.C, 2005).

d. Regulation 854/2004/EC: Regulations for the control of food of animal origin by authorities

Specific rules for organizing official controls on products of animal origin were intended for human consumption. Sets specific requirements to organize official control of products of animal origin for human consumption. Regulatory organization for products of animal origin intended for human consumption. The Community of establishments and importers is under control and set forth this regulation. The competent authorities approve establishments that comply with the Community Official Control for Feed and Food regulations.

Food business operators must provide the competent authority with all necessary assistance in implementing controls, particularly regarding access to the establishment and presentation of documents or files. Formal controls include testing good hygiene practices and HACCP principles and are region-specific (fresh meat, bivalve mollusks, fishery products, dairy, and other milk products) (E.C, 2004).

3.3. Challenges for Vietnam's seafood export industry facing with EU regulations

3.3.1. Illegal, Unreported, and Unregulated (IUU) Fishing

In October 2017, Vietnam's seafood industry was issued a yellow card by the European Commission (E.C.) IUU for illegal fishing practices IUU. In order to remove the E.C.'s IUU yellow card, in 2017, the Fisheries Law was born, along with a series of different efforts based on the E.C.'s request to remove the IUU yellow card. Many provinces and cities simultaneously deployed synchronous solutions, focusing on implementing four recommendations of the E.C., including that Vietnam's sea fishing fleet does not meet standards, ensuring conditions for participating in exploitation: At seas, such as the mismatch between the size of the ship and the actual resources at sea; The system of inspection and supervision of fishing activities at sea for fishing vessels is too lacking and inefficient; Lack of a system to confirm the origin of seafood caught at sea, leading to the fact that most of the seafood caught by fishermen is of unknown origin; There is also a situation where Vietnamese fishers exploit and steal seafood in the waters of other countries.

3.3.2. Food hygiene

In recent years, Vietnam's seafood export industry faced problems with those regulations, especially the antibiotic residues in seafood products. The E.U. has been a challenging market for Vietnam's exporting seafood because of its stringent SPS standards. E.U. rules and regulations prohibit the use of ten antibiotics in the seafood sector (zero

residues is permitted) and set maximum residual limits (MRL) for the use of ten other antibiotics. Some of these antibiotics impair human health and poison the environment. As a result, food imported into the E.U. must be rigorously inspected for antibiotic or chemical residues (under E.U. regulation No. 96/23). The use of food additives in food and seafood processing is likewise restricted in the E.U. (Truong, 2006).

The E.U. has warned about antibiotic residues in seafood products in Vietnam various times in recent years. According to the Department of Agriculture, Forestry and Fisheries Quality Management, on May 13, 2016, the General Department of Health and Food Safety, the European Commission issued a circular Areas 2253381 sent to the Department to notify the Vietnamese side that it has not been able to overcome the abuse of antibiotic chemicals in aquatic products effectively. The E.U. has announced that Vietnamese seafood processing facilities will be removed from the list of seafood processing facilities allowed to import into this market if the shipment of seafood is exported. This school is warned of banning antibiotic chemicals specified in Annex 2, E.U. regulation No. In addition, on May 24, 2016, the E.U. competent authority issued a warning document No. 16-814 to E.U. member countries about the unusual death of fish in Vietnam and suggested that the countries strictly control the batches of fish. In October 2019, several shipments of frozen pangasius fillets with added water from Vietnam were found to have higher chlorate levels and were placed on the RASFF rapid alert. 6353/BCT-AM dated October 12, 2021, on warning of residues of harmful substances in some agricultural and aquatic products of Vietnam exported to the E.U. market, Health authorities of E.U. countries detected undeclared Sulphites for export shipments of crustaceans and seafood of Minh Chau Import and Export Seafood Processing Co., Ltd. They banned the substance Profenofos in seafood shipments of SAKA SAKA Co., Ltd.

3.4. Solutions of Vietnam

3.4.1. Solution against Illegal, Unreported and Unregulated (IUU) Fishing

In order to overcome IUU's "yellow card", several solutions have been practiced. After more than two years of efforts to implement measures to remove the E.C.'s yellow card, Vietnam has completed the legal framework, including Law on Fisheries 2017; 2 Decrees, 1 Decision of the Prime Minister; 8 Circulars of the Ministry of Agriculture and Rural Development guiding the Law on Fisheries... Along with that, the Vietnam Association of Seafood Exporters and Producers (VASEP) has established the IUU Executive Board, in collaboration with 28 provinces, coastal cities, businesses, and fishermen join hands with the State agency to overcome the IUU yellow card in the shortest time, proceed to implement a long-term program against IUU fishing, maintain the reputation and market for seafood products for export of Vietnam. Up to now, there have been 62 enterprises participating in the program "Seafood enterprises committed to combating IUU fishing" with the commitments: Only purchase seafood raw materials from legally fishing vessels with export origin. Clear origin, import only caught seafood with the

legal fishing origin; resolutely do not buy seafood from fishing vessels that illegally catch, exploit without permits, do not log and do not report according to regulations, fishing with prohibited fishing gear; say no to rare seafood species, catches of smaller sizes than regulated. Especially, on March 11, 2021. The strategy for the development of Vietnam's fisheries by 2030 with a vision towards 2045 No. 339/QD-TTg was approved by the Prime Minister, which provides specific strategies to improve and develop Vietnam's seafood industry in different fields. VASEP has also released the "White Book on Efforts against IUU Fishing in Vietnam" and produced tens of thousands of leaflets to propagate to fishermen, captains, and businesses about IUU fishing (Giang, 2021)

3.4.2. Solutions against food hygiene problems

In order to avoid the E.U. Competent Authority gradually eliminating enterprises on the list of allowed exports to this market, the Agro-Forestry-Fisheries Quality Management Department has issued Official Dispatch No. 1041/QLCL-CL1 dated May 30, 2016, sent to seafood processing enterprises alternatively, producing in the E.U. and relevant units to implement necessary control measures for antibiotic chemicals fully. In order to avoid being taken off the list of E.U. exports to this area, seafood processing facilities need to take samples for inspection before exporting to the E.U. proactively. Up to now, there have been more legal efforts to prevent the abuse of antibiotics in seafood exports, including Official Letter No. 952/QLCL-CL1 on developing MRPL regulations for antibiotic chemicals. In fisheries, Official Dispatch No. 966/QLCL-CL1 dated May 30, 2019, on VASEP's action plan on antibiotic chemicals until 2020

4. Discussion and Conclusion

4.1. Discussion

With the successful signing of the EVFTA, the export of seafood to the EU market will have many advantages and prospects in the future. However, due to the complicated development of the COVID-19 situation, seafood exports will still face difficulties due to the affected supply chains. Hence, the growth and recovery of the economy in general and the seafood industry, in particular, will not be as expected. In addition, it can be expected that the consumption habits of the EU market will experience some changes during the pandemic. Therefore, if Vietnamese exported seafood is expected to meet the requirements of the EU market, Vietnam needs to pay more attention to food safety and hygiene as well as sustainability. Along with success in signing the EVFTA, the IUU yellow card has not been removed, and that is the greatest obstacle in promoting consumption in the EU market. If the situation is not controlled, Vietnamese seafood will be banned from import into the EU market. There are remaining difficulties: lack of knowledge about IUU of fishers and enterprises, lack of cooperation between the Government and local authorities, and technology is not fully equipped and applied in inspecting and controlling ships. In addition, within the EU, Vietnamese seafood is still relying on large markets, such as the Netherlands, Germany, Italy, etc.

4.2. Recommendations

The Vietnamese government needs to take stricter measures to remove the IUU yellow card. The Stations and the Information and Monitoring System need to be upgraded and operated 24 hours daily. It is necessary to ensure that monitoring equipment is fully installed on fishing vessels, storing information on the system, and sharing data agencies between localities. Functional forces such as the Navy, Coast Guard, Inspectors, etc., need to link and coordinate in inspecting and reviewing violating fishing vessels, reporting and storing information promptly to issue sanctions.

Local authorities need to propagate and guide fishers about legal fishing. There should be direct working sessions with anglers, raising self-discipline, self-monitoring, raising awareness about the importance of the safe fishery, and analyzing the harmful sides of illegal fishing. Next, it is necessary to guide and help anglers use cruise monitoring devices and sanctions when intentionally disconnecting the device.

Businesses need to be aware of the importance of combating IUU. Resolutely do not buy products of unknown origin, do not cooperate with illegal fishing vessels, terminate contracts, and report to local authorities if violations are detected.

Food safety issues need to be ensured. According to law, appropriate authorities need to actively inspect aquaculture processing and aquaculture enterprises and adequately handle any violations. It is necessary to disseminate to businesses to understand the EU's food safety and hygiene regulations in all stages. Companies should have seminars to discuss business difficulties and share experiences to avoid violations of food safety and hygiene.

encourages businesses to follow green business strategies. Accordingly, the state needs to organize training sessions to propagate the benefits of this strategy, have supporting policies for enterprises that apply green business strategies, and listen to the difficulties and barriers of enterprises in using green technology to production. Businesses also need to update with the trend of the green industry and improve the competitiveness of products in the international market.

4.3. Conclusion

Vietnamese exported seafood in the EU market face both opportunities and challenges. It can be seen that exported turnover in this market has had significant increases in recent years, contributing a high proportion to Vietnamese exported seafood in all markets. The pandemic has been controlled, consequently, activities such as fishing and manufacturing will be assured to recover and develop. Furthermore, the most considerable opportunity is the successful signing of EVFTA which removes tariffs and reduces non-tariff barriers. On the contrary, combating IUU yellow card of Vietnam has made little progress. The Vietnamese Government should put more effort and apply tougher measures to this problem. In addition, Vietnam should focus more on assuring the products qualified for EU food safety regulations. It is undeniable that the EU market is a notably potential market which opens up more opportunities for Vietnamese exported seafood.

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THE EFFECTS OF FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH ON CO₂ EMISSIONS IN VIETNAM

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Abstract

The paper is to examine the impact of economic growth and financial development on carbon dioxide (CO₂) emissions in Vietnam. As one of the world's largest energy consumers and CO₂ emitters, Vietnam is currently facing the dual challenge of reducing CO₂ emissions while continuing to drive economic growth. To overcome this problem, comprehensive economic, financial and energy policy reforms are needed to promote sustainable development. The objective of this paper is to examine the economic growth and financial development behaviors for CO₂ emissions in Vietnam with quarter from 2000 to 2020. Research and application of Johansen cointegration test and Vector Error Correction Model (VECM) to investigate long-run and short-run equilibrium causal relationships between the three variables. Financial development and economic growth have a statistically significant impact on CO₂ emissions.

Keywords: *financial development; carbon dioxide emissions; economic growth; VECM.*

1. Introduction

Environmental pollution is becoming more and more serious with the development of the global economy. In particular, the greenhouse effect caused by carbon dioxide (CO₂) has become one of the most concerned environmental problems in the world. The greenhouse effect has become an extremely serious threat to human existence and sustainable socio-economic development. The globally supplied energy is still growing to support the global economy, but the world is also facing the challenge of reducing greenhouse gas emissions. The International Energy Agency (IEA) predicts that by 2030, the world's energy demand will increase by about 60% compared to 2000 and the increase in energy demand in developing countries will make These countries account for most of the increase in CO₂ emissions. According to the analysis, developing countries will account for about 85% of the increase in CO₂ emissions between 2000 and 2030. Accelerating greenhouse gas emission reductions remains an important human task to deal with warming, climate change and promote sustainable use of resources. A series of negotiations and commitments to limit global warming through global cooperation such as the International Climate Convention initiated in 1990; Kyoto Protocol (2005); Bali Route (2007); The Copenhagen Agreement (2009) and the Paris Agreement (2015).

To achieve sustainable development, we must consider the relationship between economic activities and environmental quality. Much research has been done on the relationship between economic growth, financial market development, and carbon dioxide emissions. There are three research directions: the first focuses on the relationship between economic growth and carbon dioxide emissions; the second section focuses on the relationship between the development of financial markets and carbon dioxide emissions; the third part puts the three variables under the same framework to study its dynamic causality. However, although many scholars have conducted numerous studies over the past 30 years, the relationship between the three factors has not been consistently concluded.

This study selected Vietnam is motivated by the fact that Vietnam is already a large emitter and one of the developing economies, the level of development of the financial market is still limited. In fact, the level of environmental pollution in Vietnam has increased significantly due to high energy consumption for activities aimed at economic growth over the past decades. High CO₂ emissions into the environment have been recorded to increase by an average of 15% per year over the past decades. Air pollution is mainly caused by civil industries, construction works, industrial activities, means of transport, and the main source of pollution comes from high construction density, rapid urbanization and high production capacity. industrial production as well as craft and service villages. The important feature is that these socio-economic activities make the greatest contribution to the growth of industrial zones, economic restructuring, labor restructuring and job creation, the factors that promote growth. general for the whole country. In addition, the need to improve agricultural productivity and output requires increased use of pesticides, fertilizers and growth stimulants. However, efficiency in the application of agricultural inputs may be related to economic growth outcomes. In some places, they can be reflected in the trade-off between job creation and rapid growth on the one hand and environmental degradation on the other. Therefore, the rapid increase in CO₂ emissions is mainly the result of human activities due to development and industrialization. It also relies heavily on energy consumption, which is inevitable for economic growth. Therefore, Vietnam is a subject to study the interaction relationship between financial development, carbon dioxide emissions and economic growth, which has important policy implications for Vietnam in reducing carbon dioxide emissions.

This study is carried out with the structure as follows: Section 1 explains the objectives of the study. Section 2 discusses previous studies related to the relationship between economic growth, financial development and carbon dioxide (CO₂) emissions. Section 3 introduces the data collection and research model, especially the VECM model. Subsequently, the results and discussions are proposed in Section 4, and finally, Section 5 is for conclusions.

2. Literature Review

Current research on the relationship between carbon emissions and economic growth mainly includes linear relationships (Iwata et al, 2011; Li & Leung, 2012), N-curve relationships (Friedl & Getzner, 2003) and shape-curve relationships. inverted U (Grossman

& Krueger, 1995). Although most scholars favor an inverted U-curve relationship (Selden & Song, 1994; Holtz-Eakin & Selden, 2006; Galeotti et al, 2006), specifically the environmental Kuznets curve (EKC), the findings of Robalino-López et al (2014) and Baek (2015) show that the inverted U-shaped curve does not stay the same, while Moomaw and Unruh (1997), Martinez - Zarzoso & Bengochea-Morancho (2004) find that there is an N-type relationship between economic growth and CO₂ emissions. The per capita income corresponding to the inflection point of the EKC curve varies widely, ranging from \$13,260 to \$80,000. and linear. Some scholars (Shafik & Bandyopadhyay, 1992; Wagner, 2008) find that per capita carbon dioxide emissions increase monotonically with real income per capita, and there is no inflection point. However, Lantz & Feng (2006) found that there was no significant relationship between GDP per capita and carbon dioxide emissions. There is no consensus on the relationship between carbon emissions and economic development (Hamit-Hagggar, 2012). Lin and Jiang (2009) used a traditional environmental Kuznets model to simulate and predict the Kuznets curve of carbon dioxide in China on the basis of carbon dioxide emission predictions, and found that the results were quite different. together. The difference in the above literature conclusions is mainly due to the significant difference between the study area and the choice of experimental method (Coondoo & Dinda, 2002). Henisz (2000) pointed out that it is more reasonable to discuss the relationship between them from a causal perspective than the EKC hypothesis. Since then, an increasing number of scholars have chosen to use the causality test to explore the feedback mechanism on the interaction between economic growth and carbon dioxide emissions.

Ang (2007) examined the association between variables in France for the period 1960–2000 by co-integration analysis and error correction model (VECM). The results show that economic growth and carbon dioxide emissions have a U-shaped relationship in the long run, and that economic growth contributes to an increase in energy consumption, while an increase in energy consumption leads to an increase in energy consumption. increase in carbon dioxide emissions. Soytas & Sari (2003) used the co-integration and VECM methodology in Turkey and the results indicated that a one-way causal relationship exists from CO₂ emissions to GDP and that energy consumption increases emissions. positive effect on economic growth. Tao and Song (2010) measured the dynamic relationship between carbon dioxide emissions, energy consumption, gross national income per capita and trade openness in China using sample data of 1971. -2008 in China. The results show that there is a long-run equilibrium relationship between them, while there exists a Granger causality relationship in the long run and the short run. Arouri et al (2012) investigated the relationship between economic growth, energy consumption and carbon dioxide emissions in 12 Middle Eastern and North African countries in the framework of panel and co-integrated unit tests. As a result, there is a bidirectional causal relationship between energy consumption and carbon dioxide in the long run. Chandran - Govindaraju and Tang (2013) applied Granger causality approach in China and India, the results showed a long-run relationship between the variables in China but not in India. Cowan et al (2014) studied the relationship between economic growth and carbon dioxide emissions in the BRICS from 1990 to 2010 in the framework of a panel causal analysis. Asongu et al (2016) investigated

the causal relationship between carbon dioxide emissions, energy consumption and GDP and there is a strong causal relationship between these variables.

In recent years, with the deepening of the development of finance, more and more scholars have paid attention to the relationship between financial development and economic growth (Gurley & Shaw, 1955; Lucas, 1972). In the modern economy, finance is the lifeblood and accelerator of the economy, it embodies the basic characteristics of energy consumption from multiple paths, thus conserving energy and reducing emissions. On the one hand, financial development will increase energy consumption. As the scale of development finance continues to expand and the efficiency of development finance continues to increase, consumers and businesses can obtain loans at a lower cost and in a more convenient way. Sadorsky (2010) studied the impact of financial development on CO₂ emissions in 22 new economies from 1990 to 2006 based on the generalized timing method (GMM). Empirical results show that when financial development is measured by stock market indices, there is a significant positive relationship between financial development and CO₂ emissions. Sadorsky (2011) applied a similar approach to study nine economies along Europe's east-central border, and found that when using banking indices to measure financial development, the relationship between financial development and CO₂ emissions is remarkably positive. On the other hand, financial development will reduce CO₂ emissions. Financial development encourages enterprises to introduce high technology and equipment to save energy and protect the environment, financial support to develop high-tech industries that use a lot of knowledge and technology. Thus, financial development can reduce energy consumption and reduce CO₂ emissions. Tamazian et al (2009) found that financial development and economic growth can have an impact on environmental quality, contribute to reducing carbon dioxide emissions, and play a positive role in improving environmental quality. Tamazian & Rao (2010) studied the relationship between financial development and environmental pollution in 24 countries in transition based on the generalized timing method (GMM) for endogenous control. They believe that foreign investment found to measure financial development helps reduce per capita carbon dioxide emissions. Furthermore, in addition to combining financial development with economic growth, energy consumption and carbon dioxide research, the researchers also added variables such as foreign direct investment (FDI), open trade and urbanization. Farhani and Ozturk (2015) empirically examined the linkages between CO₂ emissions, economic growth, energy consumption, financial development, commercial openness and urbanization in Tunisia between 1971-2012 using the ARDL-ECM method. Furthermore, they find that financial development has a positive and significant impact on environmental pollution. A monotonous positive relationship was also found between GDP and CO₂ emissions.

3. Method

3.1. Data

This study includes three variables: financial development (financial market index), economic growth (proxied by gross domestic product per capita) and environmental pollution (proxied by CO₂ emissions). The requirement of the Vector Error Correction

Model (VECM) is the need for an effective number of observations to perform the estimation. The scope of this study is the impact of financial development and economic growth on environmental pollution in the case of Vietnam, with quarter data collected from 2000 to 2020. More specifically, gross domestic product, financial market development index, and Vietnam's CO2 emissions calculated from the World Bank's World Development Indicators. LNEP is taken as the logarithm of CO2 emissions respectively.

Table 1. Data Sources and Description

Variables	Variables Description	Units of Measurement	Data Sources	ExpectFd Relationship
FMI	Financial development	Index	World Bank	Negative
GDP	Economic growth	%	World Bank	Negative
EP	Environmental pollution	Logarithm	World Bank	

Source: Sumarized by authors

3.2. Empirical Model

VECM Model Forming:

$$y_t - y_{t-1} = (A_1 + A_2 + \dots + A_p - I) y_{t-1} - (A_2 + \dots + A_p) (y_{t-1} - y_{t-2}) - (A_3 + \dots + A_p) (y_{t-2} - y_{t-3}) - \dots - A_p (y_{t-p+1} - y_{t-p}) + u_t$$

$$\Delta y_t = \Pi y_{t-1} + C_1 \Delta y_{t-1} + C_2 \Delta y_{t-2} + \dots + C_{p-1} \Delta y_{t-p+1} + u_t$$

$$\text{Whereas: } \Pi = -(I - A_1 - A_2 - \dots - A_p); C_i = -\sum_{j=i+1}^p A_j, i = 1, 2, \dots, p-1$$

The model contains Πy_{t-1} is the correct part of errors in ECM

If y_t and k are cointegration then Π has form:

$$\Pi = \alpha \times \beta$$

$$(k \times r) \quad (r \times k)$$

$$\text{Then: } \Delta y_t = \alpha \beta y_{t-1} + C_1 \Delta y_{t-1} + C_2 \Delta y_{t-2} + \dots + C_{p-1} \Delta y_{t-p+1} + u_t$$

Set $EC_{t-1} = \beta y_{t-1}$: non-stop series combos in y_t to become a stationary series and EC_{t-1} is the redundancy of those combinations. And EC_{t-1} indicates an imbalance in period $t-1$, then α indicates the correction coefficient of Δy_t when an imbalance occurs.

4. Results

4.1. The tests of model

Unit root test

Table 1 presents the unit root test of our selected variables to check the stationary for variables. With the significance level $\alpha = 0.05\%$ in the unit root test results, author all accept the H_0 hypothesis about the existence of a unit solution that is EP, FMI, GDP do not stop at the difference $d = 0$. Applying Dickey - Fuller and Phillips-Perron unit root test method to test stationarity for EP, FMI, GDP in the difference level of 2. Researchers all reject the H_0 hypothesis about the existence of a unit solution due to the significance level $\alpha = 0.05\%$ of the root test, which means EP, FMI, GDP stop at the difference level of 2. Thus, the data series have stopped at the same degree of difference.

Table 1. Unit Root Tests

Variables	Unit Root at Level I(0)	Unit Root at Level I(2)
Augmented Dickey-Fuller test statistic - t-Statistic (P - Value)		
EP	-2.166 (0.220)	18.727 (0.000)***
FMI	-1.796 (0.379)	-13.386 (0.000)***
GDP	-2.645 (0.088)	-15.010 (0.000)***
Phillips–Perron test statistic (P - Value)		
EP	12.872 (0.000)***	
FMI	5.286 (0.000)***	
GDP	11.655 (0.000)***	

Notes: With significance level $\alpha = 0.05$, if null hypothesis is accepted, the time series is not stationary, if null hypothesis is rejected, the time series is stationary. Then applying the Augmented Dickey-Fuller and Phillips–Perron unit root test methods to test the stationarity for the data series: EP, FMI, GDP respectively.

, **, * refer to level of significance of 10%, 5%, and 1% respectively.*

Source: Analyzed by authors

Co-intergration Test

The Engle – Granger test (1987) shows that EP, FMI, GDP all stop at the level of 2: I(2). Then using Johansen test to check if EP, FMI, GDP have co-intergration or not.

Table 2. Co-intergration Test

Hypothesized	Trace	0.05		
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.934	286.625	29.797	0.000
At most 1	0.481	79.279	15.494	0.000
At most 2	0.320	29.374	3.841	0.435

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

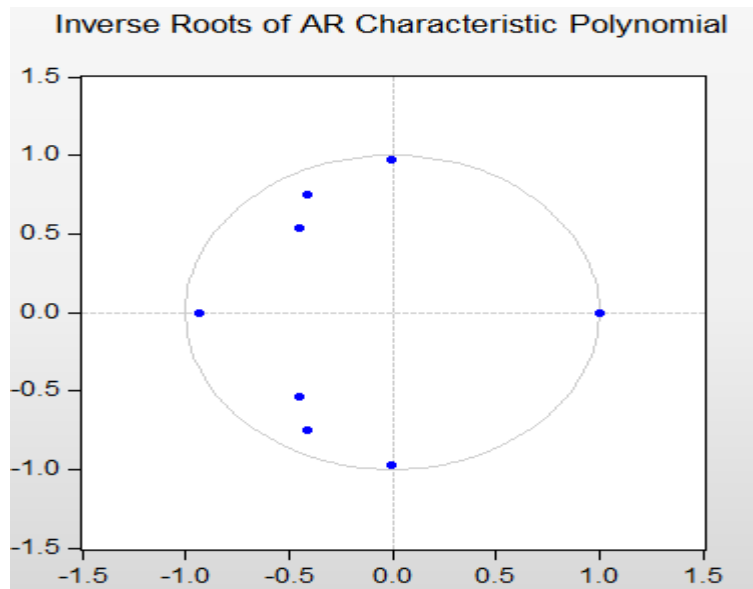
Source: Regression's result

The results obtained from Trace test show that EP, FMI, GDP have cointegration, at the significance level $\alpha = 0.05$, when $k = 0$ (None), p -value = $0.000 < \alpha$ should reject the hypothesis $H_0: r = 0$ (non cointegration between variables), when $k = 2$ (At most 2), p -value = $0.435 > \alpha$ should accept the hypothesis $H_0: r \leq 2$.

The stability test of the model

The AR Root Test is applied to test the stability of the VECM model by considering whether the test or the individual values are less than 1 or are in the unit circle, the VECM model achieves stability. The estimation show that the solutions with solutions are all less than 1 or are in the unit circle, so the VECM model is stable.

Figure 1. The stability test of the model



Source: Regression's result

Thus, the tests show that the stationary chains are at the same level of difference, the test of cointegration has 2 cointegration, this ensures that the VECM model selection is reasonable. With 2 appropriate latency selected and the VECM model is guaranteed to be stable which is suitable for regression. From there, the author conducted analysis of variance decomposition and impulse response functions as the basis for the conclusions.

4.2. Research Results

After testing the VECM model, the results of the VECM regression model are obtained as follows:

EP, FMI, GDP do not stop at I (0) and have co-intergration. The cointegration equation shows a long-term relationships between variables in the form:

$$u = - EP + 0.0006FMI - 0.036GDP - 0.0005$$

$$EP = - 0.0005 + 0.0006FMI - 0.036GDP - u$$

The combination of nonstationary sequences into one stationary sequence, and ECT_{t-1} is the residual in that association. $ECT_{t-1} = \alpha$ indicates imbalance in period $t-1$, α is the correction coefficient when imbalance occurs in the short term.

Table 3. VECM Regression Results

Vector Error Correction Estimates			
	Cointegrating Eq:		CointEq1
	DEP(-1)	1.000000	
	DFMI(-1)	0.0006	
	DGDP(-1)	-0.036	
	C	-0.0005	
Error Correction:	D(DEP)	D(DFMI)	D(DGDP)
CointEq1	-2.110	-96.539	41.692

Source: Regression's result

ECT-1 = -2.110 shows that if there is an imbalance in the previous period by 1 unit, the dependent variable will adjust in the same direction with the equilibrium of 2.110% in the first period.

Impulse Response Function

Variance decomposition functions and impulse response functions will be performed to examine the causal relationship between the factors of financial market development, economic growth and environmental pollution. These functions help to analyze the direct and indirect effects of the shock of one factor on the other factors. This allows us to fully appreciate their dynamic linkage.

Economic growth volatility shocks lead to a negative response to environmental pollution, which has a positive impact and especially strongly affects environmental pollution in the long run. This is explained by the fact that Vietnam is a developing country, when the economy grows rapidly, it means more economic activities, more energy consumption and increased CO2 emissions, leading to an increase in environmental pollution.

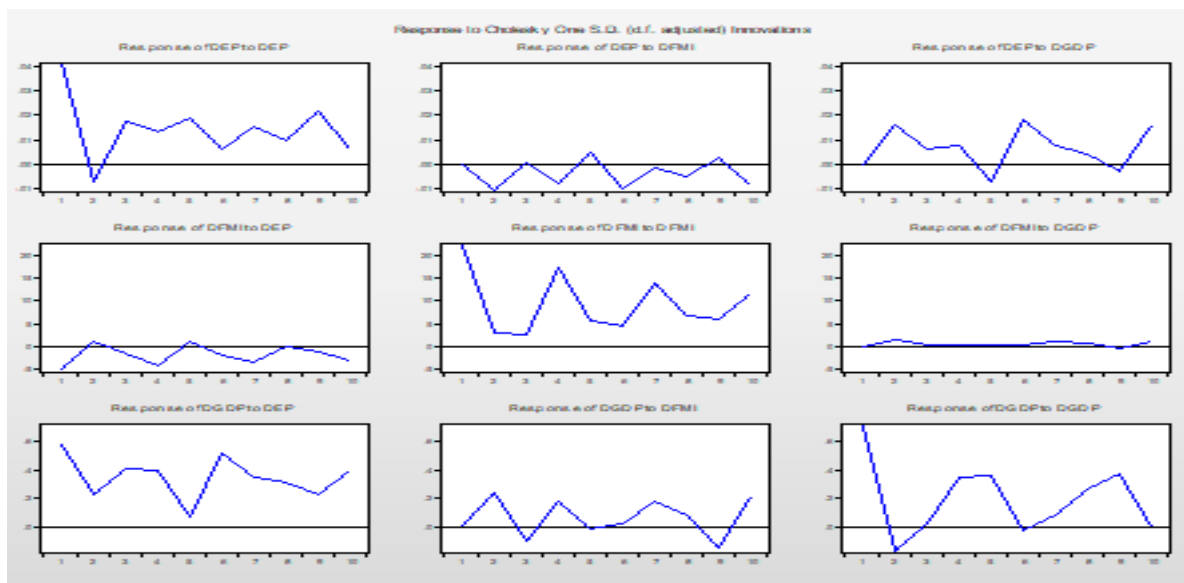


Figure 2. Impulse Response Function of EP, FMI, GDP

Source: Regression's result

EP's reaction continuously reversed when there were FMI shocks right from the first period. The development process of the financial market will help businesses effectively use resources in production and business, innovate and improve technology to help limit the generation of CO2 emissions. environmental pollution. Therefore, when the financial market develops, it will help improve environmental pollution in Vietnam.

Variance Decomposition

Table 4. Variance Decomposition of EP, FMI, GDP

Variance Decomposition of EP:				
Period	S.E.	EP	FMI	GDP
1	0.040962	100.0000	0.000000	0.000000
2	0.045828	82.52993	5.137650	12.33242
3	0.049359	83.38591	4.435310	12.17878
4	0.052191	81.07233	6.090501	12.83717
5	0.056255	81.33523	5.948059	12.71671
6	0.060411	71.61599	8.060379	20.32363
7	0.062736	72.21349	7.565913	20.22060
8	0.063824	72.15624	7.931279	19.91248
9	0.067556	74.81981	7.208103	17.97208
10	0.070200	70.03663	8.228582	21.73478

Source: Regression's result

The variance decomposition of error when forecasting variables in the VECM model aims to separate the contribution of other time series as well as the time series itself in the variance of the forecast error. The results of the variance decomposition are consistent with the results of the impulse response function and more importantly, determine the importance of the factors, the level of financial market development, economic growth for environmental pollution. field of practice in the country. The forecast error in the EP due to the volatility of the development of the financial market is about more than 8%, but it is maintained over the next and extended periods after that, showing no signs of fading. Although, the degree of influence of the development of the financial market on environmental pollution is not too much, because Vietnam has a low developed financial market, this response direction has not been clearly seen. However, the results of the study are consistent with the actual situation and previous experimental studies. As financial markets develop, more advanced production techniques are applied to improve environmental pollution.

On the other hand, the degree of influence of economic growth on environmental pollution is quite clear. When economic growth fluctuates by 1%, the forecast error in environmental pollution is over 20%. This result is consistent with the actual situation and previous experimental studies. For developing countries like Vietnam, when the economy grows, production and business activities increase, leading to the use of a lot of energy and CO2 emissions, causing environmental pollution.

5. Discussion and Conclusion

This study investigates the impact of financial market developments and economic growth on CO₂ emissions in Vietnam over the period 2000–2020. The experimental results show that there is a long-term cointegration relationship between the three variables. Impulse response function and variance decomposition show that financial development will reduce CO₂ emissions and reduce environmental pollution. Economic growth can increase CO₂ emissions due to high energy consumption in production, leading to increased environmental pollution. These results have several policy implications for Vietnam. First, we should steadily promote financial innovation, low-carbon finance and the green energy business. It is necessary to raise the level of development of the financial market, strengthen supervision and guidance of the capital market system, improve information disclosure and other related systems in the capital market, and actively promote the role of financial markets. of the stock market in promoting green energy. Energy consumption in Vietnam is exacerbating carbon dioxide emissions as the energy consumption structure is still dominated by high-carbon energy such as coal. Therefore, the government should optimize the energy structure, increase energy efficiency and implement sustainable energy development in Vietnam.

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SOLUTIONS TO PROMOTE ECONOMIC GROWTH IN VIETNAM 2022: OPPORTUNITIES AND CHALLENGES

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Abstract

2021 is considered a year of great difficulties and challenges for the world economy in general, including Vietnam. The world economy is forecasted to have the most severe recession in history. The growth of major economies all are deeply decreased due to the negative impact of the Covid-19 epidemic. In addition to the growth achieved in 2021, the Vietnamese economy still has many problems that need to be resolved. With great expansion and deepening international integration, all fluctuations in the world economy have an impact on the socio-economic sectors of our country. Although Covid-19 is still under control in Viet Nam, there are complex developments in the world. The activities of production, commercial supply and circulation, aviation, tourism, labor, and employment are suspended and interrupted. Besides, exports have grown but not yet ensured sustainability, labor productivity remains low... Therefore, our country still needs to focus on implementing the double goal of "both effectively preventing epidemics and taking full advantage of opportunities to strive for socio-economic recovery and development in a new normal state" while exploiting the full potentials and advantages to bring the economy to the highest growth level in 2022. In this article, the author refers to economic growth and the economic achievements in 2021. Through that, it is possible to know the opportunities as well as challenges that the economy will face in 2022.

Keywords: *Growth, opportunities, challenges, Covid-19*

1. Introduction

“Economic growth is a sustained increase in output per capita,” Simon Kuznet (1966). Classical economists used two indicators: gross national product (GNP) and gross domestic product (GDP) to measure the growth rate of an economy. There are many factors affecting the economic growth of the country, but the overall achievement includes the following basic factors:

- *Human resources: Many economists considered human resources or human capital to be the most important factor in economic growth. According to Schultz (1961), human capital includes physical condition, education level, skills, experience, sense of organization and labor discipline. It can be seen that "human resources are the resources of all resources". Therefore, people with good health, intelligence, high skills, motivation, enthusiasm, and good organization are the basic factors of economic growth.*

- *Investment capital: Investment capital is one of the important factors in the production process.* Investment capital includes private investment, government investment and foreign investment. The whole society's investment capital is not only machinery and equipment used for production, but also the amount of investment capital to develop the general interests of the whole society. It is the amount of capital invested in the development of the national infrastructure, which is largely funded by the government. In addition, foreign investment also plays an important role.

- *Technological progress: Technological progress promotes growth because it contributes to increasing labor productivity, improving capital efficiency, saving labor and capital on products, so that for the same amount of cost, more products are created, and it opens up new industries and products.* Nowadays, the development momentum of technology, especially information technology, biotechnology, new material technology... has rapidly increased productivity.

Export: Export can have an impact on economic growth directly because it is a component of the total product or indirectly through its influence on growth's factors. Export increases demand in the economy. Export orientation and trade openness improve the process of resource reallocation, increasing the capacity of using resources and competitiveness of the country. Export increases domestic investment as well as attract foreign investment. Export promotes technological change and improves human resources, thereby increasing productivity and ultimately creating more job opportunities and increasing income.

- *Natural resources: Despite the progress of science and technology, it is constantly developing and being applied extensively in production.* However, many natural resources still play a decisive role in the production of national and industry products (agriculture, mining, etc.). The practice demonstrates that a country with rich and diverse natural resources, also rich in reserves and quality, will have many advantages in attracting FDI and vice versa.

2. Method

The article researches the current situation of production and consumption of some agricultural products along the value chain in order to contribute to sustainable economic development in Vietnam following the integration trend. The article also evaluates the advantages and disadvantages to find solutions for sustainable development.

This paper uses the methodology of dialectical and historical materialism; Using the main research methods in economics including methods of statistics, analysis, synthesis, expert, data analysis and processing...

The paper also collects data related to it from secondary documents such as textbooks, books, reports on socio-economic development, and Vietnam in particular, etc.

The essay uses the method of synthesizing and analyzing information, documents, reports of competent agencies, Ministries and branches on issues related to the research field.

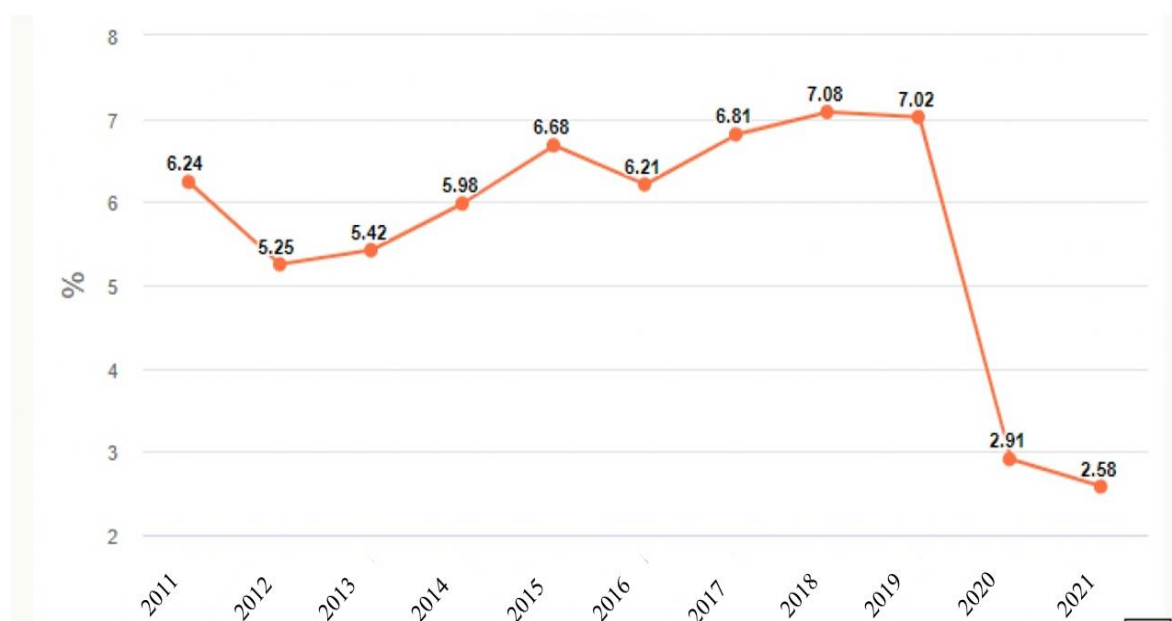
3. Results

3.1. Vietnam's Economic Achievement in 2021

2021 was the first year of implementing 5-year Socio-economic Development Plan 2021-2025, our country is making efforts to accomplish the goals set out in the plan. But the Covid-19 continues to have complicated developments, causing negative effects on economic activities, in which import, and export are seriously affected. These fluctuations and difficulties have made countries tend to use domestic products instead of imported products when implementing border closure measures to prevent epidemic. Therefore, many countries have used the measures of trade protectionism and technical barriers to enhance the protection of domestic products, especially agricultural and fishery products.

GDP growth for the whole year was only 2.58%, the lowest level in recent decades. In which, GDP growth in the third quarter recorded a negative number for the first time.

Vietnam Economic Growth from 2011-2021



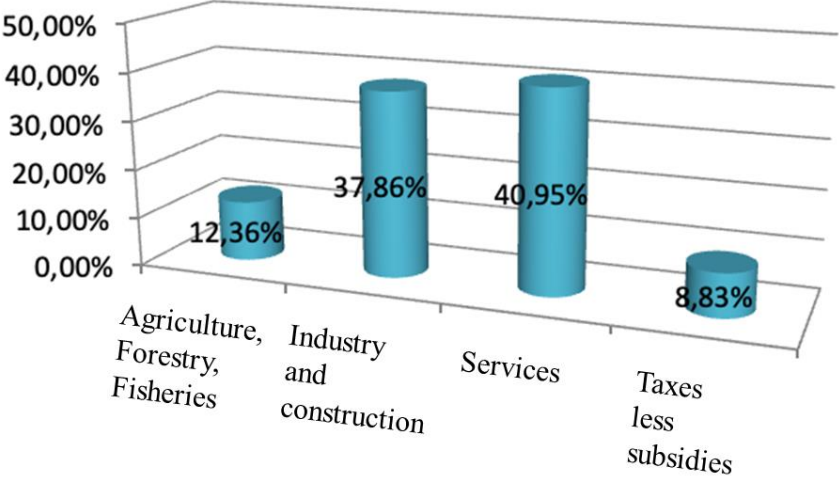
Source: General Statistics Office

In the overall growth rate of the economy in 2021, the agricultural, forestry and fishery sectors contributed 13,97% to the growth rate of the total added value of the economy; the industrial and construction sectors contributed 63,80%; the service sector contributed 22,23%. In terms of the economic structure in 2021, the agricultural, forestry and fishery sectors accounted for 12,36%; the industrial and construction sectors accounted for 37,86%; the service sector accounted for 40,95%; product taxes except for product subsidies accounted for 8,83%.

The situation of business registration in the fourth quarter showed a clear flourish. Specifically, in the last 3 months of 2021, the number of newly registered enterprises reached

31,400 with a registered capital of 415,300 billion VND and the number of registered employees was 205,100 employees, - an increase of 70.4% in the number of enterprises, an increase of 64.1% in registered capital and 24.7% in number of employees compared to the third quarter of 2021.

GDP structure in 2021



Source: GSO

Overall, in 2021, the country had 116.800 new registered enterprises with a total registered capital of 1,61 million billion VND and total registered labor of nearly 854.000 employees. The average registered capital of a newly established enterprise in 2021 reached 13,8 billion VND.

In addition, in the fourth quarter of 2021, domestic trade and transport activities, and international tourists gradually recovered. Total retail sales of goods and revenue from consumer services in the fourth quarter of 2021 increased 28,1% compared to the previous quarter - estimated at 1,3 million billion VND. In general, in 2021, the total retail sales of goods and revenue from consumer services was estimated at 4,79 million billion VND.

The fourth wave of COVID-19 outbreak has disrupted the global supply chain, negatively affecting Vietnam's export operations. At that time, many experts and specialized agencies expressed their "impatience" for the growth target of the whole year. However, those worries were replaced by shattered feelings at the end of 2021, export once again made miracles.

With the annual export turnover of goods was estimated at 336,25 billion USD, an increase of 19% compared to the previous year, not only did export "break" the record of 282.65 billion USD of the whole year of 2020, but also brought Vietnam to become the 22nd largest export economy in the world. According to many economic experts, with this encouraging result, exports will continue to be a growth engine for the Vietnamese economy in 2022 and create more potential for enterprises to promote exports in the coming time.

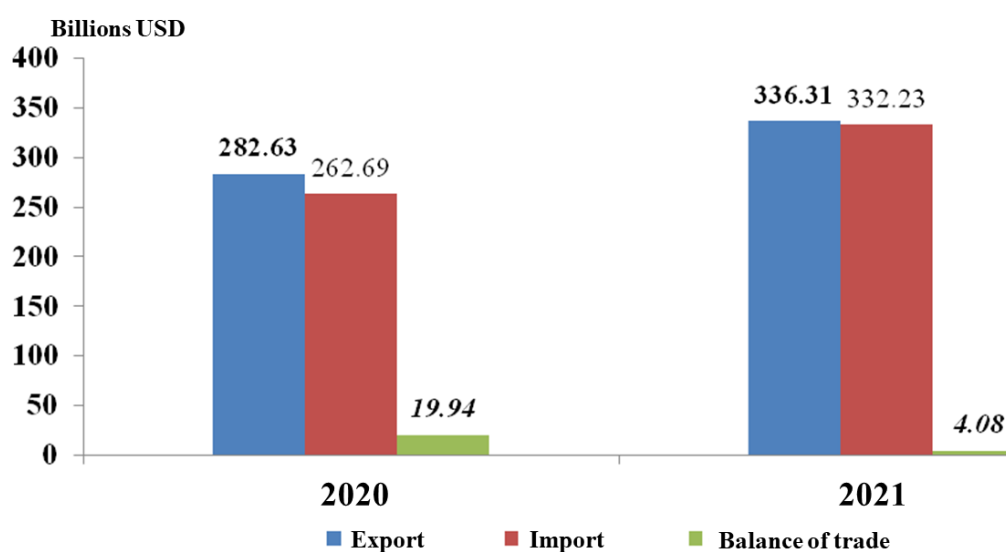


Figure 1. Value of export, import and trade balance in 2020 and 2021

Source: General Department of Vietnam Customs

Export and import of goods were considered one of the brightest points of the economy in 2021 when the total turnover reached 668,5 billion, an increase of 22,6% compared to the previous year. With this result, Vietnam was among the top 20 economies in international trade.

Overall, in 2021, the trade balance of goods was estimated at 4 billion USD (19,94 billion USD last year) in which, the domestic economic sector had a trade deficit of 25.36 billion USD; FDI sector (including crude oil) had a trade surplus of 29.36 billion USD.

Despite being heavily affected by the epidemic, businesses, especially in the industry, have built a scenario to proactively adapt to the "new normal" state, ensuring production and business stability and striving to complete the planned schedule. Thanks to the efforts of enterprises and the effects of supportive policies of the Government and Ministries, businesses have been helped to overcome difficulties, restore production, and have positive business results. This also helps to collect the State budget early.

Total state budget revenue in 2021 was estimated to reach 1,523,400 billion VND, equaling 113.4 % of the yearly estimate (an increase of 180,100 billion VND), of which domestic revenue was equal to 110.4% of the annual estimate (an increase of nearly 118,000 billion VND); revenue from crude oil was 197.4% (up 22,600 billion VND); balanced income from import and export activities was 122.1% (increasing 39,500 billion VND).

Besides, other large balances of the economy were maintained stable. The average core inflation in 2021 increased by 0,81% compared to the average in 2020. The Consumer Price Index (CPI) in 2021 increased by only 1,84% compared to the previous year and it was the lowest increase since 2016, this had contributed to macroeconomic stabilization, and creating conditions for the Government to implement many financial and fiscal policies in supporting people, businesses, and the economy. Stable macroeconomics, controlled

inflation, less volatile exchange rates have helped Vietnam continue to be an attractive destination for foreign investors with a total investment capital of over 31 billion USD, up 9,2% compared to 2020.

3.2. Opportunities and challenges for Vietnam

With the achievements and results achieved in 2021, Vietnam's economy has many new opportunities to recover in 2022, there are many new opportunities for the recovery of the Vietnam's economy in 2022.

Firstly, Vietnam will have many improvements in both the dynamics and the results of economic recovery and development. With improved experience, capacity, and ability to cope with epidemic, the ability to proactively produce a vaccine against Covid-19 will soon ensure the goal of vaccinating the entire population, the country will return early to normal, and the economy will recover quickly. Completion of vaccine coverage by the end of 2021, or by early 2022 at the latest, is one of the prerequisites for economic recovery and development.

In general, the economic recovery process in 2022 will face many challenges and bottlenecks that need to be resolved. Vietnam continues to face increasing inflationary pressure, public debt and non-performing loan, limitations on the ability to meet human resources, equipment, and infrastructure of the grassroots health system, while the number of people needing medical assistance and social security is huge. The recovery of production and business can be hindered by financial difficulties and consumption market. The ratio of credit to GDP remains high, the medium and long-term capital of the economy still mainly relies on the banking system.

Domestic consumption, which contributes about 68-70% of GDP, is likely to recover due to market sentiment and improved income. In addition, the private sector and FDI have the opportunity to recover production and business thanks to the recovery of both supply and demand sides, the adaptation of the business sector and support measures of the Government.

Secondly, the direct impact of economic support packages is strengthened. Vietnam needs to strengthen resilience through a robust and flexible social assistance system based on allocating additional capital to social assistance programs; building a large-scale social registry and digital adoption to quickly identify vulnerable people; scaling up electronic payments to effectively reach identified beneficiaries.

The Government has set out the overarching goal of "safely and flexibly adapting, effectively controlling Covid-19, maximum protecting the people's health and life", along with "making good use of opportunities". to promote socio-economic recovery and development with comprehensive solutions". The next goal is to maintain macroeconomic stability, improve the economy's autonomy, resilience, and adaptability; strive to increase GDP by 6-6.5%, average CPI growth rate of about 4%; State budget deficit is about 4% of GDP... throughout 2022.

Thirdly, many solutions are implemented synchronously. In the context that the epidemic can be prolonged, the main tasks and solutions are to focus on flexibly and effectively implementing the goals of preventing and controlling epidemic while recovering and developing economy and society, ensuring people's health and life and social security. In

addition, it is necessary to control inflation, limit arising bad debts, maintain the internal bad debt ratio below 3%; accelerate production, business, export, and the disbursement of public investment capital. Development assistance policies should pay attention to creating stimulus for both total supply and total demand; consolidating macroeconomic foundations and promoting more far-reaching economic institutions, creating more "resilience" for enterprises.

4. Discussion and Conclusion

In 2022, Vietnam remains an attractive destination for investors in the medium term with many strong foundation conditions. In order to take advantage of the new opportunities to revitalize Vietnam's economy by 2022, a number of solutions need to be implemented as follows:

Firstly, Vietnam needs to implement well and safely a large-scale vaccination campaign for the entire population. The Government, ministries, departments, and localities shall urgently complete the vaccination for the entire population within the prescribed age range in order to soon achieve the rate of herd immunity; give priority to the labor force of the enterprise sector and individual business households so that these two areas will soon return to production and business.

Secondly, it is necessary to harmoniously combine fiscal and monetary policies, focusing on fiscal policies to support businesses and individual business households to overcome difficulties. At the same time, we should use reasonable monetary policy, not focusing too much on monetary policy to remove difficulties and promote growth because credit support and lowering interest rates for businesses will lead to increase inflation and risks to the banking system.

Thirdly, it is vital to improve the capacity of disbursement and efficient use of investment capital: Carrying out key investments in key sectors, dynamic regions, growth poles, large and important national projects, inter-regional connectivity projects. In particular, our country should improve the efficiency of using public investment capital to create spillovers to private investment and the FDI sector; exploit the strengths of signed Trade agreement in order to improve the efficiency of international trade activities and boost exports; enhance opportunities to attract and utilize FDI inflows.

Fourthly, rapid and effective implementation of the economic restructure. Internal restructuring of each sector towards promoting comparative advantage and participating in global value chains; focusing internal resources, promoting the motivation to develop products with comparative advantage, competitiveness, and high added value.

Fifthly, we should proactively prepare sufficient conditions to promote production and business, ensure supply and circulation of goods, and reduce inflationary pressure. For deficient goods in the short term, it is necessary to have policies and solutions to reduce production costs, timely import raw materials; strengthen inspection, examination and resolute handling when detecting speculative behavior, hoarding and price manipulation; implement solutions to connect and ensure appropriate labor supply for people; proactively provide labor market information, develop plans and programs for coordination among localities in the supply and recruitment of labor to create connections and interconnections in the labor supply chain between localities...

Sixthly, it is very important to strengthen the implementation of digital transformation in institutional reform and administrative procedures. Digital transformation in institutional reform and administrative procedures are very important. Meanwhile, traditional administrative procedures and the application of technology in resolving administrative procedures currently do not meet the requirements of people and enterprises in the new context. There are many support packages that are stuck with administrative procedures. Procedural barriers are not only causing difficulties, but also creating unfairness for the business community in accessing policies and distorting the business environment. Besides, it is necessary to have cooperation and coordination among agencies, ministries, departments, and localities and to establish a decentralization mechanism for the creation of favorable condition not only in the country, but also in the international arena.

Seventhly, creating an inter-connection policy, connecting the supply chains of goods and services with consensus at local governments, solving the situation of local inconsistency. In order to restore supply chains, production and export activities, it is necessary to maximize the circulation of goods and labor to serve the recovery of production after the epidemic, to avoid the local inconsistency. At the same time, our country should ensure adequate supply of raw materials, materials, and energy.

Regarding import and export, it is crucial to continue to closely monitor the epidemic situation and the exchange of goods between countries to advise the Government on management solutions to deal with adverse factors. Emphasis will be placed on the implementation of the Free Trade Agreements in general, especially the new generation FTAs. Organizing online trade promotion, focusing on logistics...

Promoting circulation and distribution of goods among localities to ensure the supply of essential goods to serve people's needs. Implementing programs to stimulate domestic consumption such as: organizing promotional months nationwide, mobile sales programs, market stabilization programs... Strengthening activities to connect supply and demand and promote trade domestic market trade. Promoting the application of e-commerce in the circulation and distribution of goods.

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THE MERIT OF BORDER CARBON TAX ADJUSTMENT AND ITS IMPACT ON THE TRADE AND ECONOMY OF VIETNAM

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Abstract

Global greenhouse gas emissions have been accelerating alarmingly. Many states came up with different stringent climate policies in response to this. These unilateral climate change policies might reduce emissions in one region; however, it would cause the international transfer of carbon emissions due to international trade. The spillover of emissions is also referred to as “carbon leakage”. In a bid to fulfill goals set out in Paris Agreement and move forwards to the 2050 net-zero commitment made by more than 100 countries, several anti-carbon leakage approaches have been proposed, including border carbon tax adjustments (BCAs) recognized by three models: import tax and export rebate and emissions trading scheme (ETS). These are also one of the most controversial topics in the debate on reconciling international trade and the environment. To the extent of this paper, the only carbon tax on imports will be scrutinized.

Keywords: *Carbon leakage; Border carbon tax adjustments, GATT, Vietnam.*

1. Introduction

In response to the 21st Conference of Parties (COP 21) which was signed in November 2021, numerous states are raising the idea of imposing carbon-related border tax adjustments to fight climate change. This hotly-debated topic caught unaccountable public and scholars’ encouragement and their critics alike. There are strong rationales for implementing BCAs: (1) BCAs help to protect domestic industries from competitive disadvantages due to the disparities in carbon policy in different regions; (2) BCAs prevent domestic industries to move outside of the regulatory zone, causing transnational carbon leakage and (3) imposing BCAs would encourage the participation and compliance of international regime.⁶ Despite advantages thereof, scholars and politicians are questioning the effectiveness of carbon border tax in practice and particularly its compliance with World Trade Organization (WTO) rules. The paper will take the focus on the merit of carbon border tax by scrutinizing three aspects: its compliance with WTO rules, its effectiveness, and its

⁶ Pauwelyn, J. (2013). Carbon leakage measures and border tax adjustments under WTO law. In *Research handbook on environment, health and the WTO*. Edward Elgar Publishing.

practicability to see whether or not we should apply BCAs and how to apply BCAs appropriately. The paper will also mention the impact of BCAs regime to Vietnam and last but not least give some proposals about the design and implementation of the BCAs applied to Vietnam.

2. Method

The paper will use some primary methodologies below:

- Case study: This method is applied to examine whether carbon border tax can be considered as complying with WTO law. Put in detail, some WTO cases presenting fundamental principles of WTO will be used to examine the compliance to WTO rules of carbon border tax.

- Law analysis: This method is applied to analyze some specific provisions of the international agreements relevant to BCA, especially the General Agreement on Tariffs and Trade 1994 (GATT 1994).

From the expected findings, it is necessary to draw conclusions and propose some recommendations used in the context of Vietnam in this regard.

Research Questions

1. What is the merit of BCAs?
2. How would imposing the BCAs scheme affect the economy and trade of Vietnam?

3. Results

3.1. The merit of BCAs.

3.1.1. Is BCAs admissible under WTO rules?

WTO rules do not contain any provision dealing directly with border (carbon) tax adjustments. By virtue of Article II.1 (a) of the GATT 1994, WTO parties are prohibited to impose a custom duty or a “charge imposed on or in connection with importation” (import duty) that is in excess of limits they made the commitment in the tariff schedule. However, an import duty such as BCAs will be allowed to exceed these limits if BCAs are considered as a “charge equivalent to internal tax equivalent to Article III.2”.⁷ In this case, a BCA must be tested under the same criteria as the test of Article III of the GATT to determine whether or not BCA is in excess of “internal tax”. On the other hand, if BCAs are considered as “internal tax or internal charge” because it is paid upon the resale in importing countries, BCAs will be subject to Article III: National Treatment of GATT 1994.⁸ Simply put, imposing BCAs is allowable provided that they satisfy two tests: (1) BCAs are imposed on products that are “like” domestic products that are subject to tax in the first place, and (2) BCAs must not be in excess of the amount of tax on “like” products in importing countries.⁹

⁷ WTO Appellate Body Report, *India - Additional Import Duties*, WT/DS360/AB/R, 30 October 2008, adopted November 17, 2008

⁸ WTO Appellate Body Report, *China – Measures Affecting Imports of Automobile Parts*, WT/DS339/AB/R, adopted January 12, 2009.

⁹ Hillman, J. A. (2013). Changing climate for carbon taxes: who’s afraid of the WTO?.

✚ **‘The tax are imposed on products that are “like” domestic products that are subject to tax in the first place’**

To satisfy the first test, it is compulsory to prove that (1) the carbon border tax is a type of indirect tax (tax imposed on the product) and not direct tax (tax imposed on a producer or manufacturer or their income) and (2) the imported products and the domestic products are ‘like’ products.¹⁰

➤ *Article III: National Treatment on Internal Taxation and Regulation and the distinction between indirect tax and direct tax.*

The language of the Agreement on Subsidies and Countervailing Measures (ASCM) and the 2009 Report of WTO-UNEP¹¹ state that ‘indirect tax’ includes all taxes that are not ‘direct tax’. Put it plainly, a tax on products, including a tax on inputs (energy) that are not physically incorporated into final products, as long as it is not listed specifically as “direct tax” (a tax on a producer or manufacturer or their income or wage), should fall into “indirect tax” category.

To be adjusted at the border, the tax must be a type of indirect tax. Countries can easily offset taxes charged on products (such as sales tax, VAT, and exercise duties) when assessing similar taxes on imported products and domestic products. Such taxes would level the competitive playing field.¹² On contrary, direct tax (such as Payroll tax or property tax) cannot be offset or assessed due to the fact that it is impossible to know if producers or importers bear similar costs in production or allocate the taxes on producers on products.¹³ In the case of carbon border tax, it is assessed on the product itself, such as a tax on fossil fuel producers based on the carbon content of their products and a tax on producers and consumers based on the carbon content of products they make purchases.¹⁴ For the reason above, the carbon tax could be considered an “indirect tax” and fully eligible for border adjustment for imports, in accordance with Article III.2 of the GATT 1994.

➤ *Article III: National Treatment on Internal Taxation and Regulation and the likeness concept*

The second requirement is challenging to satisfy. Based on the 1970 Report of Working Party adopted on 2 December 1970 on Border Tax Adjustments,¹⁵ with regard to the interpretation of the term “like or similar products”, the likeness of products should be examined by a case-by-case basis. Some criteria were suggested for determining whether a product is “similar”, namely the properties, nature and quality of the products; the end-uses; consumers’ tastes and habits and the tariff classification of products... Indeed, these criteria were reaffirmed in several WTO cases, like *Japan - Taxes on Alcoholic Beverages* and *EC - Abestos*.¹⁶

¹⁰ Kaufmann, C., & Weber, R. H. (2011). Carbon-related border tax adjustment: mitigating climate change or restricting international trade?. *World Trade Review*, 10(4), 497-525.

¹¹ Charnovitz, S. (2010). Trade and climate change: A report by the United Nations environment programme and the World Trade Organization by UNEP and the WTO Geneva: WTO, 2009. *World Trade Review*, 9(1), 273-281.

¹² Agreement on Subsidies and Countervailing Measures, ADP/W/383, Note by the Secretariat, footnote 58.

¹³ Hillman, J. A. (2013)

¹⁴ Ibid

¹⁵ GATT Working Party Report, *Border Tax Adjustments*, L/3464, adopted 2 December 1970, BISD 18S/97

¹⁶ Cossy, M. (2006). Determining Likeness under the GATS: Squaring the circle?.

In the light of BCAs, process and production methods (PPMs), specifically non-product related process and production methods (NPR-PPMs) deserves to be mentioned because it is primarily associated with carbon emissions emitted during production which will be used to calculate carbon tax. The debate over NPR-PPMs has centered on whether or not products are “like” under the concept of Article III of the GATT if NPR-PPMs used to produce are not similar.¹⁷ Another question is whether NPR-PPMs based border measures are compatible with WTO law.

The existing WTO cases suggest that NPR-PPMs cannot make products different and any NPR-PPMs based border measures can be considered discriminatory measures without reservation of the GATT. This traces back to *Tuna-Dolphin I and II* cases. It indicates that different non-product related PPMs do not make products “unlike” under Article III - GATT”.¹⁸ In this case, Appellate Body noted that consumers’ tastes and habits could be a determining factor to assess the likeness of products. In other words, NPR-PPMs can be used to support the finding of differentiation between products if different NPR-PPMs may have a sufficient impact on consumers’ tastes and consequently on competitiveness in importing country’s market.¹⁹ With the rising environmental protection awareness among the public, more and more consumers are inclined to choose environmentally-friendly products over other non-environmentally friendly products. This could mark a paradigm shift in consumer’s preferences, making less embedded carbon content products more competitive in the market. In most cases, however, as a general rule, products with physically identical or very similar characteristics will be considered as “like” from the consumer’s perspective.²⁰ If no factor points out the difference between products, the second requirement fails and as a result of this Article III of the GATT 1994 will be violated.

3.1.2. ‘BCAs must not be in excess of the amount of tax on domestically-produced “like” products’

The second test requires an appropriate system that does not violate any WTO rules to calculate the embedded carbon content in products. There are plenty of methods to measure this amount of carbon dioxide, such as certification or labeling showing information about production methods and the amount of carbon dioxide used.²¹ Some scholars suggest that the amount of carbon dioxide in each product should be measured at the manufacturing level as the difference in process and production method in manufacturing plants lead to the difference in the amount of carbon dioxide in products.²² This method would be less likely to run afoul of the non-discrimination principle set out in GATT 1994.²³ However, governments might find calculating carbon content at the manufacturing level challenging to

¹⁷ Hillman, J. A. (2013)

¹⁸ Crowley, M. A., & Howse, R. (2014). Tuna–Dolphin II: a legal and economic analysis of the Appellate Body Report. *World Trade Review*, 13(2), 321-355.

¹⁹ Ibid

²⁰ Hillman, J. A. (2013)

²¹ Ibid

²² Ibid

²³ Ibid

administer. The same goes for the certification and labeling itself. It needs not be an administrative burden on importers and domestic producers alike. This seems worse when companies, producers, and importers are not willing to provide the necessary information to assess carbon content in products all the time. It is an urge to seek other alternatives. One of the alternatives is the “predominant method of production” or “best available technology” that had been regulated in the Superfund Act in *US-Superfund* case.²⁴ Based on the Superfund Act, imported products produced with less carbon content than those produced by “predominant method of production” or “best available technology” are subject to pay less tax.²⁵

Nevertheless, in order to satisfy the non-discrimination principle set out in GATT 1994, the carbon tax on imported products shall not be “in exceed of” that applied to domestic products under Article III.2 or equivalent to a charge applied to domestic products under Article II.2²⁶ despite the difference in carbon content due to process and production methods and the amount of border tax adjustment assessed. The main arguments here are any difference in tax on domestic products and imported products would run afoul of the non-discrimination principle. Many nations, therefore hold the argument that the carbon tax imposition on imported steel produced by low-carbon source energy must be taxed in the same way as domestic steel produced by high-carbon source energy.²⁷ It appears to be hard to keep BCAs under the amount of tax imposed on domestic products in any circumstance except for Article XX of the GATT 1994.

Pursuant to Article XX GATT 1994, WTO members can still justify their carbon tax imposition under this Article, as long as the tax satisfies two conditions that are (1) the chapeau of Article XX and (2) the subsections of Article XX, namely Article XX (b) or Article XX (g).

Article I - General Most-favored-nation Treatment

Article I GATT 1994 requires “*any advantage, favor, privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all contracting parties.*”²⁸ Many argue that applying the carbon tax on imported products may cause the problem of favoring products from countries with stringent climate policies and penalizing products from those with weak or no climate policies who are mostly developing countries and least developing countries.²⁹

²⁴ Biermann, F., & Brohm, R. (2004). Implementing the Kyoto Protocol without the USA: the strategic role of energy tax adjustments at the border. *Climate Policy*, 4 (3), 289-302.

²⁵ Ibid

²⁶ GATT 1994 General Agreement on Tariffs and Trade 1994, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1867 U.N.T.S. 187, 33 I.L.M. 1153 (1994) [hereinafter GATT 1994].

²⁷ Biermann, F., & Brohm, R. (2004)

²⁸ GATT 1994

²⁹ Cosbey, A., Droege, S., Fischer, C., & Munnings, C. (2020). Developing guidance for implementing border carbon adjustments: lessons, cautions, and research needs from the literature. *Review of Environmental Economics and Policy*.

In fact, the 1979 Enabling Clause made exemptions to the most-favored-nation principle for developing countries and least developed countries.³⁰ The imposed measures on these countries must “respond positively to development, financial and trade needs of developing countries”.³¹ In the context of BCAs, the BCA measures must demonstrate the nexus between preferential treatment and the developing, financial, and trade benefits of developing countries, meaning that part of BCAs revenue must be allocated to developing countries, particularly the least developing countries. Hence, it constitutes a breach of the most-favored-nation principle set out in GATT 1994.³²

Otherwise, states can justify their measure under Article XX Chapeau and Article XX (a) to (g) of the GATT 1994.

Environmental concern and Article XX - General Exceptions

Pursuant to Article XX(b) and XX(g), WTO members can justify their carbon border adjustment measures if they aim to protect the life of humans, plants, and animals (Article XX(b)) or are related to the conservation of exhaustible natural resources (Article XX (g)). Past WTO cases demonstrate that a carbon tax would fit the scope of Article XX (b) or (g).³³ For example, in the *US-Gasoline* case, it is recognized that clean air is an exhaustible natural resource under the concept of Article XX (g) of the GATT because it could be exhausted due to pollutants released from burning gasoline.³⁴ Likewise, it is easy to argue that carbon dioxide emission causes detrimental effects on the health of humans, plants, and animals under Article XX (b) therefore carbon tax is allowed to apply for protecting these subjects.

The hardest part here might be to demonstrate that border carbon tax passes the Chapeau test under Article XX. Put it plainly, the measure must not be “*applied in a manner which would constitute a mean of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade.*” In *US-Shrimp* case, the Appellate Body emphasized that a measure constituting a mean of arbitrary or unjustifiable discrimination is the measure coercing exporting parties to adopt the same policy mandating the specific use of PPMs.³⁵ In addition to that, it is inconsistent with the Chapeau if measures require exporting countries to adopt “a comparably effective policy” to achieve the level of protection of importing country’s policy without mandating the use of any specific PPMs.³⁶ Such case remains less clear in WTO cases. We also need to justify two below circumstances: (1) measures requires producers in exporting country to use

³⁰ Ibid

³¹ Ibid

³² Ibid

³³ Vranes, E. (2016). Carbon taxes, PPMs and the GATT. In *Research Handbook on Climate Change and Trade Law*. Edward Elgar Publishing.

³⁴ Chi, M. (2014). ‘Exhaustible Natural Resource’ in WTO Law: GATT Article XX (g) Disputes and Their Implications. *Journal of World Trade*, 48(5).

³⁵ Porterfield, M. C. (2019). Border Adjustments for Carbon Taxes, PPMs, and the WTO. *U. Pa. J. Int’l L.*, 41, 1.

³⁶ Ibid

certain PPMs whether this exporting country mandate to use this type of PPMs and (2) measures requires producers in exporting country to achieve a similar standard of protection whether either importing country's government or producers use certain PPMs.³⁷ As we see, the carbon tax would be least coercive in the latter circumstance, particularly assessing the BTA on imported products from energy-intensive trade-exposed (EITE) sectors.

The Appellate Body also emphasized that a measure should be aimed at the environmental goal, rather than the application of specific methods or standards.³⁸ However, the lack of flexibility in defining a mean of arbitrary or unjustifiable discrimination has been an obstacle for countries to demonstrate that measure is not arbitrary. The Appellate Body in that *US-Tuna case* pronounced that “an arbitrary measure” is a capricious, unpredictable (or) inconsistent and “discrimination” and must have been foreseen, not merely inadvertently or unavoidable.³⁹ To be acceptable, members should build a comparable program that achieves the same environmental objectives. To do this, it is necessary for members to join in multilateral and bilateral agreements to ensure achieving the same environmental goal and to apply the flexible measure.⁴⁰

3.1.2. Mitigation effectiveness

Although there is no reliable data regarding the effectiveness of applying BCAs in real life, some *ex-ante* research shows the findings that BCAs could reduce carbon leakage by up to 15 percent globally.⁴¹ In addition, BCAs can also prove their effectiveness in addressing concerns regarding economic competitiveness. Nevertheless, others argued that the effectiveness in reducing carbon leakage is much less clear due to the reasons below:

Firstly, carbon leakage is not reduced at all, they shift around instead.⁴² Producers may sell less carbon-intensive goods to territories with a carbon price scheme and in reverse, more carbon-intensive goods to territories without a carbon price scheme.⁴³

Secondly, BCAs cannot be able to address all kinds of carbon leakage.⁴⁴ In fact not all factors are counteracted by BCAs. For example, in the energy market channel, due to domestic climate change policy, the demand for domestic fossil fuel reduces, hence the demand for fossil fuel abroad increases.⁴⁵

³⁷ Ibid

³⁸ Bree, A. (1998). Article XX GATT-QUO VADIS-The Environmental Exception after the Shrimp/Turtle Appellate Body Report. *Dick. J. Int'l L.*, 17, 99.

³⁹ Falcão, T. (2021). Ensuring an EU Carbon Tax Complies With WTO Rules. *Tax Notes International*, 101(1).

⁴⁰ Ibid

⁴¹ Branger, F., & Quirion, P. (2014). Climate policy and the ‘carbon haven’ effect. *Wiley Interdisciplinary Reviews: Climate Change*, 5(1), 53-71.

⁴² Pauer, S. U. (2018). Including electricity imports in California's cap-and-trade program: A case study of a border carbon adjustment in practice. *The Electricity Journal*, 31(10), 39-45.

⁴³ Ibid

⁴⁴ Ibid

⁴⁵ Böhringer, C., Fischer, C., Rosendahl, K. E., & Rutherford, T. F. (2022). Potential impacts and challenges of border carbon adjustments. *Nature Climate Change*, 1-8.

Thirdly, as carbon leakage is a large-scale problem, this requires collective effort and international cooperation to eliminate carbon leakage.⁴⁶ The reality proves that not all states are interested in BCAs. There are plenty of countries, such as China and other developing countries, Vietnam included have proposed to not use BCAs due to the concern of the burden-shifting and Green Protectionism.⁴⁷ While the international community seems hard to reach a mutual consensus as to the application of a global BCAs, several unilateral BCAs adoptions (for example European Unions have adopted the ‘Green Deal’ enacted from 2023 onward) just are capable of reducing carbon leakage in a very limited extent.⁴⁸

Finally, not all sectors can apply BCAs. Some scholars suggest BCAs should be applied only in energy-intensive trade exposure sectors, such as steel, aluminum, electricity, etc because this can reduce carbon leakage and lower administrative cost.⁴⁹ If applying BCAs to all sectors, the increasing administrative cost would outweigh the benefit of carbon emissions reduced.⁵⁰ It is necessary to determine which sectors have the highest risk of carbon leakage. There are two criteria proposed by scholars: carbon exposure and trade exposure.⁵¹ Put in detail, it is important to find the answers to two questions that are whether BCAs would increase the production cost and how international trade can prevent the cost from being passed on to customers.⁵²

3.1.3. Practicality

The actual application of BCAs will defer from the theoretical solution. It faces a number of challenges. The most challenging could be the assessment of product-specific emissions. There are two approaches determining the embedded carbon content in a product, namely, (1) a bottom-up approach which requires information during the production process from producers in exported country and information from suppliers in other countries, and (2) a top-down approach which requires to calculate the total amount of embedded carbon content in products in a sector and set a standardized benchmark for carbon intensity for products from this sector.⁵³ Both approaches face the complexity of obtaining information from foreign companies due to the limited jurisdictional power.⁵⁴ Furthermore, this will require massive monitoring and taxing of a great number of products that come from different global supply chains.⁵⁵ It will result in a dilemma in administrative actions and

⁴⁶ Ibid

⁴⁷ Siddi, M. (2020). The European Green Deal: Assessing its current state and future implementation.

⁴⁸ Kareckaite, E. (2020). Addressing climate change through unilateral action: The implications of adopting a European Union-wide Border Carbon Adjustment. *Master Thesis Series in Environmental Studies and Sustainability Science*.

⁴⁹ Mehling, M. A., Van Asselt, H., Das, K., Droege, S., & Verkuil, C. (2019). Designing border carbon adjustments for enhanced climate action. *American Journal of International Law*, 113(3), 433-481.

⁵⁰ Cosbey, A., Das, K., Droege, S., Fischer, C., Gerres, T., Ismer, R., ... & Sniegocki, A. (2021)

⁵¹ Ibid

⁵² Ibid

⁵³ Lininger, C. (2015). *Consumption-based approaches in international climate policy*. Springer.

⁵⁴ Ibid

⁵⁵ Ibid

costs. A more practical approach is focusing on a small number of sectors where the product characteristics - carbon cost, are reasonably standardized.⁵⁶

Another problem arising when executing the second approach is that due to the WTO non-discrimination principle, the imported products must be charged the same as domestic products, therefore BCAs would be likely to “best available technology”.⁵⁷ However, “best available technology” is criticized as being against environmental effectiveness since it fails to penalize unclean industries and reward clean industries;⁵⁸ and also fails to provide producers incentive to encourage to lower carbon footprint.⁵⁹ Industries also have to shoulder the production cost to comply but this will have an impact on the product price and demand for the product.⁶⁰

3.2. The impact of imposing BCA on the trade and economy of Vietnam

In the case of Vietnam, it would be considered a new opportunity for Vietnam. The application of carbon tax would encourage domestic manufacturers to replace non-environmentally-friendly energy sources and shift to environmentally friendly sources, such as wind or solar energy. As a result of this, the economy of Vietnam would make a huge shift to sustainable development in the economy, meaning promoting the usage of sustainable and renewable energy in long term, rather than repairing environmental damages. Sweden is a concrete and successful example of increasing economic growth by 78 percent and reducing carbon emissions by 26 percent in the last twenty seven years by applying carbon border tax.⁶¹ Thus the carbon emissions level in Vietnam has been 20 percent higher than the average level.⁶² By following and applying carbon border tax regulations, Vietnam hopefully would witness a paradigm shift in achieving sustainable economic development and environmental protection.

Despite long-term advantages, shifting to renewable energy would lead to an increase in the cost of final production, causing a direct negative impact on the low-income groups in society. Additionally, the increase in production cost would put Vietnam in a weak position, compared to domestically-produced products in other trading partners' markets. For example, European Union has introduced the “EU Green Deal” for the purpose of fulfilling the climate change goals set out in the Paris Agreement.⁶³ Based on this deal, the

⁵⁶ Mehling, M. A., Van Asselt, H., Das, K., Droege, S., & Verkuil, C. (2019)

⁵⁷ Sakai, M., & Barrett, J. (2016). Border carbon adjustments: Addressing emissions embodied in trade. *Energy Policy*, 92, 102-110.

⁵⁸ Fischer, C., & Fox, A. K. (2012). Comparing policies to combat emissions leakage: Border carbon adjustments versus rebates. *Journal of Environmental Economics and management*, 64(2), 199-216.

⁵⁹ Lininger, C. (2015)

⁶⁰ Xiaoge, M et al. (2018). Low-Carbon product selection with carbon tax and competition: Effects of the power structure. *International Journal of production Economics*, 224.

⁶¹ Jonsson, S., Ydstedt, A., & Asen, E. (2020). Looking back on 30 years of carbon taxes in Sweden.

⁶² Banking Review. (2001). Đề xuất thuế carbon đối với hàng hóa nhập khẩu ở các nước thành viên Liên minh châu Âu và tác động đến kinh tế thương mại Việt Nam <https://tapchinganhang.gov.vn/de-xuat-thue-carbon-doi-voi-hang-hoa-nhap-khau-o-cac-nuoc-thanh-vien-lien-minh-chau-au-va-tac-dong-d.htm>

⁶³ Hainsch, K., Löffler, K., Burandt, T., Auer, H., del Granado, P. C., Pisciella, P., & Zwickl-Bernhard, S. (2022). Energy transition scenarios: What policies, societal attitudes, and technology developments will realize the EU Green Deal?. *Energy*, 239, 122067.

carbon border taxes will start in 2023 with a transition period until 2025, when importers would be subject to significant reporting obligations. In terms of carbon customs duty, this will be applied to all sectors, focusing on EITE sectors, such as cement, iron, steel, aluminum, fertilizer, and electricity, etc.⁶⁴ Some of Vietnam's products that are subject to carbon border tax are textile, steel, coal, paper, and paper-based products. If carbon border tax were applied, Vietnam's GDP would decrease because revenues from exporting to EU markets account for 10 percent of the total GDP per year.⁶⁵ In "Green Deal", the EU will exclude carbon border tax for producers from countries applying the same effective climate policy.⁶⁶ If Vietnam implements a similar climate policy, Vietnam cannot possibly face hurdles coming from the public and producers when implementing a carbon tax.

As analyzed above, the imposition of carbon border tax would be at risk of violating WTO rules and face difficulties, such as calculating embedded carbon content in products and administration costs and procedures. This controversial measure must attract as much attention as possible in the near future. Vietnam, in this context, must be well-prepared, meaning adjusting our climate policy and regulation to eradicate carbon emissions. Below are some notices Vietnam needs to take into consideration in terms of practicing carbon border tax:

Unilateral border measures are usually used as a tool of powerful trading states and are not available to small and economically vulnerable states with little market power. That is why since the EU introduced the Green Deal, China and other developing countries have shown their vigorous objection to it.⁶⁷ They hold the idea that 'Green Deal' is a tool used to recover and strengthen the EU's economy in the post-pandemic era.⁶⁸ Therefore, an effective carbon border tax scheme requires a collective effort. Put in detail, the carbon border tax will urge other countries to join in bilateral and multilateral agreements in order to achieve common climate goals. These agreements are meant to prevent retaliation and protectionism along with achieving environmental goals. In this case, we should consider joining these agreements upcoming.

Vietnam should encourage domestic producers to replace nonrenewable energy and shift to environmentally friendly sources of energy. For example, give producers/companies incentives to reshuffle emissions. Exported products from countries with stringent and effective climate policies should be excluded from being subject to carbon border tax imposed by other trading partners, particularly the EU or the United States. The implementation of the carbon tax in the territory must face public objection, nevertheless, we should make sure the carbon tax is implemented in accordance with the consultation and

⁶⁴ Paleari, S. (2022). The Impact of the European Green Deal on EU Environmental Policy. *The Journal of Environment & Development*, 10704965221082222.

⁶⁵ Banking Review. (2001)

⁶⁶ Paleari, S. (2022)

⁶⁷ ZAICHUK, O. The EU Green Deal and the future of the EU business law-scenarios for legal evolution.

⁶⁸ Bongardt, A., & Torres, F. (2022). The European Green Deal: More than an Exit Strategy to the Pandemic Crisis, a Building Block of a Sustainable European Economic Model. *JCMS: Journal of Common Market Studies*, 60(1), 170-185.

involvement of those states affected by the policy. Vietnam also need to consider which method is appropriate and effective and fair to all producers.

Based on distributional principles set out in Paris Agreement and Kyoto Agreement and the Enabling Clause, developed countries are responsible for helping developing countries in terms of technology. Since decarbonization requires modern and complex technology, Vietnam and other developing countries need financial and technical aid from developed countries to keep up with the constant changes in global climate policy. Revenues gained from developed countries and domestic carbon tax must be devoted to climate change mitigation or actors being made worse off by policy.

4. Conclusion

Carbon emission reduction to protect the environment has taken the attention of many countries. Carbon border tax has been imposed as means to attain reduction of carbon emission. However, there has been several issues that has been raised in the imposition of BCA. Under WTO, BCAs are allowable if the tax are imposed on “like” domestic products and it must not exceed the tax on ‘like’ products in importing countries. But the application of carbon tax causes dilemma. It can favor products from countries with established climate policies and punish products from countries that have yet to develop environment protection policies.

As to effectiveness, BCA has not reduced carbon leakage. Rather, it made producers shift and sell to territories with less carbon-intensive goods. In order for BCA to work there is a need for cooperation or consensus of the international community in the implementation of the tax. BCA also faces challenges on its actual implementation like in the assessment of product specific emissions. It is good to focus on industries with which the carbon cost of the products can be standardized.

Lastly, BCA will have an impact to the economy of Vietnam. The application of the tax will affect the revenues of the country as it is not yet ready to comply with requirements of BCA. Currently, the country will be burdened in shifting to environmentally friendly sources and means of production. There is a need for developed countries to provide aid and assistance to Vietnam and other developing countries for the implementation of BCA to be effective.

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FRAUD RISK FACTORS AFFECTING FRAUDULENT FINANCIAL REPORTING: THE ANALYSIS OF FRAUD CASES

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Abstract

The paper investigated fraud risk factors affecting fraudulent financial reporting by studying fraud cases that have occurred of 12 large economic corporations in the world and in Vietnam. Through the collection of data from previous studies, the results of investigations by regulation agencies and the evaluation and analysis of experts on fraud cases, the authors synthesize and analyse to identify 3 groups of factors of fraud risk factors affecting fraudulent financial reporting. In particular, for the group of pressure factors, the pressure of the Board of Management to achieve the financial goals from the Board of Directors when operating poor business performance or financial crisis is the factor with the highest frequency. For the opportunity group, the weakness of internal control and the overriding of internal control from Board of Directors and Board of Management are the strongest factors that create opportunities for corporations to commit fraud. For the attitude group, the maintenance of stock prices and corporate profits, the lack of professional ethics of managers are the factors that appear most and have a great impact on fraudulent financial reporting.

Keywords: *fraud risk factors, fraudulent financial reporting, fraud cases*

1. Introduction

The development of the market economy, especially the financial market, requiring the transparency and honesty of financial information with high quality plays an important role to attract investors and creditors to make their financial, economics and commercial decision (Wang, 2018). According to Association of Certified Fraud Examiners, fraud causes an annual loss to the total value of world product of more than US\$3.6 billion (ACFE, 2020). Therefore, fraud detection is a challenge for independent auditors in comparison with error detection. According to ISA 240, in order to detect fraud in the audit of financial statements, the auditors identify the fraud risk factors and assess the fraud risks during the audit plan.

International and Vietnam researches have studied the fraud risk factors in the financial audit as following aspects: identification of risk factors affecting fraud in the preparation of financial statements and assessment of fraud risks as follows:

To commit fraudulent financial reporting, the theory of Fraud Triangles (Cressey, 1953) and red flags (Romney et al., 1980) are the main theory to explain the reasons for the

conditions to predict fraud. In generally, literature review of the causes of fraudulent behavior in financial reporting includes 3 groups of fraud risk factors (pressure/motivation, opportunity and attitude) and red flags alerting in 3 groups of fraud risk factors. Following researches on red flags, Albrecht et al. (1986) performed the first empirical study on the usefulness of red-flags to predict fraud. The author used 87 signs to design the questionnaire and conduct interviews with the independent auditors. The research results show that important red flags in predicting fraud are groups of pressure/motivation factors and managers' attitudes. Heiman-Hoffman et al. (1996) conducted a study on 30 red flags in SAS 53. The authors surveyed 130 independent auditors in the US and found that the group of attitude factors predicts fraud higher than the groups of pressure/motivation and opportunities. Because of the insufficient fraud risk factors in the modern economy, AICPA continued to amend SAS No. 53 and issued SAS No. 82 with clear instructions in comparison with SAS No. 53. After a series of accounting scandals in the US in 2001 and 2002, AICPA decided to continue to replace SAS 82 with SAS 99, adding suitable fraud risk factors for the changes of the international economy. SAS 99 did not present red flags because of the ineffectiveness of the red flags (Owusu-Ansah et al., 2002). AICPA grouped fraud risk factors based on the Fraud Triangle theory into three groups (pressure/motivation, opportunity, and attitude/justification). In 2004, the International Auditing and Assurance Standards Board revised and issued ISA No. 240. In 2009, ISA 240 continued to be revised and supplemented (IAASB, 2009). After the issuance of SAS 99 and ISA 240, studies continue to be studied on the predictability of the fraud risk factors affecting fraudulent financial reporting (Moyes et al., 2005; Skousen & Wright, 2006; Moyes, 2007; Gullkist & Jokippi, 2013; Abdullatif, 2013, Le Nguyen The Cuong, 2013; Tran Thi Giang Tan et al., 2014; Zaki, 2017, Ulfah et al., 2017; Devy et al., 2017; Mardianto & Tiono, 2019).

The researches on fraud risk factors affecting fraudulent financial reporting were carried out in many different countries and regions around the world, carried out in different periods and associated with changes in formation and development of the international auditing standard system (SAS No. 16, SAS No. 53, SAS No. 82, SAS No. 99, ISA No. 240). The author found that a group of factors on managers' attitudes have the most important influence on fraud in financial reporting such as the works of Albrecht et al. (1986), Heiman-Hoffman et al. (1996), Apostolou et al (2001), Gramling and Myers (2003), Graham and Bedard (2003), Moyes et al (2005), Smith et al (2005), Moyes (2007), Gullkist and Jokippi (2013) and Abdullatif (2013), Devy et al., (2017). Specifically, managers' attitude factors include the Board of Directors and the Board of Management with a history of violating securities laws or related laws, dishonest managers and weak ethics, the Board of Directors monopolized and override the internal control of the company, restricted access to employees and information. Next, the second group that affects fraud in financial reporting is an opportunities due to studies Bell and Carcello (2000), Graham and Bedard (2003), Gramling and Myers (2003), Moyes et al (2005), Skousen and Wright (2006), Moyes (2007); Gullkist and Jokippi (2013), Abdullatif (2013). Specifically, the group of opportunity factors that mainly affect fraud in the preparation of financial statements include the weakness of internal control, existence of important or unusual transactions with related parties, arising

transactions at the year-end date of the accounting period, lack of supervision activities for managers. The last group of factors is the pressure/motivation affecting fraudulent financial reporting due to the studies of Albrecht et al. (1986), Bell and Carcello (2000), Graham and Bedard (2003), Gramling and Myers (2000). 2003), Moyes et al (2005), Smith et al (2005), Skousen and Wright (2006), Moyes (2007); Gullkvist and Jokipii (2013), Abdullatif (2013), Zaki (2017). Specifically, the main group of pressure/motivational factors affecting fraud in preparing financial statements including enterprises having difficulty in financial situation, solvency and capital mobilization, bankruptcy pressure, achieving financial results. financial targets (sales, profit targets,...), the income of the Board of Directors or the Board of Management depends on the stock price, business results. The majority of researches are performed in developed countries, few studies are in Asia and developing countries (Maylaysia, Jordan). In addition, the articles are mainly researched through interview techniques to identify fraud risk factors affecting fraudulent financial reporting. Therefore, the authors conduct research on fraud risk factors in terms of famous accounting fraud cases in the world and Vietnam, from which the identification of fraud risk factors has a great influence on fraudulent financial reporting.

2. Method

The authors use the method of synthesizing and analyzing 12 fraud scandals in the preparation of financial statements of large corporations in the world and in Vietnam, including 10 large international corporations and 2 Vietnamese companies corresponding to 12 observations). The author collects data on previous studies and results of fraud investigations, evaluation and analysis of experts on fraud cases. The paper summarizes the methods of fraudulent financial reporting and the scale of frauds affecting financial statements. Next, the author collects data from the accounting scandals of 12 companies to list the risk factors that affect fraud in the preparation of financial statements of 12 companies on 3 groups of factors including: pressure, opportunities and attitudes; examine the perpetrator who commit fraud in preparing financial statements (Table 1).

3. Results

From the table 1, the authors have the following analytical results:

For the pressure/motivation group, the pressure of the Board of Management to achieve the financial goals from the Board of Directors when operating poor business performance or financial crisis is the factor with the highest frequency of 10 times in 12 observations, followed by the factor of financial benefits from the Board of Directors and the Board of Management holding shares of listed companies which is 8 times, the pressure to maintain and increase the stock price is 6 times, the factors of rapid growth and market leadership, the pressure of loss from business activities, the pressure of the need to raise capital all appear with frequency of 4 times, the pressure to meet the listing requirements is 3 times. The remaining factors have little impact on fraud in preparing financial statements of companies accused of fraud.

For the opportunity group, the weakness of the internal control leading to the Board of Directors and the Board of Management overriding the internal control is the most

opportunity for managers to commit fraud in the preparation of financial statements with 11 times out of 12 observations. Weakness of the Board of Directors in supervising the activities of the Board of Management is the second factor (frequency of occurrence is 9 times). Next, the existence of significant transactions or transactions outside the normal course of business with related parties is 8 times; the valuation of assets, liabilities, expenses and revenues are based on significant accounting estimates which are 6 times; unusual and complicated transactions at the end of the accounting year are 5 times; establishing special purpose entities for unknown reasons as low as 3 times.

For the attitude group, the Board of Directors focus on too much about maintaining the stock price or the company's profit trend (12 times) and the weak ethics of the members of the Board of Directors and the Board of Management (11 times) which are two highest factors impacting on fraudulent financial reporting. This is followed by members of the Board of Management who do not have sufficient financial expertise but interfere or unduly influence the choice of accounting policies or significant accounting estimates are 6 times.

The individual committing fraudulent financial reporting are mainly members of the Board of Directors and the Board of Management. Specifically, the members of the Board of Directors in 7 companies all committed fraud in 12 observations, especially with the participation of the Chairman of the Board of Directors and Vice Chairman of the Board of Directors of 5 companies in 12 observations; The members of the Board of Directors of 12 companies all made (12/12 observations) mainly the Senior Manager or CEO, the CFO (Table 1). Thus, fraud in the preparation of financial statements of 12 companies were performed by Senior Manager, so the behavior of overriding internal control of senior Manager occurred in 11 companies/12 observations.

Table 1. Summary of fraud risk factors and fraudulent methods, perpetrator of 12 international and Vietnamese companies accused of fraudulent financial reporting

Company	Fraud risk factors affecting fraudulent financial reporting			Perpetrator
	Pressure/Incentives	Opportunities	Attitudes	
1. 1. Zhengzhou Baiwen (2000) - The 5th largest household electrical appliance company among listed companies on China's stock market. Zhengzhou Baiwen committed	<ul style="list-style-type: none"> - Business performance is less optimistic. - Too fast growth in a short time. - Difficulty paying debts. - Meeting the listing requirements of stock market. - The Board of Directors holds a large 	<ul style="list-style-type: none"> - Weak internal control. - The abuse of power of the Board of Directors in overriding internal control, the Board of Management in terms of formality. - Using intermediate units. 	<ul style="list-style-type: none"> - Weakness in ethics of the members of the Board of Directors and the Board of Management. - Management justifies inappropriate accounting methods. 	Board of directors, Senior Management, CFO and chief account

Company	Fraud risk factors affecting fraudulent financial reporting			Perpetrator
	Pressure/Incentives	Opportunities	Attitudes	
fraudulent financial reporting and increased profits to RMB 19 million within 6 years (1994 - 2000).	<ul style="list-style-type: none"> number of shares of the company. - Pressure on the Board of Management to achieve high sales as required by the Board of Directors. 	<ul style="list-style-type: none"> - Existing significant transactions with related parties. - Assets, liabilities, expenses are based on significant estimates. - Unusual and complicated transactions arising at the end of the accounting period. 	<ul style="list-style-type: none"> - The Board of Management expects too much for the share price increase. 	
<p>2. Enron (2001)</p> <ul style="list-style-type: none"> - The leading US energy company - Enron created 900 special purpose entities (SPE) with the purpose of creating fictitious revenue, hiding losses to generate \$ 100 billion. 	<ul style="list-style-type: none"> - Growth pressure (ranked 18th on the Fortune 500 list) and increasing stock value. - Fast and unusual growth compared to other companies in the same industry. - The need to mobilize more funding sources under guaranteed loans for SPEs, JPMorgan and Citigroup banks. - Great pressure to report profits and increase profits while being at disadvantage in business. 	<ul style="list-style-type: none"> - Weakness of internal control. - Unusual transactions occurring near the balance sheet date. - Opening subsidiaries with tax incentives for no apparent reason - Significant related party transactions outside the business process - Monitoring the activities of the Board of Directors is not effective 	<ul style="list-style-type: none"> - Excessive management to maintain and increase stock value. - Weakness in ethics in members of the Board of Directors. - Maintain a corporate culture that is not honest and does not promote ethical values. - The Board of Directors has an act of controlling the auditor. 	Senior Management and CFO
<p>3. WorldCom (2002)</p> <ul style="list-style-type: none"> - The leading US telecommunications group - WorldCom was 	<ul style="list-style-type: none"> - Growth pressure due to financial difficulties of mergers of 60 telecommunications companies. 	<ul style="list-style-type: none"> - Weakness of internal control. - Monitoring the activities of the Board of Directors is not effective. 	<ul style="list-style-type: none"> - The Board of Directors is overly concerned with maintaining and increasing stock value. 	CEO, CFO và 5 Senior Manager.

Company	Fraud risk factors affecting fraudulent financial reporting			Perpetrator
	Pressure/Incentives	Opportunities	Attitudes	
found guilty of fraudulently claiming to increase profits to 11 billion USD in 2000-2001	<ul style="list-style-type: none"> - Increase the stock value - Financial interests of the CEO and CEO hold billions of dollars of shares. - Fast and unusual growth compared to other companies in the same industry. 	<ul style="list-style-type: none"> - Assets are determined based on accounting estimates. 	<ul style="list-style-type: none"> - Weak in ethics of members of the Board of Directors. - The Board of Directors has an act of controlling the auditor. 	
4.ComRoad (2002) - German positioning equipment trading company. The company committed overstatement of profits from 1999 to 2001 to 6 times higher than the time of listing on the German stock market	<ul style="list-style-type: none"> - Continuously generating negative cash flow from business activities, while the financial statements are still profitable. - Pressure to achieve profit target set by the Board of Directors. - Pressure to meet listing requirements. - Pressure to maintain stock prices. - Financial interests related to the financial position of the listed entity 	<ul style="list-style-type: none"> - Weakness in internal control such as failure to maintain the principle of non-duality: husband is CEO; wife is in charge of finance. - Weakness in supervisory activities of the Board of Director because the wife is a member of the Board of Directors. - Significant transactions with related parties that are outside the normal course of business. 	<ul style="list-style-type: none"> - The Board of Management cares too much to maintain growth and stock price for the business. - Weakness in ethics of members of the Board of Management 	CEO and CEO's wife in charge of accounting, human resources and sales, and a member of the Board of Directors
5. Parmalat (2003) - The famous Italian food group - Parmalat in 2002 accounted for 7.6 billion	<ul style="list-style-type: none"> - Growth pressure and stock price increase. - Loss from business activities due to expansion of business activities in other fields. 	<ul style="list-style-type: none"> - Weak internal control. - Weak control over the activities of the Board of Directors such as the audit 	<ul style="list-style-type: none"> - The Board of Directors does not implement appropriate professional ethics standards. 	- Chairman of Board of Directors and CEO, CFO

Company	Fraud risk factors affecting fraudulent financial reporting			Perpetrator
	Pressure/Incentives	Opportunities	Attitudes	
euros (0.8% of Italy's GDP). Parmalat Group has concealed losses within 15 years of nearly 20 billion USD	<ul style="list-style-type: none"> - The need to raise capital. - Adverse effects of bad financial statements on large transactions. - The Board of Directors and the Board of Management have great financial interests in the entity, and the Board of Management holds the majority of shares in the entity. 	<p>committee is not independent from the members of the Board of Directors and the management monopoly of the CEO and the Chairman of the Board of Directors including Tanzis and 4 members of Tanzis' family. Thus, the Board of Directors showed signs of overriding internal control.</p>	<ul style="list-style-type: none"> - Members of the Board of Directors interfere and impose excessive pressure in the selection of accounting policies. - The Board of Directors cares too much about increasing stock value. - Weakness in ethics in members of the Board of Directors. 	
6. Livedoor (2006) - Japan's internet companies committed fraudulent financial reporting and overstated its pre-tax profit from 3 billion yen to 5 billion yen (about 43 million USD) in fiscal 2004, hiding a loss of 310 million yen.	<ul style="list-style-type: none"> - The pressure of growth is too fast to buy many companies in the industry and outside the industry. - Growing too fast compared to other companies in the same industry. - High pressure of the Board of Directors on profit for the Board of Management. - Economic interests of the Board of Directors and the Board of Directors related to the business performance of the unit. 	<ul style="list-style-type: none"> - Weakness of internal control. - The Board of Directors and the Board of Directors override internal control. - Conduct transactions with related parties. - Board of Directors commits to 3rd parties with too high forecasts. - Using intermediary business units but for unknown reasons. 	<ul style="list-style-type: none"> - The Chairman's ambition to increase share price and expand business activities. 	Chairman of Board of Directors and CEO of special purpose entities, Chief Accountant.

Company	Fraud risk factors affecting fraudulent financial reporting			Perpetrator
	Pressure/Incentives	Opportunities	Attitudes	
	- Pressure to increase stock price because key leaders hold a large number of shares.			
7. Satyam (2009) - The 4th company in India's IT industry - Satyam made fraudulent financial statements from 2001 to 2008 (for 7 years)	<ul style="list-style-type: none"> - Growth pressure and stock price increase. - The Board of Directors and the Board of Management have great financial interests in the entity, and the Board of Management and members hold the majority of shares in the entity. - Loss from business activities leading to the risk of bankruptcy. - Pressure on the Board of Management regarding the financial goals set by the Board of Directors. 	<ul style="list-style-type: none"> - Weakness of internal control. - Board of Directors and Board of Management override internal control. 	<ul style="list-style-type: none"> -Weakness in ethics in members of the Board of Directors. - The Board of Directors cares too much about increasing stock value. 	Chairman of Board of Directors and 9 CFO
8. Olympus (2012) - Japan's leading technology corporation Olympus hid a loss of 1.7 billion USD in 13 years (1990-2012).	<ul style="list-style-type: none"> - Exchange rate pressure affects export activities of Olympus. - The Japanese stock market dropped 50% of its value at the end of 1999, leading to the decline in profits of Olympus. - New regulations on accounting arise (applying Corporate Accounting of 	<ul style="list-style-type: none"> - Weak internal control. - The Board of Directors override the internal control. - Significant related party transactions outside the normal course of business. - Existing unusual and complex transactions. 	<ul style="list-style-type: none"> Weakness in ethics of the Board of Directors and the Board of Management. - Senior Manager communicates and implements corporate culture inappropriately and ineffectively. 	-Members of the Board of Directors, CEO and senior manager.

Company	Fraud risk factors affecting fraudulent financial reporting			Perpetrator
	Pressure/Incentives	Opportunities	Attitudes	
	<p>Council Decree applying fair value in 1997 and financial instruments in 1999).</p> <ul style="list-style-type: none"> - High pressure on the Board of Directors and the Board of Directors to maintain stock prices. - The benefits of the Board of Directors and the Board of Directors are associated with business results. 	<ul style="list-style-type: none"> - Use of intermediary business units. - Ineffective supervision of the Board of Directors. - The organizational structure is complex and unstable. 	<ul style="list-style-type: none"> - The Board of Directors and the Board of Management are ambitious to maintain the stock price and growth trend of the enterprise. - The Board of Management commits to the banks that the income forecast is too high. 	
<p>9. Tesco (2014) - the UK's largest retail corporation is accused of falsely claiming profits of \$423 million in two financial years.</p>	<ul style="list-style-type: none"> - Pressure to increase sales due to high competition of retailers. - High pressure on the Board of Directors about third party expectations. - High pressure on the Board of Directors and CEO that the Board of Directors places. 	<ul style="list-style-type: none"> - Revenue and expenses are determined based on significant accounting estimates and uncertainties. - Irregular transactions occurring near the end of the accounting year. - Weak internal control. 	<ul style="list-style-type: none"> - The Board of Directors is too concerned with maintaining and increasing the stock price and income of the enterprise. - Weak ethics of the Board of Directors. - Management intentionally justifies inappropriate accounting methods. 	Senior Management, CFO, CEO
<p>10. Toshiba (2015) - Japan's Toshiba, an electronics and technology manufacturer, overstated</p>	<ul style="list-style-type: none"> - Pressure to achieve high sales after the global financial crisis in 2008. - The personal financial situation of the Board of Directors 	<ul style="list-style-type: none"> - Ineffective internal governance mechanism. - Ineffective monitoring of the BOM's activities 	<ul style="list-style-type: none"> - Weak ethics of the Board of Directors and the Board of Directors. - Long-term corporate 	Three generations of Manager, CEO, and Vice Chairman

Company	Fraud risk factors affecting fraudulent financial reporting			Perpetrator
	Pressure/Incentives	Opportunities	Attitudes	
profits of up to 170 billion yen (\$1.22 billion) in the six fiscal years (2008-2014).	and the Board of Directors affects business results. - High pressure on the Board of Directors and executive personnel to achieve the profit target set by the Board of Directors. - Pressure to raise capital.	leads to signs that the Board of Directors controls internal control. - Significant related party transactions outside the business process. - Revenues, costs, and assets determined based on significant accounting estimates. - Use of intermediary business units.	governance culture. - Management is overly ambitious to maintain or increase share price and earnings. - Management always justifies inappropriate accounting methods.	of the Board of Directors, senior managers
11. - Bach Tuyet Cotton Joint Stock Company - Overstatement of profits from 2005 to 2007	- Losses from business activities threaten to stop listing on the stock market.	- Assets and liabilities formed from accounting estimates. - Weak internal control leads to management overriding internal control.	- Weakness of ethics of The Board of Management - The Board of Directors interferes too deeply in the accounting policies of the unit.	Board of Management and Chief Accountant
12. Vien Dong Pharmaceutical Joint Stock Company – Overstatement of profit from 2008 to 2011	- Continuous negative cash flow from operating activities but still reporting profit. - Pressure to increase stock prices. - Sudden growth compared to other units in the same industry.	- Carry out transactions with related parties. - Weak internal control leads to management overriding internal control.	- Weakness of ethics of The Board of Management - Board of Directors is too ambitious to increase stock price.	Board of Management and Chief Accountant

Source: Securities Investment, 2008; Quoc Thang, 2010; Jones, 2011; Cafef, 2012; Thu Huong, 2012; Trung Hieu, 2014; ICC, 2015; author's summary

4. Discussion and Conclusion

The research results show that the the pressure on the Board of Directors and Board of Management to achieve the financial targets set by the Board of Directors when operating poor business performance or financial crisis have the strongest impact on fraud in preparing financial statements. This result consistent with the results of Albrecht et al. (1986), Bell and Carcello (2000), Apostolou et al (2001), Graham and Bedard (2003), Gramling and Myers (2003), Moyes et al (2005), Smith et al (2005), Moyes (2007), Gullkvist and Jokipii (2013), Abdullatif (2013), Le Nguyen The Cuong (2013), Tran Thi Giang Tan et al (2014), Zaki (2017). Next, the second group of factors affecting fraudulent financial reporting are attitude factors. Board of Directors is too concerned to maintain or increase the stock price and company's profit, weak ethics of the members of the Board of Directors and the Board of Management which agree with the research results of Heiman-Hoffman et al. et al (1996), Bell and Carcello (2000), Gramling and Myers (2003), Moyes et al (2005), Abdullatif (2013), Devy et al., (2017). Finally, the group of opportunity factors related to the weakness of internal control and the management's overriding of internal control has the strongest impact coincides with the research results of Apostolou et al. (2001), Gramling and Myers (2003), Moyes et al (2005), Moyes (2007), Gullkist and Jokipii (2013), Abdullatif (2013), Zaki (2017).

From the research results, the author offers some solutions as follows:

Firstly, auditors should focus on assessing the common risk factors that affect financial reporting fraud: auditors and audit firms need to focus on risk factors in 3 groups of pressures/motives, opportunities and attitudes. Auditors need to pay attention to signs or indicators related to great pressure (pressure on financial targets; pressure of losses from business activities that threaten the possibility of bankruptcy; pressure on profit performance or expectations of the investors); Management's attitude (excessive concern about stock prices) and favorable opportunistic factors (weakness of internal control and BOD & BOM's overriding of internal control) are important fraud risk factors affecting fraudulent financial reporting at financial statement level and assertion level, especially affecting the type of fraud related to overstating profits/assets. Secondly, from the factors of risks of fraud appearing, auditors and audit firms are cautious in assessing who is most affected by these fraud risk factors to perform fraudulent financial reporting, especially members of the entity's Board of Directors and Board of Management.

However, the research results also have some limitations as the research results focus on large economic groups and companies listed on international and Vietnamese stock markets. In the future, the research continues to expand to analyze fraud cases of small and medium-sized enterprises and diverse business fields such as banks, credit institutions, and insurance.

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ATTRACT HIGHLY-SKILLED FOREIGN WORKERS IMMIGRANTS TO VIETNAM: SOME POLICY IMPLICATIONS

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Abstract

This article will conduct a review of policies to attract highly-skilled foreign workers in Vietnam. It focuses on the analysis of current policies on Vietnam labour market policy which including foreign workers recruitment, work permits and recognition of vocational skills; protect the labour rights of foreign workers; as well as entry, stay and exit policy for foreign workers and special attraction policies. It is showed that curenly policies have clear stance on creating opportunities to attract foreign workers. They welcome foreigners who come to work in all fields but at the same time ensure jobs for domestic workers. However, curenly policies still have many challenges, especially provide no criteria to distinguish the levels of skilled workers, to identify jobs that Vietnamese workers cannot do, leading to difficulties in implementation. Based on analyzing and evaluating the achievements and challenges of these policies, the article proposes some solutions to improve these policies to attract highly-skilled foreign labour to Vietnam.

Key words: *highly-skilled foreign workers; work permits policies; foreign workers recruitment policies; attract foreign workers policies.*

1. Introduction

International integration has promoted cross-border trade and investment. Along with the international expansion of transnational corporations and the activities of recruitment agencies and organizations, the trend of international labour mobility is increasing. According to the International Labour Organization (ILO), from 2013 to 2017, the number of international migrants of working age increased by 13% and the number of international migrant workers increased by around 9% (ILO, 2017). By 2019, there were 169 million international migrant workers in the world, accounting for about 69% of the international migrant population of working age (aged 15 and over) (ILO, 2021).

In addition, the process of international integration also accelerates capital mobilization, redistribution of labour, and the process of global connectivity, promotes science and technology transfer and application. Especially, the Industry 4.0 has created an impact on the restructuring of the world labour market with various new jobs and occupations that require new digital skills such as technicians, engineers, technicians, information technician (Manpower Group, 2018), as well as STEM skills (science, technology, engineering, and math). This has led to an increase in the demand for highly skilled labour. Some other countries, especially those with developed economies such as the

US (Šárka Prát et al., 2016.), Canada, Singapore (Sumathi Bala, 2008), Japan and China (ILO, 2017), have taken action to attract highly skilled foreign workers to work in their countries in some professions that they actually lacked, such as information technology, software design through immigration policies, labour-management relations, active labour market policies including loosening barriers for highly skilled workers and at the same time tightening entry rules for low-skilled workers (Weinar et al., 2020)⁶⁹ and different tools to attract skilled foreign workers coming to work in their own country.

Along with solutions to attract skilled foreign workers, countries also have policies to protect domestic workers through a system of policies and appropriate interventions related to conditions on foreign workers coming to work in their countries; for example, foreign workers were only allowed to work in specific jobs or certain professions (ASEAN Secretariat, 2020). They actively seized the shortage of labour market skills, training and developing human resources, assessing labour supply and demand through policies to support the labour market, effectively managing foreign workers working in their countries.

In the general trend of international integration, Vietnam positively and actively participates in extensive international integration on a global and regional scale. Foreign investment in Vietnam increased significantly, creating favorable conditions for the labor flow of investors to expand in Vietnam⁷⁰. Foreign investment inflows have had a significant impact on the development of Vietnam's labor market in promoting labor restructuring from labour-intensive industries to industries requiring high-skilled labour. In the same process, the number of foreign workers moving into Vietnam increases. If in 2016, the number of workers eligible for a permit was 73,119, the figure in 2019 has increased to more than 109,660 international workers from more than 100 countries and territories; working in positions of managers, chief operations officers, experts, and technical workers⁷¹.

Foreign workers working in Vietnam are expected to provide high-quality human resources, contribute to improving social labor productivity, and promote rapid economic growth; create human resources to meet the needs of foreign investors in Vietnam; create a competitive environment between Vietnamese and foreign workers; contribute to on-site human resource training through osmotic interaction (Nguyen, 2015). Attracting highly-skilled foreign workers is necessary to promote supply and demand in the labor market and protect domestic jobs, so that Vietnam can take advantage of opportunities and avoid falling behind. On the other hand, the attraction of highly-skilled labor must also ensure its effectiveness in protecting domestic workers.

⁶⁹ Switzerland has a selective immigration policy (Becker et al., 2008); Germany and the EU applied a "Blue Card" program targeting highly-skilled international migrant workers, especially in the fields of science and technology (Reymen et al., 2015)

⁷⁰ As of April 20, 2020, the total amount of newly registered capital, additional capital, contributed capital, and share purchase rights of foreign investors reached 12.33 billion USD, equivalent to 84.5% of the same period in 2019. Ministry of Planning and Investment. Data on Foreign Investment (FDI) in Vietnam [https://www.crowe.com/vn/vi-vn/insights/doing-business-in-vietnam/foreign-direct-investment-\(fdi\)-in-vietnam](https://www.crowe.com/vn/vi-vn/insights/doing-business-in-vietnam/foreign-direct-investment-(fdi)-in-vietnam)

⁷¹ Ministry of Labor, Invalids and Social Affairs, Statistical Yearbook 2019, page 22.

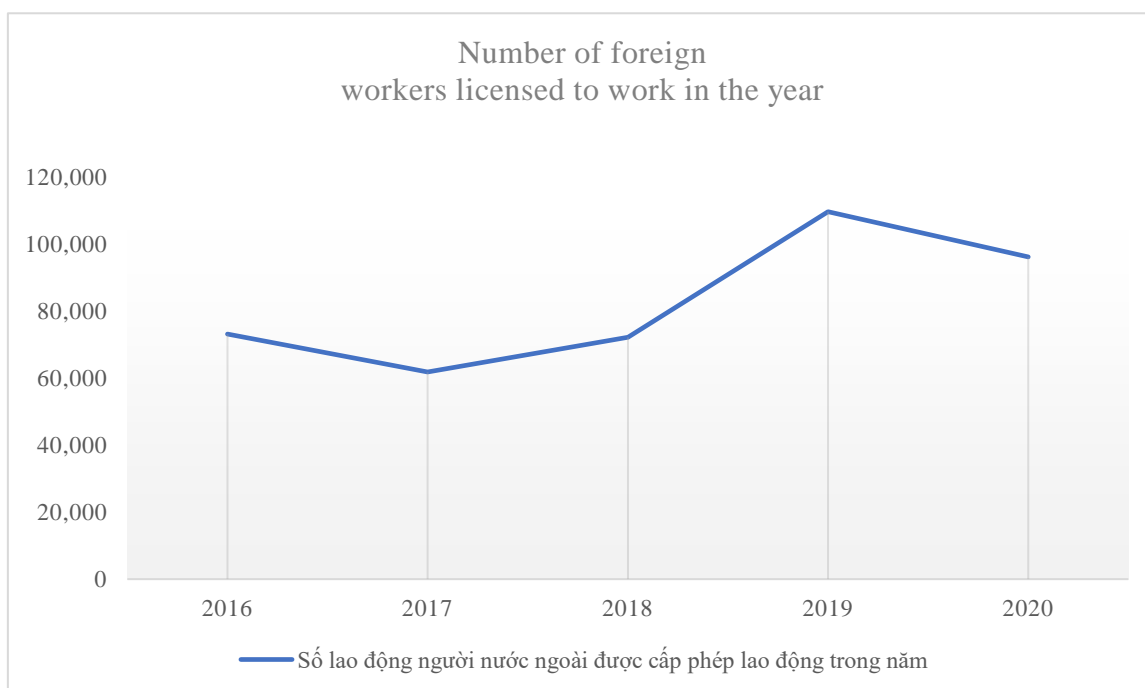


Figure 1. Number of skilled foreign workers obtaining license to work in the year by province/city in the period 2016 - 2020

Source: Statistical Yearbook 2020 of the Ministry of Labor, Invalids and Social Affairs

This article will conduct a review of policies, measures, and current policies to attract highly-skilled foreign workers in Vietnam compared to actions and policies of other countries. Based on analyzing and evaluating the achievements and challenges of these policies, the article proposes some solutions to improve these policies to attract highly-skilled foreign labour to Vietnam.

2. Method

The qualitative and descriptive research technique is used.

Literature review for labor market policies; policies to protect the labour rights of foreign worker; policies on entry, stay and exit for foreign worker and other related policies to immigrant workers are made. Official policy data is obtained from Ministry of Labour Invalids and Social Affairs.

The result would be fulfilling in labor market policy for Vietnam in general and policy for attracting skilled immigrant workers on purpose.

3. Results

3.1. Policy to attract skilled international migrant workers – a combination of solutions

Attracting skilled international migrant workers includes a variety of solutions covering their entire migration process before entry, entry, working time, length of stay, and departure. While it is a common perception that migration policies are often a barrier restricting the access of immigrants to the labor market in developed countries, in fact,

countries have gradually implemented many selective policies to attract skilled labour (M Czaika, H De Haas, 2014). The primary objective of the policy of attracting skilled international migrant workers is to meet the labor shortage needs in the country without creating a negative impact on the labor market for people (OECD, 2009). Whether the system is driven by supply or demand, highly-skilled migrants are seen as a resource to promote national development. They are considered less welfare-dependent and more relevant to the needs of the labor market than manual labor (Boucher & Cerna, 2014). Based on its priorities and needs, each country chooses to develop and implement appropriate policies, including determining skilled labor conditions and identifying skills for foreign workers to be eligible for working in the country.

There is no uniform definition of “skill”. In many countries, “skills” are defined as occupational skills and/or education level. Similarly, there is no single methodology for analyzing skills needs. That requires a holistic approach: a combination of qualitative analysis and quantitative data. Long-term skills foresight is usually done at the national level. In contrast, short-term skills foresight is done at the regional or local level, often through the Public Employment Service network (PES) (ILO, 2013). To promote skilled international migrant workers, according to the ILO, countries are making broader efforts to strengthen coherence between employment, skills, and migration policies. This includes the use of national qualifications frameworks (NQFs) as a tool to harmonize heterogeneous skill development systems; promote the recognition of skills and qualifications of migrant workers in bilateral and multilateral cooperation frameworks; creating mechanisms and tools for the glory of skills and capabilities of migrant workers (ILO, 2013) are methods that are encouraged to apply.

The points-based employment standards regulations are the orientation system that is said to have attracted more desirable immigration candidates in the long run (Tani, 2014), while the demand-driven systems satisfy short-term economic needs, in which immigration mainly helps to reduce the current labor market shortage (Chaloff & Lemaitre, 2009; Parsons et al., 2014). Today, most countries use a demand-driven system; even countries with a long history of point-based systems have moved in that direction by favoring immigrants having job offers (Gelatt, 2017). Besides immediately addressing shortages in the labor market, immigration policies often target longer-term economic goals such as balancing demographic development or stimulating innovation and investment.

Koslowski, 2014 in his research on *Selective Migration Policy Models and Changing Realities of Implementation*, has conducted a review of selective migration policy models in several countries, including Australia, Canada, and the US. Research showed that selective migration policies rose worldwide as governments tried to attract highly-skilled scientists, engineers, healthcare experts, and information technology experts. Selective migration policies can be grouped into three ideal-typical models: Canada's “human capital” model is based on the state's choice of permanent immigrants through immigration using a point system; Australia's “new company” model is based on state selection using a point-based system with broad business and labor participation; and market-oriented, demand-driven

models based mainly on employer choice for migrants, as the US has done. Policy implications: The Canadian and Australian governments select immigrants using a points-based system based on human capital criteria of higher education and common experience. US employers select economic migrants and most initially arrive on temporary visas. More highly skilled foreigners go to the United States than Canada, Australia and other countries that use the points system combined. The governments of Canada and Australia have shifted policy to a US demand-driven model, with increasing preference given to employer-sponsored immigrants and those already worked with a temporary visa. The Government of Canada has moved the points system criteria from human capital to specific occupations and may eliminate the points-based system.

Countries in the ASEAN region are following the policy of selection requiring only foreign workers to work in certain professions (ASEAN Secretariat, 2020), such as Indonesia, which stipulates that foreign workers only work in 18 fields; Malaysia appoints that foreign workers could only work in 6 sectors (manufacturing, construction; agriculture, forestry, mining, and services). These countries also synchronously implement policies on labor recruitment, immigration and stay for foreign workers, work permit requirements, protection of interests of foreign workers, and requirements of skills recognition for foreign workers. These are policy models that can be used as a reference for Vietnam in finalizing policies to attract foreign workers to work.

Therefore, it can be seen that the policy for highly-skilled foreign workers in countries is based on the demand for skilled labor of that country in which labor market requirements are the dominant factor. Policies on recruitment and employment of foreign workers are presented in three forms (i) allowing foreign workers to work in certain occupations (job positions) with required skills and specific qualifications; (ii) allowing foreign workers to work in several fields in all employment positions with specific qualifications and skills required; and (iii) a combination of both types mentioned above that allows foreign workers to work in certain occupations (job positions) and specific fields. Of the three types above, the third is considered the most restrictive. It is important that these policies all identify skilled foreign workers according to international practices and national needs. Regardless of the approach, the attraction of highly-skilled workers to a country must be carried out synchronously with policy measures to ensure the effective use of professional resources from foreign workers and protect the positions of domestic workers, step by step, improving the quality of human resources.

3.2. Policies to attract skilled foreign workers to work in Vietnam

3.2.1. Policy on Labour market

According to Vietnam Law on Employment, approaching labor market policy including all kinds of adjustment policies affecting the interaction between labor supply and demand, with information on employment trends, labor supply and demand, employment volatility in the labor market, labor market policies to attract foreign workers include recruitment policies, requirements for foreign workers on work permits and other policies on skill requirements.

Policy on foreign workers recruitment

Foreign workers working in Vietnam are identified with the factors: they are foreign nationals and meet the requirements of age, have civil act capacity, are healthy, without violation of law, have a work permit and have proper professional qualifications, techniques, skills and work experience (Article 23 Law on employment 2013). In which, the two most important requirements are that they must have professional and technical qualifications, skills, work experience and work permits. They will come to work in Vietnam in different forms such as contract service providers participating in the implementation of bidding packages and projects in Vietnam⁷².

Employers of foreign workers are only allowed to recruit foreign nationals for four positions: manager, chief operation officer, expert, and technical worker, which Vietnamese workers cannot meet the demand of production and business⁷³ and must explain the need to use foreign workers as well as get approval from the competent authority before recruitment.

The requirements of this policy show that the characteristics of foreign workers entering Vietnam must be workers with professional and technical qualifications, who are highly-skilled workers and are defined to work only in those four types of occupations. Workers coming to work must have a work permit, and the application for this permit is explained by the employer and applying for the permit on behalf of the worker. This clearly shows the critical role of the employer in the process of recruiting and using foreign workers.

Policy on work permits

Foreign workers entering Vietnam legally include two categories: (i) employees who must have a work permit and (ii) employees who are not required to be granted a work permit as prescribed. Work permits are granted to foreign workers who work in positions that Vietnamese workers cannot meet the demand of production and business. Currently, Vietnam laws only allow workers to work in high and middle-level jobs that Vietnamese workers cannot meet the demand of production and business.

For those who are not required to be granted a work permit, there are 20 cases specified⁷⁴. This is one of the extended regulations to encourage highly-skilled foreign workers to work in Vietnam. In which, it is noteworthy that the group of intra-enterprises within 11 service industries in the Schedule of Specific Commitments in Services of Vietnam with the World Trade Organization (WTO) includes: business, information, construction, distribution, education, environment, finance, health, tourism, culture, entertainment and transportation. In addition to the above twenty specific cases, Vietnamese law also stipulates other fields that are not required to issue work permits⁷⁵. This is a reasonably flexible regulation in Vietnam's legal system on licensing to ensure practical implementation and meet the rapidly changing requirements of jobs and occupations in the labor market.

⁷² Clause 1, Article 151 of the Vietnam Labor Code 2019 and Sections a, b, c, d, Clause 1, Article 151 of the Vietnam Labor Code 2019

⁷³ Clause 1, Article 152, the Vietnam Labor Code 2019

⁷⁴ Clauses 3, 4, 5, 6, 7 and 8 Article 154 of the Vietnam Labor Code and Article 7 of Decree No. 152/2020/Government Decree

⁷⁵ Article 154 of the Vietnam Labor Code 2019

The work permit applies to all foreign workers regardless of nationality or ethnicity and applies to all occupations. Foreign workers accepted to work with a work permit do not need to prove their financial self-sufficiency and do not require to know Vietnamese to be granted a work permit. In fact, in some cases, knowing Vietnamese can be a recruitment advantage for employees, but it is not a compulsory requirement for a legal work permit. The maximum term of a work permit is 2 years⁷⁶. In the case of extension, it can only be extended once for a maximum period of 2 years. There is no current law limiting the total number of years a foreign worker can enter the country using a work permit.

Regarding the authority to issue work permits, according to the provisions of Vietnamese law, the state agencies that issue work permits are the Ministry of Labor, Invalids and Social Affairs, the Department of Labor, Invalids and Social Affairs⁷⁷. In which the Ministry of Labor, Invalids and Social Affairs accepts the need to use foreign workers; confirm cases where foreign workers are not eligible for work permits; issue and re-issue work permits; revoke the work permit, and confirm the revocation of the work permit; propose the police agency to deport employees working in Vietnam without a work permit, working for the employer. The Department of Labor, Invalids and Social Affairs confirms cases where foreign workers are not eligible for work permits; issue and re-issue work permits; revoke the work permit and confirm the revocation of the work permit; propose the police agency to deport employees working in Vietnam without a work permit, working for the employer.

Regarding the regulations on the annual quota of foreign workers who can enter and exit with a work permit, in the Vietnamese legal system, there are no regulations on quotas or limits on the number of foreign workers in Vietnam. However, Vietnamese law requires foreign enterprises, agencies, organizations, individuals, and contractors, to explain their need to use foreign workers and have written consent from a competent state agency before recruiting foreign nationals to work in the Vietnamese territory⁷⁸. They need to explain the needs of workers for approval, that is a way for the State labor administration to allow the use of foreign workers based on actual demand instead of granting a quota and without the explanation of practical use.

Policies on Recognition of vocational skills

Regarding the certification of skills, foreign workers subject to work permits need to have skills and qualifications that are certified, confirmed, or recognized by the sending country as required. This regulation shows that Vietnam has the policy to acknowledge skills and experiences that foreign workers have been trained in other different countries.

Regarding labor market assessment requirements, the issuance of work permits for foreign workers requires a labor market assessment to ensure that foreign workers will be recruited only when they cannot find domestic labour to meet the position's demand. Localities often publish newspapers to recruit or through employment service centers to assess their local labor market requirements.

⁷⁶ Article 155 of the Vietnam Labor Code 2019

⁷⁷ The Vietnam Labor Code 2019, Decree No. 152/2020/Government Decree

⁷⁸ Article 152 of the Vietnam Labor Code 2019

3.2.2. Policies to protect the labour rights of foreign workers

Foreign workers in Vietnam are guaranteed their labor rights following Vietnamese Labor Code. Foreign workers in Vietnam are subject to the provisions of the Vietnam Labor Code⁷⁹. Accordingly, the Labor Code 2019 stipulates labor standards; rights, obligations and responsibilities of employees, employers, representative organizations of employees at grassroots, representative organizations of employers in labor relations and other relations related directly to labor relations; State's management of labor.

Vietnam's employment policy encourages agreements that guarantee employees more favorable conditions than those prescribed by the Labor Code (Clause 1, Article 4 of the Vietnam Labor Code 2019). No provision in the Vietnamese legal system that stipulates that the rights of foreign workers are equal to or higher than that of domestic workers. Therefore, the two parties in the labor relations can negotiate better terms, as in fact, in terms of benefits, especially the salary issue, there may be cases where the foreign worker has a higher salary than domestic workers and vice versa.

Foreign workers are provided with information regarding working conditions. Foreign workers subject to work permits are protected against the confiscation of identity documents; are treated equally compared to Vietnamese citizens before the criminal court. They have the right to access social insurance and several other benefits as prescribed by the law. Theoretically, these benefits are provided, but only if Vietnam and the sending country have a bilateral agreement on mutual insurance. However, currently, no employee who pays social insurance premiums in Vietnam can enjoy related benefits because Vietnam has barely implemented the bilateral signing, except for the completed Agreement with the Republic of Korea. Still, it has not been specified in the law due to some technical problems.

Foreign workers subject to work permits can have access to academic institutions and services; access to public health services without restrictions.

3.2.3. Policies on entry, stay and exit for foreign workers

Foreign workers subject to work permits need to apply for an entry visa to enter Vietnam. Visas for foreign workers are designated as LD1 and LD2 – issued to people entering the workforce⁸⁰. Specifically: LD1 is granted to foreigners working in Vietnam with confirmation that they are not eligible for work permits unless otherwise provided for by an international treaty to which Vietnam is a signatory; LD2 is issued to foreigners working in Vietnam who are required to have work permits. After being granted a visa with the symbol LD1 or LD2 (Issued to employees), the foreign workers will carry out procedures to apply for a temporary residence card according to the issued visa symbol.

Foreign workers subject to work under work permits are not required to obtain approval (in the form of an exit visa or an exit permit) before returning to the sending country. Foreign workers who enter under work permits before leaving the country and

⁷⁹ Clause 3, Article 2 of the Labor Code 2019

⁸⁰ Article 1 (amendment to Article 7 of Law 47 at Points e, g, Clause 3) of Law No. 51/2019/QH14 amending and supplementing a number of articles of Law No. 47

returning to the sending country are not required to apply for an exit visa, but must satisfy all exit conditions prescribed in law. Accordingly, the conditions for foreigners to leave the country are clearly regulated, creating favorable conditions for foreigners in general and foreign workers in particular (Article 27 Law No. 47/2014/QH13).

Currently, Vietnam does not have any reintegration program for foreign workers when they return to their home countries, such as support for repatriation and follow-up measures to promote reintegration. As mentioned above, foreign workers working in Vietnam under work permits are skilled workers with good income. They are only recruited into management positions such as executive directors, experts and technical workers, which Vietnamese workers cannot take up according to production and business needs. Therefore, there is no reintegration program for foreign workers when they return to their home countries.

3.2.4. Some special attraction policies

Foreign experts participating in science and technology activities in Vietnam are entitled to priority in recruitment, labor, and study according to the attraction policy specified in Decree 87/2014/ND-CP dated September 22, 2014⁸¹. Conditions to enjoy preferential policies include patents; having appropriate scientific research works; holding a doctorate degree, having been teaching, doing scientific research, and transferring technology at reputable overseas research institutions; having a doctorate degree, having worked for more than 3 years in a scientific research position at an international cooperation program or project on science and technology or a research department of a reputable overseas enterprise⁸². Specifically, during their working time in Vietnam, they are appointed or hired to hold the position of leaders of a science and technology organization assigned to assume the prime responsibility for performing science and technology tasks at all levels; be considered for recognition and appointment of scientific research titles and technological titles according to the provisions of the Law on Science and Technology; be hired to hold the title of leaders of a science and technology organization; be assigned to assume the prime responsibility for performing science and technology tasks⁸³.

Preferential policies include Policies on immigration and residency (multiple visas are granted); Policies on recruitment, labor and learning; Policies on housing; Policies on access to information; Policies on reward and honor; Other policies.

4. Discussion and Conclusion

The policies to attract skilled foreign workers to work in Vietnam, especially the policy on the labor market, demonstrate the Vietnamese government's clear stance on creating opportunities to attract foreign workers. They welcome foreigners who come to

⁸¹ Decree No. 87/2014/ND-CP dated September 22, 2014 of the Government on attracting individuals in science and technology activities who are overseas Vietnamese and foreign experts to participate in scientific and technological activities in Vietnam.

⁸² Ibid 13.

⁸³ Ibid 13.

work in all fields but at the same time ensure jobs for domestic workers by stipulating that foreign workers can only stay in Vietnam in positions requiring skills, qualifications, and positions that domestic workers cannot satisfy. Compared with the policy system of countries in the world and in the region, Vietnam's regulations on foreign labor conditions in Vietnam are relatively open. Accordingly, foreign workers working in Vietnam are categorized in the occupations of managers, executives, experts, and technical workers that Vietnamese workers cannot take up according to production or business needs. Vietnam's regulations have restrictions on some occupations and positions in which foreign workers can work but are not limited to fields. Employers can recruit foreign workers in the above occupational positions in any field that suits their needs as well as production and business capabilities.

Table 1. Distribution of skilled foreign workers by types of occupation (%)

	Management		Technical workers	
	Manager	CEO	Expert	Technical worker
2019	12.00	8.83	56.58	22.54
2020	10.49	8.59	63.33	17.31

Source: Authors' calculations from the source of Ministry of Labour Invalids and Social Affairs's Statistical Yearbook 2020 of the Ministry of Labor, Invalids and Social Affairs

The policy on foreign labour entering Vietnam to work requires the recognition of qualifications of trained foreign workers. Accordingly, foreign workers can submit their training degrees abroad certified by a competent authority. This regulation creates good conditions for foreign workers to access the labor market. The policy of foreign workers to work in Vietnam sets out the process of requesting the skill level of foreign workers to be considered in terms of both professional qualifications and work experience. Correspondingly, experts are defined as foreign workers who have a university degree or higher or equivalent and have at least 3 years of working experience in a specialized field, trained in accordance with the job position they expect to take in Vietnam; or who have at least 5 years of work experience and have an appropriate practice certificate. Technical foreign workers are the ones who were trained in technology or other majors for at least 1 year and have worked for at least 3 years in the trained professional; or who have at least 5 years of work experience in accordance with the job position that they expect to take in Vietnam. This is an overarching regulation that approaches both work experience and training levels.

Regulations for skilled foreign workers have covered and adjusted the process of foreign workers working in Vietnam with policies including policies on labour recruitment, granting work permits, and protecting labour rights of workers and their families; policies on entry, stay and exit; special preferential policies for workers with special skills, policies on labour management. These are regulations that ensure the smooth movement of skilled workers.

However, there are a number of problems with the policies for skilled foreign labour working in Vietnam, which are:

There are no criteria to identify jobs that Vietnamese workers cannot do, leading to difficulties in implementation. Similarly, there are no specific criteria for experts, good managers, and highly qualified technical workers that Vietnam really needs and Vietnamese workers have not yet met (except for the implementation of commitments and international treaties to which Vietnam is a signatory). At the same time, there have been no specific instructions on managing and using this skilled foreign labour force for the right purposes and effectively.

The licensing process is cumbersome and requires a higher level of information technology application. Attracting skilled foreign workers involves a variety of policies that require close linkage among different policies and coordination of competent authorities.

There are no criteria to distinguish the levels of skilled workers, such as skilled workers, medium-skilled workers, and highly-skilled workers. Currently, Vietnam has only one type of work permit that applies to skills at all levels. There are special preferential policies such as policies on immigration and residency (multiple visas are granted); policies on recruitment, labor and learning; policies on housing; policies on access to information; policies on rewards and honors and policies which have been issued with the clear aim of attracting individuals who are foreign workers to participate in technology activities in Vietnam. However, the subjects to whom those policies apply are limited and the preferential policies have also not been explicit, especially the work permit process.

In conclusion, to effectively attract and use skilled foreign workers in Vietnam, it is necessary to consider the outstanding issues analyzed above, especially the need to define the criteria for skilled labor clearly. A proper process should be developed and labor market assessment should be carried out before recruiting foreign workers. In addition, it is necessary to continue to revise the policy, reduce the procedures for granting permits and re-granting permits, to shorten the time to carry out consular legalization procedures. Besides, it is a must to perfect policies on social insurance, health insurance, unemployment for foreigners to participate while working and also to perfect policies on recognizing the number of years of participation/contribution when returning home. At the same time, in the context of international integration, in order to encourage foreign investment and create favorable conditions for skilled foreign workers to work in Vietnam, there should be more explicit preferential policies in the procedures for foreign investment. It is also required to amend and supplement the Law on Enterprises and the Law on Investment, including the content on labour management. For instance, when establishing an enterprise and going into operation, there must be a plan to use Vietnamese and foreign workers which the authority approves. There should be specific regulations on the appropriate level of capital contribution for foreign investors and business owners, who are not eligible for work permits for foreign workers, in accordance with international practices. In particular, it is necessary to develop policies to attract talents and improve labor quality.

Attracting and effectively using skilled foreign labour is defined in the guidelines of the Party and the State of Vietnam as an important task in promoting the development of the labour market, employment, and improving the quality of the domestic labor market; Skilled

labour also plays an essential role in applying and transferring advanced and modern science, technology and management skills in the world to localities, contributing to the achieving socio-economic development goals effectively, ensuring national defense and security throughout the country, expanding Vietnam's cooperation relations with other countries⁸⁴. Therefore, policies to attract skilled foreign workers to work in Vietnam need to be promulgated. They should be flexible and appropriate, ensuring the harmonious interests between the state - enterprises - foreign workers; ensuring a balance between attracting skilled foreign workers and securing jobs in the country.

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DEVELOPING THE NIGHT-TIME ECONOMY IN HANOI CITY

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Abstract

Hanoi capital is one of the localities leading to the developing Vietnam's night-time economy (NTE). Space for NTE development concentrated in the old town and around Hoan Kiem lake has been placed for promoting the night-time economy in Hanoi city. Many models of NTE development have been implemented, such as pedestrian streets, art performance spaces, night markets, and food streets. However, NTE growth is still mainly concentrated in the old town, and the models are not diversified. The research studies the current situation of growing NTE models in Hanoi city, thereby proposing solutions to develop NTE models in Hanoi city.

Keyword: *Night economy; night service; tourism*

1. Introduction

The concept of night-time economy first appeared in the 1980s; the phrase "Night-time economy", in its most primitive form, is used synonymously with the concept of "24-hour city".

The nature of the NTE and the trends in night-time consumption behaviour vary widely among countries and even among different areas within a country. Consequently, determining the scope and limits of the current night economic fields is also diverse. In countries defining NTE in a broad sense, it is all the social, cultural and productive activities during the night-time. On the other hand, in countries defining NTE in a narrower sense, it is a collection of activities of the cultural economy that take place at night, mainly recreational activities such as bars, discos, karaoke facilities, music venues and nightlife entertainment forms (such as night markets, night malls) ...

In Vietnam, the Prime Minister recently issued Decision No. 1129/QĐ-TTg approving the Project of growing NTE in Vietnam. Accordingly, the Project's objective is to exploit the potential of NTE development to make the most of new economic development opportunities, improve incomes and living standards of locals as well as minimise risks and negative impacts on the work of ensuring political security and social order and safety. In

the immediate future, growing the NTE is to promote domestic consumption and tourism development by focusing on developing the fields of cultural services, entertainment, food and beverage services, shopping services, and travel, taking place from 6 pm to 6 am.

This economy must ensure the following requirements: (1) Priority needs to be given to economic growth, job creation and community cohesion, and social exchanges among Vietnamese people, between Vietnamese people and foreigners, especially tourists. 2) Encourage the development of a variety of new industries/activities, especially creative industries, tourism, retail, food and beverage, etc. (3) Encourage effective participation of businesses in consulting and implementing policies on NTE development. (4) Create impetus to promote the development of public services and optimize public services, significantly reducing infrastructure overload during the day. (5) Identify and effectively handle risks and negative consequences from night economic activities.

In summary, the definition of NTE is specific business activities aiming to promote consumption and develop tourism by focusing on developing the fields of cultural services, entertainment, dining, shopping, and travel taking place from 6 pm until 6 am.

2. Method

2.1. Data collection methods

About survey subjects: 4 groups of subjects were selected including residents, tourists, business establishments and managers.

Regarding the scope of the survey: people, businesses and managers in Hanoi City, while tourists are nationwide but have been to night tours in Hanoi.

Regarding the form of distributing/sending survey forms: due to the impact of the COVID-19 pandemic, the authors conducted an online survey through the Google Form platform.

About sample size: In this study, the number of observed variables is 43 variables, so the minimum sample size is $5 \times 43 = 215$ survey participants.

About sampling method: select districts with potential for night economic development including Hoan Kiem, Tay Ho, Dong Da, Nam Tu Liem, Ha Dong and Gia Lam.

- For households and businesses: 100 votes.

- For residents and tourists: 300 votes, randomly selected.

- For experts and scientists: 100 votes (subjects are experts and scientists in departments and research institutes of Hanoi city). The total number of survey questionnaires is expected to be 500 according to the design. But in the process of statistical data processing, the total number of votes actually collected was 463, with the specific numbers as follows: Tourists: 147 votes; People: 110 votes; Manager: 104 votes and business 102 votes.

2.2. Data processing method

Team cleaned up and retained 463 satisfactory votes. Data were processed and analyzed using SPSS Statistics software.

3. Results

3.1. Night economic products and services

For many years, NTE has been formed in Hanoi city, especially in Hoan Kiem, Ba Dinh and Tay Ho districts. On weekends from Friday to Sunday, some night activities have become cultural activities of the locals and a must-go destination for tourists when going to Hanoi:

i) Organize a pilot to extend the business time limit to 2 am

Implementing the policy of the Party Committee and People's Committee of Hanoi City on piloting service business activities until 2 am from 7 pm on Fridays to 12 am on Mondays. In September 2016, Hoan Kiem District People's Committee implemented a pilot organization to extend the business time limit to 02 am for service businesses, attracting the participation of 65 qualified businesses.

This has created more entertainment space, attracted tourists when coming to the capital and Hoan Kiem district; met the needs of entertaining, exchanging the cultures, discovering the nightlife of tourists, especially international tourists, increased the length of stay, and increased the spending level of tourists. As a result, the average contracted revenue per month in 2017 of participating establishments increased by 55% compared to 2016, increased by 30% in 2018 compared to 2017, in 2019 increased by 10% compared to 2018.

ii) Organizing the Walking Space

To implement the policy and direction of the Standing Committee of the Hanoi City Party Committee; Plan No. 159/KH-UBND dated August 24, 2016, of the City People's Committee on organizing the pilot implementation of pedestrian space in Hoan Kiem Lake and its vicinity, from September 1, 2016, Hoan Kiem District People's Committee has been nominated as the host institution coordinating with City Departments to organize the implementation of walking space in the Hoan Kiem Lake area and its vicinity, with a range of 16 streets around Hoan Kiem Lake area during the period from 7 pm on Fridays to 12 am on Mondays every week.

Until now, the walking space in Hoan Kiem lake area and its vicinity has become a destination, rendezvous point and highlight of the capital; creating a space for entertainment and relaxation for the residential community, domestic and foreign tourists; an interesting meeting place for all residents and visitors; effectively promoting the values of cultural heritage, water landscape, and green trees of Hoan Kiem Lake (a special national relic), making contribution to the promotion of the image of Hanoi Capital - City for Peace, Creative City; stimulating the development of trade, services, tourism, promoting the economic development of Hoan Kiem district and the capital. The number of new business shops, as well as stores changing their business purposes into serving services and tourism, is 53 establishments. The number of domestic and foreign tourists visiting and participating is huge (on average, there are about 3,000 to 5,000 people during the day, about 1.5 to 2 thousand people at night).

Pedestrian streets Hang Dao - Hang Giay combining commercials and Dong Xuan night market: has been organized since 2004 (including streets of Hang Dao - Hang Ngang

- *Hang Duong - Dong Xuan - Hang Giay*) from 6 pm (7 pm in the winter) to 12 am on Fridays, Saturdays and Sundays; the total number of household businesses in the street area is 301 households (in which, there are 143 business establishments with facades, doing business in the evening); the total number of families doing business on the roadbed is 405; the total number of business households at Dong Xuan night market is 230.

Extended pedestrian streets of Grade I Conservation Area - Hanoi Old Quarter: has been organized since 2004 (including streets of Hang Buom, Ma May, Dao Duy Tu, Hang Giay, Luong Ngoc Quyen, Ta Hien) from 6 pm (7 pm in the winter) to 12 am on Fridays, Saturdays and Sundays. Currently, the total number of business households in the street area is 489, the total number of business households doing business at night is 373, in which the figure for doing business on the roadbed is 127.

Expanded pedestrian streets to the South of the Old Quarter connecting to the North of Hoan Kiem Lake area: organized and deployed from December 25, 2021, including Dinh Liet, Gia Ngu, Cau Go, Hang Be streets, Hang Dau, Hang Bac, Dao Duy Tu (section from Cho Gao to O Quan Chuong), O Quan Chuong (including O Quan Chuong street and the area of Hang Chieu - Thanh Ha intersection), Cau Go alley, Trung Yen alley, Phat Loc alley from 6 pm (7 pm in the winter) to 12 am on Fridays, Saturdays and Sundays. The number of households doing business on the street side is 384 households. The number of families doing business in the evening is 144 households, of which 89 households use the sidewalks (46 restaurants and 45 shops trading in clothes and shoes...).

In addition, to the pedestrian space of Hoan Kiem Lake and the Old Quarter, Hanoi City continues to deploy pedestrian streets such as Trinh Cong Son Street (Tay Ho District), Son Tay Ancient Citadel (Son Tay Town), Walking Street around Ho Ngoc Khanh (Ba Dinh district), a pedestrian street in Hoang Mai district.

iii) Organizing night food spaces

Food space at Dong Xuan Night Market: Implemented in 2003 in the area next to Dong Xuan market (Hang Khoai Street) from 6 pm (7 pm in the winter) to 12 am tomorrow on weekdays with 11 food stalls at night. At the time of implementation, it attracted a lot of attention from visitors; even customers needed to book in advance or queue to enjoy food at Dong Xuan market.

Culinary space at Tong Duy Tan street - Hang Bong alley: started in 2003. As of March 1, 2018, the District People's Committee has built and implemented Project No. 34 on building a model of a "Food safety street with the control of commercial civilization Tong Duy Tan - Hang Bong Alley (Cam Chi)". This is the typical food street of the district, a unique destination that well serves domestic and foreign tourists. Through implementation, the food safety and quality of food service in these establishments (54 establishments, including 08 restaurants, hotels, 31 shops and 15 street food establishments) are improved, attracting tourists, especially after 6 pm every day.

The City continues to deploy the night food street Ngoc Island - Ngu Xa, Truc Bach ward, Ba Dinh district.

iv) Organizing museum spaces and historical sites for night tourism

At Thang Long Imperial Citadel, Thang Long Heritage Conservation Center - Hanoi has re-launched the night tour "Decoding the Thang Long Imperial Citadel". The tour focuses on special historical and cultural values of the world cultural heritage Thang Long Imperial Citadel, giving visitors different and attractive experiences, and highlighting relics and relics. Precious uniqueness of the heritage site.

v) Model of organizing night art performances

Hanoi has made art as a part of tours for a long time. Hanoi Cheo Theatre, Hanoi Cai Luong Theatre, Thang Long Puppet Theater, and even Hanoi Drama Theater each has their own shows to serve visitors. The Hanoi Cai Luong Theater also applies a bilingual stage model, and translates a lot of Vietnamese excerpts into English... With the indoor stage model, Hanoi has had a number of famous shows, such as: "Jonah" with a harmonious combination of various types of circus art, dance, drama... on a stage with eye-catching effects, taking place at Galaxy Lang Ha theater; Circus "My Village" at the Opera House, etc.

With a realistic stage model, the play "The Essence of the North" also resonated with many domestic and international awards, attracting the attention of a large audience. However, those who work in the field of tourism also feel that those products are not attractive enough compared to the great cultural potential of the *Capital*, a lot of works have short lifespan. The catchphrase of tourists, "sang roi, toi pho" also partly reflects this.

3.2. Quality of the night- time economy

Regarding the level of satisfaction with the quality of NTE services: through analysis of both growth and changes in the structure of NTE in Hanoi, we can make some comments that: although the night economy in Hanoi has grown rapidly in recent times, in terms of its quality, it is still at a low average level. This is clearly shown through the survey results of the authors' group with 200 tourists in Hanoi city.

Table 1. Actual situation of night economic service quality as assessed by tourists

Unit: percent (%)

Service	Very unsatisfied	Unsatisfied	Normal	Satisfied	Very satisfied	Total
Restaurants, bars,	2.7	0.0	34.2	57.5	5.5	100.0
Coffee and beverage service	2.1	0.7	28.3	60.0	9.0	100.0
Supermarkets, convenience stores	2.1	0.0	36.1	52.8	9.0	100.0
Walking street, night market	1.4	2.1	49.0	41.3	6.3	100.0
Hotels, motels	2.8	2.8	43.0	45.1	6.3	100.0
Sightseeing transportation services by boat, tram, cyclo, bicycle, bus, city tour	2.2	8.6	60.4	28.1	0.7	100.0
Bars, discos, karaoke	2.2	5.2	67.2	23.1	2.2	100.0

Service	Very unsatisfied	Unsatisfied	Normal	Satisfied	Very satisfied	Total
Museums, exhibitions, cultural and historical sites	2.9	6.5	49.6	36.7	4.3	100.0
Entertainment programs, festivals, events	2.8	2.1	47.5	43.3	4.3	100.0
Theatre and music activities	2.9	2.2	46.3	41.2	7.4	100.0
Massage, beauty and health care services	3.0	3.8	49.2	38.6	5.3	100.0
Sports and exercise	5.2	2.2	53.0	30.6	9.0	100.0
General service area	3.6	4.4	52.6	36.5	2.9	100.0
Casino services and other services	8.1	10.5	62.1	17.7	1.6	100.0

Source: Author's survey results

The survey results show that most of the services are rated as "normal" by around 50% of tourists, the services at the restaurant are the most satisfied by tourists (57.5%); while the figures for some other services are as follows: restaurants serving coffee and refreshments (60%), supermarkets, convenience stores (52.8%) and hotels and motels (45.1%) in Hanoi. A few services are rated at a very good level by 9% of tourists, such as coffee and refreshment services, a system of supermarkets, convenience stores and fitness centres.

Unit: percent

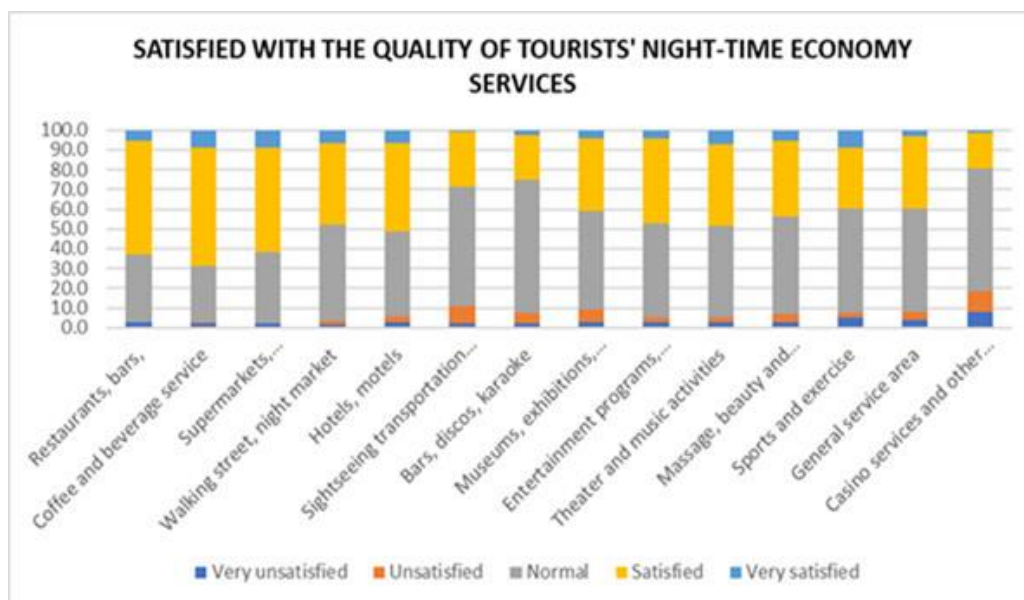


Figure 1. Satisfaction with the quality of night economy services of tourists

Source: Author's survey results

Other services such as services at bars, discos (67.2%), casino services (62.1%), sightseeing transportation services (60.4%), sports and exercises (53%), general services area (52.6%), museums, exhibitions, cultural and historical relics (49.6%), beauty massage

services, health care (49.2%), services on pedestrian streets, night markets (49%), entertainment programs, festivals, events (46.3%), ... mainly rated at the medium level of quality. Some services are rated as "poor" by some tourists, such as casino services (10.5%), sightseeing transportation services (8.6%), museums and exhibitions, cultural relics, history (6.5%), and sightseeing transportation services (5.2%). Meanwhile, casino services (8.1%) and sports and exercise activities (5.2%) are rated as "very poor".

4. Discussion and Conclusion

4.1. Some general assessments of the night- time economic growth in Hanoi city

+ Positive points

Along with the rapid development of socio-economic and international integration, NTE in general and NTE activities in particular in Hanoi are also increasingly developed and diversified.

Firstly, Hanoi city initially succeeded with supporting policies, contributing to the development of the NTE, and helping it to increase in size and quality. For example, the People's Committee of Hoan Kiem District organized the expansion of operating hours to 2 am during three days of weekends for business and service establishments in the district in combination with many planned streets, such as Hang Khay, Le Thai To, Dinh Tien Hoang, Nguyen Xi, Trang Tien, ... Hoan Kiem pedestrian street and surrounding areas, which has contributed significantly to promoting the City's development of tourism, trade and service. Of course, it is a place for walking and chatting, but the pedestrian street is also where hundreds of large and small cultural events, spontaneous art performances and folk games take place, attracting many special people's attention, especially tourists.

Secondly, thanks to the development of the night economy, Vietnam's tourism industry has made positive contributions to the GRDP of Hanoi city over the past time. Specifically, in 2017, the tourism industry contributed 8.07% to the City's GRDP, of which the direct contribution was 3.24%, the indirect contribution was 4.83%; the figure for 2018 was 10.15%, of which the direct assistance was 4.12%, and the indirect contribution was 6.03%. In particular, with many tourists flocking to the old town, it has created significant job opportunities for workers, increased income for small businesses, and attracted tourists. Having consulted with restaurants, big hotels in the City, and big travel companies that have brought international and domestic tourists to Hanoi from 2017 to the present, most of the comments support the development of the night economy with the aim of attracting tourists, providing services to serve guests' needs, increasing revenue for the unit and increase the economic effectiveness for the city.

Thirdly, Hanoi city has formed typical destinations of the NTE, such as Ta Hien Street, the old town night market, etc. These areas have contributed significantly to the increase in quality and diversity of Hanoi's tourism industry, creating a premise for the city to pilot night economy spots larger in scale and richer in genres. On weekends, with the presence of pedestrian streets, business and entertainment activities are becoming very active around the Hanoi Old Quarter area. In addition to the main business activities: dining, clothing, convenience stores, hotels, spas, bars, karaoke..., there are many other types of

follow-up businesses such as Taxi, cyclo, dancing and music on the pedestrian street, etc. All of these create a very typical night space in Hanoi.

Negative points

In general, Hanoi city has changed to exploit the potential of the NTE. However, there are still limitations that the city needs to overcome to take advantage of and promote these potentials better in the future. Specifically, some rules that we can see when studying the NTE of Hanoi are, such as:

First, the quality of the NTE is still low. Although the number of businesses and households has increased rapidly, the quality has not been improved much. The poor quality of services means that the revenue of companies and business households will be less, leading to negligible contribution to the City's GDP growth. The most active is in the informal sector. This makes it difficult for Hanoi to promote the development of the night economy.

Second, services and products are not diversified: The number of entertainment and festival activities to serve tourists in Hanoi is also relatively modest. Apart from traditional theatre-like Vietnamese Drama theatre or Thang Long Puppet theatre...., Some other traditional art activities are almost only seasonal or on holidays. This makes the NTE in Hanoi "boring" for a part of foreign tourists.

Third, business activities are still "grabbing". In many tourist spots in Hanoi, especially in the establishments providing food and beverage services and transportation, there are still unprofessional activities and, in many cases, "hacking" tourists. They only look at the short-term benefits, ignore the long-term benefits to invite guests to return in the future, and create a bad impression on visitors. In addition, standards of food quality and safety and urban hygiene standards have not been strictly followed, and the service style for tourists is still unprofessional.

Fourth, the business scale is microscopic; night economic activities are still poor and monotonous with unclear economic effectiveness. Hanoi does not have quality and regional nightlife entertainment complexes. The development of Tourism products and services is still boring, lacking in identity, small in scale, and mainly concentrated on culinary activities, night markets or walking streets. Meanwhile, Entertainment activities, art performances at night, shops, supermarkets, and busy night shopping areas have not been synchronously formed.

Reasons

Objective reasons

Firstly, the State's mechanisms and policies are still inadequate, reflecting the imposition of managers' thinking on economic activities, not matching the needs of tourists. The policy mechanism has not been completed, so many problems have not been resolved, and there are no effective policies to support NTE. According to the research team's survey, up to 72% of night-time businesses and households in Hanoi complain that the City's current policies do not support business well. The policy is rigid, failing to classify businesses and households doing business at night, which leads to equating and not promoting the full potential of the NTE in Hanoi.

Second, the policy's awareness and logical thought are not compatible with the importance of NTE development. This is shown when the night economy has not yet become an economic sector with an essential contribution to GDP growth. There are no specific reports and statistics on the contribution of NTE to socio-economic development.

Third, the legal framework and management of NTE growth are not good. The services, time, area, and participants in those fields... have not met the standards of noise, light, and the distance from residential areas, hospitals, and schools. Many business establishments night business; many restaurants, and coffee shops that use high-powered music ("bars") are located in the residential area. This affects the noise to the lives of people in the surrounding area. People have petitioned not to grant business permits until 2 am for restaurants and bars too close to residential areas.

Fourth, the spatial planning policy is still inadequate. In fact, due to the lack of planning, many night business establishments are positioned next to the residential area; many restaurants and coffee shops that use high-powered music ("bars") are located in the residential area. This affects the lives of people in the surrounding area negatively. People have petitioned not to license restaurants and bars too close to residential areas to operate until 2 am.

Some development areas lack planning, so they have not yet attracted tourists. Lack of synchronous and clear planning, so the pedestrian streets lack cultural and art programs, street vendors pulling and slashing tourists, and indiscriminate littering have adversely affected the environment. Because of not being properly planned, many streets became chaotic. Shops overflowed into the street, taking up space while the wider streets, suitable for services, were empty.

Fifth, public transport services and transport infrastructure are still weak. This is one of the reasons why Hanoi's night economy cannot develop quickly. Up to 49% of tourists find it difficult to have access to means of transportation such as taxis, buses, and motorbike taxis when participating in night economic activities, especially after 12 pm. Without good infrastructure, the attraction of tourists will be much less. Moreover, traffic infrastructure and public transport in urban infrastructure conditions is sometimes overloaded.

Subjective reasons

Regarding The organization and planning of ministries, Hanoi city and especially the 3 districts: Hoan Kiem, Ba Dinh, Tay Ho have not yet concretized the policy of developing the night economy.

Firstly, Hanoi does not have policies to support and encourage enterprises to do business in the night economy. Therefore, the provision of night products is still limited, leading to an unfavourable business environment and not attracting many domestic and foreign investors.

Second, public policy is still limited. Few policies are put in place to address the problems of residents as well as visitors: noise problems, environmental pollution, the ability to access the information, neighbourhood security and other public services. For example,

the street light system has been improved in Hoan Kiem pedestrian street. However, the camera system is still not enough, leading to pickpocketing, theft and unwanted problems with visitors.

Third, although there are many opportunities from globalization integration and urbanization, Hanoi has not yet grasped and taken full advantage. The number of visitors to Hanoi tends to increase, but the area has not yet created many products and services to attract tourists. Night activities are not diverse, and there are few places for entertainment and experience tourism.

Fourth, the management level of the enterprise is not effective. Specifically, the capacity and working skills of the business owner are not professional.

Fifth, enterprises and business households have not built up a high reputation and have not made a difference in attracting domestic and foreign investment capital. That has led to inadequate facilities, inadequate security camera systems and an unscientific layout, causing difficulties and feelings of insecurity for visitors.

Sixth, the number of night services to serve tourists is relatively small, as well as the quality of the service is not safe.

Seventh, the sense of self-discipline, civility and politeness of a part of the people is not high, leading to indiscriminate littering. As a result, after every night of events, the roads and sidewalks are full of garbage, slick sewage, etc very unsightly urban. In addition, the limited ability to communicate in foreign languages of some individuals and units participating in night economic activities affects the attraction of foreign tourists to use night services.

4.2. Solutions to develop the night-time economy in Hanoi city

Firstly, it is necessary to have a clear direction for building and completing the legal framework for night economic activities in Vietnam. Accordingly, mechanisms and policies for the development and management of the night economy must be built based on clarifying the current status, causes, obstacles and advantages and suitable to Vietnam's conditions. Furthermore, to encourage large private sector enterprises to participate in the construction and development of the NTE and to build the technical infrastructure for night operations.

Separate planning of economic zones at night but not too far from the centre, ensuring connection with the urban centre. Strict management and supervision to ensure security and safety for people.

Developing mechanisms and policies for NTE development. It is necessary to develop stable and appropriate mechanisms and policies to encourage the private sector, including business households, small and medium-sized enterprises and large enterprises. In addition, focus on management mechanisms and investment in fundamental infrastructure for NTE.

Second, the improvement of mechanisms and policies for the NTE must be consistent with the national legal framework for economic development. However, the development of

the night economy depends on the needs, strategies, plans and goals of each locality and does not have to be developed simultaneously in all 63 provinces and cities. Therefore, the legal framework for NTE must be based on the existing legal framework. Review, evaluate and perfect mechanisms and policies to be suitable for NTE's activities and to be consistent with the principles of the socialist-oriented market economy in Vietnam.

Third, ensure principles when developing or perfecting the legal framework for NTE activities. In particular, preferential and supportive policies for businesses operating in NTE industries and fields must be equal, fair and non-discriminatory. In addition, the design of the legal framework for NTE should be based on the consideration of the financial flows that need to be invested in for implementation.

Fourth, for financial support policies: Only provide financial support to businesses, business households and employees participating in NTE activities in special cases or when it is necessary to create provide initial financial leverage. Do not apply widespread support policies, ensure compliance with international commitments and ensure equality among economic sectors.

Fifth, focus on perfecting mechanisms to manage NTE activities well and exploit the maximum potential of this model, including: type of business; business area, restricted area; curfew; operating time; operating license; performance standards (noise, light...); policy on night traffic; public infrastructure; security policy; policies to encourage and support consumers and tourists to participate in NTE activities. Strong decentralization for localities in the management and development of NTE.

For regulations of sensitive entertainment industries, it is necessary to consider loosening regulations from entertainment fields that have little negative impact on security, safety, crime such as karaoke services, casino discotheques, etc. In addition, reviewing, adjusting and supplementing regulations, strictly handling individuals and business establishments that commit acts of violating public order, security and hygiene food safety, frauds, criminal acts to ensure the rights and safety of consumers and visitors. Legalize licensing regulations to control and manage sensitive activities while ensuring the maintenance of the NTE operating environment and ensuring safety for participants.

Sixth, Hanoi city must coordinate with ministries to develop policies to encourage enterprises and business households to participate in the NTE activities.

Through the above analysis, it can be seen that the development of the night economy of Hanoi city is necessary and is the driving force to promote the economic development of Hanoi to become more diversified and more efficient and creates attractiveness for international visitors after the Covid19 pandemic. However, the development of the night economy will also generate negative effects, especially regarding security, order and social issues... Therefore, it is necessary to have synchronous solutions to develop and exploit the great potential of Hanoi city and minimize the negative effects of the NTE.

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AWARENESS AND BEHAVIOR OF YOUNG PEOPLE TOWARDS NIGHT-TIME ECONOMY: A CASE STUDY IN HANOI

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Abstract

Night-time economy is playing an increasingly greater role in the economy of many countries. The coronavirus pandemic has made Vietnam adopt a new approach to the development structure, in which the night-time economy is expected to be a new driver of growth. This paper aims at exploring and analyzing young people' awareness and behavior towards night-time economy as well as their contribution to the to the development of night-time economy, thereby proposing some solution to encourage their participation into the activities. To achieve the research purposes, both secondary and primary data were used. Primary data were collected based on a survey 336 young people living, studying and working in Hanoi, one of the most vibrant cities in Vietnam. The results show that the night economy has made a certain contribution to the development of Hanoi, which is reflected in the expansion of the night-time economic activities, the level of interest of the youth, and diversity service type. In addition, the survey results also show that the perception, attitude, and perceived behavioral control affect the ability of young people to participate in the night economy, thereby providing a framework of influencing factors. On that basis, some implications are proposed to improve the attraction of the destination, create a non-stop rotation for commercial activities, and bring maximum benefits to the night economy in particular. and the country's economy in general.

Keywords: *behavior, Hanoi, night-time economy, young people.*

1. Introduction

The concept of the night economy has become increasingly popular since the 1990s as it seeks to cover the changes to the organization and participation of life as night falls, especially in urban areas. The different tempo of work and leisure, as well as the growing economic importance of the service industry (especially tourism), have promoted the idea of a 24-hour city with plenty of leisure activities which should be more flexible and diverse,

especially "cultural-intellectual" (Rowe, 2007). The night economy is the services, business models, and activities held between 6 p.m and 6 a.m. Commercial and entertainment activities are aimed at satisfying the needs of tourists, in addition, they also take place at night to serve the needs of local people for trading, consumption, and entertainment (Huong, 2021).

Over the years, the value of the night-time economy has been constantly growing, starting to attract special attention from researchers as well as from practitioners. The activities that take place at nightfall have brought huge revenue to the developed countries, the table below lists some of the leaders in this field and their contribution to the GDP of the night economy.

Table 1. Night-time economy's contributions to some countries

Content	England	America	Australia	France	Japan	Thailand	China
Contribute to GDP	Average revenue of 66 billion pounds a year Contribute 6% to GDP	Revenue of 6 billion USD in San Francisco (2015) and 10 billion USD in New York	Revenue nearly 134 billion USD (2018) is about 4% of GDP	Revenue about 2 million euros in France	Estimated at 3.7 billion USD (2020)	About 5.5 billion USD/ year	Market scale is estimated at 2,400 billion USD (late 2020)
Number of jobs created	1.3 million jobs	300,000 jobs (New York)	1.1 million jobs	3.5 million jobs	No figures available	No figures available	No figures available

Source: Industry and Trade Magazine

Vietnam also has the advantages to develop a "night economy", thanks to natural factors such as rich tourism resources and is increasingly becoming a favorite destination for many international tourists. Besides, Vietnam has many advantages such as having a young population that prefers to live in cities, typically in Hanoi. Hanoi is also considered an attractive destination for international tourists, the capital's night service resources are diverse, an opportunity to develop a lot of night service products to attract tourists, In addition to factors such as unique culture, art, and cuisine, there is a high degree of integration and globalization as well as relatively pleasant night weather.

Theoretically, there are still not many studies on the behavioral aspect of participating in the night economy, especially in Hanoi. Some new studies stop at development policies without systematic studies to identify the factors affecting the behavior of young people participating in the night economy in particular and the entire population in general. To contribute to filling the research gap mentioned above, the authors focus on analyzing the current awareness and participation behavior of Hanoi youth in night economic activities and assess the factors affecting their decision to participate in the future.

The remainder of this paper is organized as follows: The second part presents literature and reference research. The third part focuses on the method. The fourth part focuses on the situation of the night-time economy in Ha Noi. The fifth part presents survey results and implications. The final part is for the conclusion and future research.

2. Theoretical basis and Literature review

This study will use the combined theoretical foundation of TPR, TRA, and TPB, and also refer to several foreign and domestic researches.

2.1. Theory of Perceived Risk (TPR)

Risk is an abstract concept, which is trying to make the future visible in advance of the current state of a topic, by predicting adverse circumstances and their negative impact on the future. Bauer (1960) asserts risk does not come from the "real world" but rather from the subjective perception of consumers that affects their behavior. Participants begin to feel it when they are faced with uncertainty and (negative) consequences (Cox & Rich, 1964). The higher the uncertainty and negative results, the higher the perceived risk (Hong & Cha, 2013). The higher the perceived risk, the more likely the consumers will need more information about the product, so it will influence consumption decisions. This tends to be more complex and prolonged and can ultimately be a decision to get rid of consumption. As a result, the perceived risk becomes one of the most important and powerful concepts in explaining consumer behavior.

2.2. Theory of Reasoned Action (TRA)

The Theory of Reasoned Action (TRA) was developed in 1967 and has been extensively calibrated over time since the early 1970s by Ajzen and Fishbein. In the TRA model, attitude is measured by the perception of the attributes of a product or service. Participants will pay attention to attributes that provide essential benefits and have varying degrees of importance. If the weights of those attributes are known, it is possible to predict the outcome of the participant's choices very closely. Subjective normative factors can be measured through people involved in participation (such as family, friends, and colleagues); these people like or dislike their participation in night economic activities. The degree of impact of the subjective norm factor on the propensity to buy and use services of the participants depends on: (1) the level of support/opposition to participating in the night economy and (2) the motivations of the participant according to the wishes of the influencer. The greater the participant's trust in the stakeholders, the greater their propensity to participate. Participants' intention to purchase products, entertainment, and relaxation will be affected by these people with different strong and weak influences.

2.3. Theory of Perceived Behavior (TPB)

The Theory of Perceived Behavior (TPB) is an extension of the theory of rational behavior (TRA) (Ajzen and Fishbein, 1980; Fishbein and Ajzen (1975). However, the TPB model is considered to be more optimal than the TRA model in predicting and explaining consumer behavior in the same research content and context. Because it overcomes the shortcomings of the TRA model by adding the element of "behavior control", the central factor in the theory of planned behavior is a person's intention to perform a certain behavior.

The intention is believed to be the motivating factor that leads to behavior, it is a predictor of how much effort people will put or how much effort they plan to put into performing a particular behavior. In this theory, the "intention to perform the behavior" is strongly influenced by three factors: (1) attitude - as a general rule, the more favorable the attitude towards the behavior and the stronger intention, (2) subjective norms, (3) perceived and controlled behavior. If there are enough resources to ensure the success of participation, they can fulfill their intentions as soon as they have chances. The importance of each factor above is not completely the same in each research context. In this study, we focus on the attitudes towards the behaviors.

2.4. Literature review

Thanawadi & Veerisa (2021) applied The theory of Reasoned Action and The theory of Planned Behavior to develop a model about intention to participate in the nightclubs and bars at Bangkok, Thai Lan - ranked 10th in the list of destinations with the best nightlife cities all over the world and located five of renowned Asia's Best Bars in 2020 (Manson, 2014; Sgarbi, 2020). The authors proposed five factors which affect the consumption intention, include: atmosphere; drinks and variety; accessibility; price and service crew. Thanawadi & Veerisa approached 310 respondents with convenience sampling technique through online distribution channels. Analyzing and data processing concluded that four out of five factors, except price, have a great influence on the intention of participating consumers.

M. Chew's qualitative research on four dilemmas in nightlife in China: The social costs of the night economy, the impact of nightlife participation, night labor, and issues of sex theme at night. M.Chew evaluated and compared the differences in night economic models and night culture between China and Western countries. Many entertaining activities that are considered normal for the United Kingdom but there are only consumed by the lavish Chinese elite. Moreover, gender and the issues surrounding it are also not culturally appropriate within China. The four fields explored are not meant to be comprehensive. However, there are premises for adjustment and new development directions.

The study "Development of night economy tourism in An Giang" by Pham Dinh Long and Nguyen Huynh Mai Tram emphasizes that the night economy plays an important role in economic growth, culture and tourism, but it is a complex and multi trend and creates certain risks. The study uses a descriptive statistical method by collecting data from night economic models of successful countries in the world, then assessing the benefits and risks if An Giang applies the three-group model (core group, non-core group, supply group). And finally to produce a development model oriented towards sustainable tourism development to help improve competitiveness, and provide more innovative and quality tourism products and services including human resources, investment, implementation organizations, capacity building awareness, and investment for businesses and local people.

Vu Hoang Duy et al with "Policies for night economic development in Ha Noi" overview development policies as well as management and the growth of night economy in Ha Noi through current situation of implementing mechanisms and laws of the government; policies to promote the merchants and consumers participation and policies to expand a variety

of night economic products. Through the method of collecting primary data by surveying 130 participants including 40 international guests and 90 domestic guests, the authors have identified the activities that attract the most participants, thereby providing the following functions: ideas for regulators and businesses to promote participation of consumers.

Through literature review and relevant research, this article will focus on surveying and evaluating some of the following criteria: attitudes (impressions and feelings); perceived benefits, perceived risks of taking part in night economic activities and actual participation behavior.

3. Method

Data collection

Survey participants are young people. Depending on socio-economic conditions, countries and organizations have different regulations on youth age. The Vietnamese government defines "youth" as those between the ages of 16 and 30, as outlined in the 2005 Youth Law (Vietnamese Ministry of Home Affairs, 2012). The population aged 15-29 makes up about 25% of the country's population, according to the 2017 census, and is the largest group of young people in Vietnam. In this study, the research team took the age group from 15 to 32 years old as the age to express the characteristics of young people, including 3 main periods: 15-18 years old (students), 19-25 years old, and 26-32 years old (students and working people). The research team used a convenient sampling method based on Google forms and questionnaires. The team approached schools and workplaces in Hanoi. The survey is designed to determine the current general perception, risk perception, actions, and behavior of young people when participating and the night economy. The study obtained 377 valid respondents. Demographic characteristics of the participants included gender, income, and age.

Data Analytics

All survey data is copied and archived verbatim. We classified and compared the data of the samples using the Microsoft Excel 2019 tool. The study data revealed the frequency and percentage of the participant's socioeconomic status, perception of risks, and benefits as well as the behavior of using services, and activities among 377 survey questionnaires. Combining available literature research and descriptive statistical methods to examine the association between sociodemographic characteristics (gender, age group, income level) and participant's level of knowledge about the night economy. In addition, the author group statistics on the importance and influence of risk perception, and perceived benefit on the participation behavior of young people according to their education level and age group from which to analyze how many participants (frequency, percentage) perceiving the importance of understanding night economic activities in their decision to participate.

4. Results

4.1. The situation of the night-time economy in Hanoi

The night economy in Hanoi after a period of development has created some initial foundations and stepping stones for stronger development later. That is reflected in the following statements:

The area where night economic activities take place is widely organized.

Seizing this opportunity, on July 27, 2020, the Prime Minister issued Decision 1129/QĐ-TTĐ 2020 approving the "Project on night economic development in Vietnam" to exploit the potential for night economic development to make the most of new economic development opportunities. Most recently, in 2021, the district submitted a "Project on piloting night economic development in Hoan Kiem district". This is one of the leading districts of the city to concretize the orientation of night economy development and identify specific plans and tasks for implementation. For Tay Ho district, develop the night economy with performing arts space, and street food at Trinh Cong Son street. In addition, Hai Ba Trung district has the policy to develop a project to form a pedestrian street in the gate area of Thong Nhat Park and Thien Quang Lake; Long Bien district with rapid urbanization, urban technical infrastructure planning is quite complete..., currently has Ngoc Lam food street; Ba Dinh district is piloting a pedestrian street at Ngoc Khanh lake. In general, the area where night economic activities take place in Hanoi is tending to expand, which gets the attention from the Government, and has a clear development plan.

The types of services of the night economy are diverse and abundant.

Hanoi has about 10 large and small night markets, such as the Long Bien wholesale market, the Old Quarter night market, the Dong Xuan night market, etc. Souvenirs, consumer products, agricultural products, and food are sold in the night market. There are also free and organized performing arts programs, inviting famous artists to attract tourists in general and young people in particular. One of the other forms of entertainment is at bars, pubs, and cafes. Currently, our group has not collected data on the number of shops, but it is easy to see that these shops are being expanded more and more in Hanoi. Just stepping outside and we can see cafes with various styles and varied kinds of drinks for all ages. Food is the beauty and the feature of Hanoi, the famous night food areas in Hanoi can be mentioned as Dong Xuan market, Ta Hien beer street, Tong Duy Tan street. It is diverse and easy to access and experience Hanoi's food for a reasonable amount of money. In short, night service products in Hanoi are now abundant, diverse and imbued with identity as well as absorbing new things while still retaining the cultural quintessence of Hanoi. But besides that, there are many spontaneous shops and restaurants that are not strictly managed, which can easily cause consequences later.

Night economy attracts people's attention

When we look up the term "night economy" on Google Trends and select the city of Hanoi, we can see that the interest in this term has gradually increased over time, especially from the beginning of May 2021 (interest level is 30) until late 2021 or early 2022 (interest level is 100).

This proves that people have started to pay more attention to this phrase and have a more certain understanding of it.

According to the survey results on customer's demand for night products and services in Hanoi (Vu Hoang Duy. 2020), 90% of tourists participated in the survey (40 international guests and 60 domestic guests) tends to participate in tourist activities at night in Hanoi and the area around the Old Quarter is the most popular.

Negative things still exist

It is easy to experience prolonged traffic congestion with a large number of participants gathering at one location. Currently, Hanoi city has taken measures to control the number of people participating in traffic on key roads. For example, on weekend evenings, arranging police to regulate traffic on roads that are often congested. In addition, it is a social evil because there is not much experience in managing and operating the night economy, so it is difficult to avoid the risk of increasing social evils such as prostitution, drugs, gambling. Drug traffickers can take advantage of the excitement and crowding of the night economy and expand their market. Besides, the alcoholic beverage business is always present in the night economy, it can lead to loss of control, from a small degree causing a few scuffles, quarrels, to a larger extent that may occur acts of violence, intentionally causing injury or disrupting public order. The problem of theft and pickpocketing is always a burning problem, causing fear for those involved in the night economy. This can happen anytime and anywhere, from crowded places to deserted places, they can be individuals or organized criminal gangs. Finally, noise pollution from activities such as music, art performances, night markets, karaoke walks, etc. can affect the activities of the surrounding residents, especially at night - the rest period for labor workers to rest and recover after their workday.

4.2. Survey result and implication

Survey result

The demographic characteristics of the participants in this study were gender, age, and occupation. Out of a total of 377 participants, 29% were male and 71% female, the age group was divided into three age groups, of which 13% of participants were in the 15 to 18 years old group, 86% were in the 19 to 25 years old group, the rest group is 25 to 30 years old. Most of the participants were college students (94%), working people and students 3% and 2% respectively (Table II).

All scales of the concepts in the research model are the scale multi-variables use the form of Likert with five levels from 1 is strongly disagree to 5 is strongly agree. The concept Intention (YD) includes 5 components: Normative beliefs (AL), Attitude toward the behavior (AT), Perceived behavioral control (CH), Perceived Benefit (GT), Perceived Risk (RR).

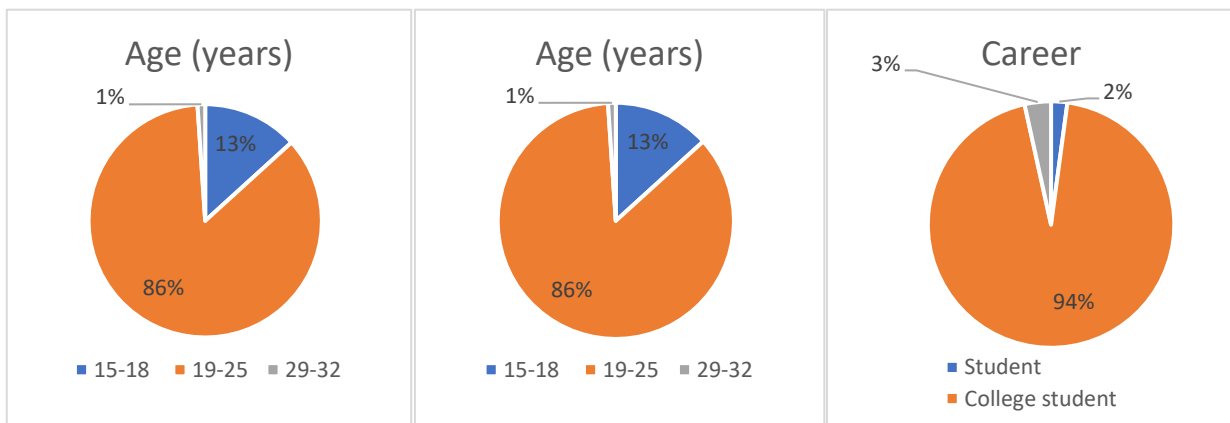


Table 2. Demographic characteristics of participants

Code	Describe	SDA	DA	N	A	SA	Score
I. Normative Beliefs							
AL1	The encouragement from friends	3,45%	10,88%	51,72%	31,03%	2,92%	3,190
AL2	The encouragement from family	10,08%	24,67%	44,83%	16,18%	4,24%	2,798
AL3	The encouragement from society	6,37%	17,77%	49,07%	20,95%	5,84%	3,021
AL4	The influence of the trend leader (KOLS, blogger)	3,71%	7,96%	36,34%	41,11%	10,88%	3,474
II. Attitude Toward the Behavior							
AT1	The night economic activities are very interesting	1%	4%	29%	48%	18%	3,78
AT2	Bring a lot of physical and mental values	1%	7%	36%	46%	11%	3,62
AT3	Feeling favorite when participating in night economic activities	2%	12%	42%	32%	11%	3,35
AT4	Feeling good when participating	1%	12%	47%	32%	8%	3,34
AT5	Having knowledge about night economy	4%	18%	46%	27%	5%	3,11
III. Perceived Behavioral Control							
CH1	Having financial capability	3%	12%	46%	31%	7%	3,24
CH2	Having time to participate	3%	14%	44%	31%	8%	3,27
CH3	Having vehicles to participate	3%	12%	35%	41%	10%	3,46
CH4	Having information	4%	12%	44%	33%	7%	3,27
CH5	Can keep themselves safe	3%	10%	38%	40%	9%	3,42
IV. Perceived Benefit							
GT1	Relieving stress	1,59%	3,45%	29,44%	46,42%	19,10%	3,779
GT2	Contributing to the country's economy	1,33%	6,90%	37,93%	42,97%	10,88%	3,552
GT3	Creating income for many people	1,59%	3,71%	22,55%	51,46%	20,69%	3,859
GT4	The night economy is helpful	1,59%	5,31%	43,50%	39,79%	9,81%	3,509
GT5	Bringing new and interesting experiences	1,86%	2,39%	27,06%	47,48%	21,22%	3,838

Code	Describe	SDA	DA	N	A	SA	Score
V. Perceived Risk							
RR1	Social evils, potential risks	1.59%	2.12%	19.63%	46.68%	29.97%	4,012
RR2	Issues of public security	1.33%	3.18%	21.22%	48.81%	25.46%	3,938
RR3	Body problems such as kidnapping, metamorphosis, etc.	1.59%	3.45%	19.36%	40.58%	35.01%	4,039
RR4	Customers are coerced into purchasing things.	1.59%	4.51%	28.12%	43.50%	22.28%	3,803
VI. Intention							
YD1	Will participate in night economic activities in the future.	2.65%	5.57%	36.07%	43.24%	12.47%	3,573
YD2	Will participate in night economic activities.	2.92%	6.63%	40.32%	39.26%	10.88%	3,485
YD3	Want to introduce night-time economic activities to everyone around	3.98%	6.37%	45.09%	35.54%	9.02%	3,392
YD4	Will invite friends and relatives to join	4.77%	8.22%	37.40%	39.79%	9.81%	3,416
VII. Behavior							
HV1	Regularly participate in more night-time economic activities	6,10%	19,10%	45,89%	25,20%	3,71%	3,013
HV2	Will participate in well known activities	5,31%	10,34%	39,52%	38,73%	6,10%	3,299
HV3	Will participate when have companion	2,39%	7,43%	31,56%	45,09%	13,53%	3,599
HV4	Will participate when have financial	2,12%	6,10%	33,42%	42,18%	16,18%	3,642

Normative Beliefs (AL): The survey result shows that encouragement from friends (AL1) (3,190 scores) and the trend leader (AL4) (3,474 scores) are more influential than others. Normative Beliefs reflect the perceived pressure to engage in a certain behavior exerted by such significant referent individuals or groups as the person's spouse, family, and friends. For young people, friends and social media are indispensable things in life that have a strong impact on their intentions. Besides, the encouragement from society is only less than friends' 0.169 scores, this small difference also shows that they feel welcomed by society when participating in night-time economic activities and the family one gets the lowest score, only 2,798 scores. But overall, it's all in favor of Neutral with all tiles getting more than 35% there shouldn't be much resistance from the aforementioned groups.

Attitude Toward the Behavior (AT): the degree to which performance of the behavior is positively or negatively valued. In general, all scores are greater than 3, showing that

young people have a positive view when participating in night-time economic activities. Especially, they find these activities interesting with the votes “agree” and “strongly agree” getting 48% and 18% respectively, and have a total score of 3,78. Besides, the survey results show that they all feel that the night economy brings a lot of physical and mental values. However, the lowest score of 3,11 on young people's knowledge of the night economy with 46% of the votes “neutral”.

Perceived Behavioral Control (CH): The survey results confirm the importance of means of transportation (CH3) and the ability to protect themselves (CH5) with the participant's perception of controlling behavior expressed with 3,46 and 3,42 points respectively. Cognitive behavioral control is seen as the participant's beliefs about whether performing a certain behavior is favorable or difficult. It is undeniable that young people perceive owning a vehicle will be an opportunity for them to easily participate in night economic activities. Along with that, being able to protect themselves is a solid resource that makes them not afraid of the dark sides of the night economy. Besides, having the same time (CH2) and information (CH4) with 3,27 points; financial capacity (CH1) at least with a score of 3,24 - clearly the level of agreement accounts for the highest proportion. The highest in all 5 variables are above 30%. The minor difference between the scores of the variables determines that the more chances or resources young people have, the greater the degree of behavioral control, so there will be fewer obstacles in forming the intention to take part in the consumption and the use of services in the night economy.

Perceived Benefit (GT): Two of the three variables of perceived risk have the highest scores for all variables given in the article with an average total score of RR3 of 4,039 and RR1 of 4,012. Furthermore, RR2 and RR4 both have total scores above 3,8. This can be clearly seen in four factors related to risk perception, the large level of consent, the highest is 48,81% for social evils and potential risk, and the lowest is for social evils. 40,58% agree on danger related to abduction, metamorphosis, abuse... This is also a factor accounting for 35,01% at “strongly agree” – a rating of 5 points on a scale Likert. In addition, there is a small percentage - 1,59% of people who “strongly disagree” with these risk perceptions. The sharp contrast between the two extremes of respondents proves that they highly appreciate these negative issues when considering attending the night economy.

Perceived Risk (RR): Behavioral intention has a fluctuating score in the range of 3,3 to 3,5 but the evaluation level of the variables is different. If the intentions of being ready to participate in the night economy in the future (YD1) and YD2 are regularly inviting friends and relatives to participate in night economy activities, the number of respondents focused on “agree”, then in two factors, the remaining variables YD3 and YD4 move towards the “neutral” with 40,32%; 45,09% and 37,40% respectively. The gap between “agree” and “strongly agree” amounted to 29,98% of the factor “want to introduce night economy activities to people around”. Through the results of the survey, it can be seen that although they have the intention of being and will continue to participate in night economic activities, it is not large enough to increase the number of respondents concentrated to a large amount - 3 points. Another feature is expressed in the large difference between 4 and 5 points in all four variables.

Implication

For regulators, policymakers

Research results show that developing specific industries only at night helps the economy to operate smoothly, making full use of the opportunities and strengths of Hanoi in particular and Vietnam in general. From the perspective of an administrator, we need to strengthen propaganda to raise awareness and awareness of people, especially young people and tourists, about night economic activities through multimedia channels. media such as social networks, newspapers, television, etc., thereby spreading attitudes about the positive effects of participating in night economic activities. Departments, agencies and localities need to strictly control the situation of prices, and further strengthen the control of security, order, and social safety with the participation of police forces and militia in the area, building a favorable and appropriate legal corridor, focusing on regulations on operating time, business license, etc. may consider loosening some operating conditions to services such as bar, discotheque, casino, etc. develop more strongly. At the same time, the capacity of regulatory agencies should be strengthened to reduce negativity and evils. Moreover, perfecting management policy, investing in the public transport system, synchronous infrastructure including social security system, health care system, ect. to improve comprehensive access and safety operate at night as well as to avoid bad risks that may arise that negatively affect the participant's experience.

For businesses, business households.

The night economy has many potential risks in terms of order and safety, so businesses need to strictly comply with the law for the benefit as well as to protect themselves, consumers. Above all this is for social protection and creating a healthy night-time economic environment, along with sustainable development. With a large population and young people that are very sensitive to catching the trends and the increasing of consumers' consciousness, businesses need to combine many approaches and study customer needs to avoid making products not meeting the needs will cause a huge waste. Putting yourself in youth, paying attention to what is happening and the trends to lead the movement. Besides, there must also be a long-term plan and sustainable development for long-term survival, helping the whole society. To materialize that, the human resource factor cannot be ignored, businesses need to have clear and effective directions. Enterprises need to strengthen human resource training, and set requirements for certain skills and knowledge. More specifically, attention should be paid to train specific occupations of the night economy such as bartenders, performance artists, security guards, etc. Besides, it is also necessary to focus on attracting human resources, selecting and screening according to the requirements of the quality of the night economy. Human resources can come from outside the province or abroad. For such high-quality human resources, it is possible to offer salary policies, travel support, meals, etc.

5. Conclusion

In general, the young people have had certain knowledge and understanding about the night economy. When catching this term, more or less participants will imagine the activities taking place, the benefits to be obtained or some barriers that may be encountered. In addition, the positivity is clearly shown in the attitudes and intentions of young people, although they are afraid of some possible risks, this is insignificant and the encouragement of everyone around them is absolutely important. Surrounding especially influential people play an important role in the participant's choice. The opportunities and available resources are the driving force for the respondents to participate with more frequency, making them believe that using products and services in the night economy is easy and convenient. This study has found a number of gaps in cognitive and behavioral aspects that need to be focused on in campaigns to develop an effective night economy, suitable for Vietnam, especially Hanoi. In summary, more efforts are needed, awareness-raising programs, attractive activities for all ages, and measures to ensure safety, security and order, and prevention of social evils. help strengthen participants' intentions.

The research is only conducted in the scope of young people, but in fact, many middle-aged people participate in the consumption of night economic activities. The possibility of generalization will be higher if the following studies continue with an expanded sample structure in terms of age groups or proceed with a more representative sample. On the other hand, future studies can also continue to expand the research direction by supplementing and editing the research orientation that the group has built up to suit the specifics of not only Hanoi but also other cities.

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CURRENT SITUATION AND POLICY SOLUTIONS TO MANAGE IMPORTED TIMBER MEETING THE LEGAL TIMBER REQUIREMENTS OF VIETNAM

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Abstract

Following Viet Nam's increasing integration to international markets, and a global concern for timber legality, the country's wood-related exports must comply with strict requirements from international agreements such as EVFTA. Domestic timber legality-systems (e.g. VNTLAS) play a key role by ensuring legality from imported wood products. Given that Viet Nam imports timber from countries classified as high-risk with respect to timber legality, it is therefore important to understand the recent development of imported timber and to identify possibilities for improving domestic systems and regulations. Through data collection and interviews, this paper provides an overview of imported timber in Viet Nam between 2015 and 2020 and presents recommendations for strengthening policies and regulations related to the VNTLAS. These include adjusting the criteria for risk-classification and clarifying global timber certification schemes. We also call for strengthening bilateral relations with low-risk countries, using IT to support compliance mechanisms, and identifying additional low-risk countries from where to secure timber imports.

Key words: *Imported timber raw materials, Legal timber, Domestic market, Risk timber region, Low-risk timber region*

1. Introduction

Viet Nam has continued to increase its integration into the world economy. As of January 2022, Viet Nam has signed 15 Free Trade Agreements (FTA) with 53 economic partners, all of which are currently effective and significantly account for the country's international trade (Handbook "Rules of origin in FTAs to which Viet Nam is a signatory", 2022). Viet Nam's timber industry has also integrated into the global supply chain of timber and timber products. The country imports large volumes of timber from various countries. Between the 2016 – 2020 period, the volume and value of imported timber ranged from 7 to 9 million m³ of equivalent round timber, with imported value to 2.2 – 2.5 billion USD. However, while imported timber accounted in 2010 for 70% of the raw materials used in the wood processing industry, it only accounted to 25% in 2010 (*Viet Nam Administration of Forestry, 2022*).

Major export markets, such as the United States, Japan, China, EU and Korea, all have put in place timber legality systems. Viet Nam has also enforced legal timber requirements under the Decree No. 102/2020/NĐ-CP dated 1 September 2020 of the Government promulgating the Viet Nam Timber Legality Assurance System (VNTLAS). In accordance with the Decree (*Clause 1, Article 3*), legal timber is defined as "*timber or timber products that are harvested, imported, confiscated, transported, traded, processed, exported in accordance with Vietnamese legal regulations, regulations of international treaties to which Viet Nam is a signatory and relevant legal regulations of the country in which timber is harvested*".

Moreover, the VPA/FLEGT between Viet Nam and the European Union (EU), which entered into force since June 2019, is a legally binding agreement aimed at strengthening forest governance and promoting trade in legal timber and timber products exported from Viet Nam into the EU market. In addition to the opportunities, the agreement also presents challenges for the timber industry of Viet Nam, including (i) higher competition (there are 53 economic partners within the scope of the signed agreements), and (ii) more strict regulations for controlling the legality of timber origin (Ministry of Agriculture and Rural Development, 2022). As a result, Viet Nam has implemented policies to achieve better control and management of imported timber.

According to Decision No. 4832/QĐ-BNN-TCLN in 2020 of the Ministry of Agriculture and Rural Development, countries from where Viet Nam imports timber can be classified as either positive (low-risk) or non-positive (high-risk) with respect to timber legality concerns. While the former includes United States, Chile, and New Zealand, the latter includes Laos, Cambodia and various African countries. Non-positive countries require special attention with respect to risk control and management must be placed to timber from high-risk countries.

The objective of this paper is to assess the situation of imported timber between 2015 and 2020, focusing on the risk-based controls and management mechanisms instituted by VNTLAS. We provide an overview of imported timber in Vietnam, and recommend solutions for supporting timber legality requirements in Viet Nam. These recommendations include adjusting the criteria for classifying low-risk countries, providing more details on requirements for conducting due diligence studies on timber legality, and clarification on the national timber/forest certification schemes used globally. We also call for strengthening of bilateral relations with low-risk countries, the use of IT to facilitate procedures, and furthering market research studies to identify new low-risk countries from where to procure timber in the future.

This paper is based on the results of a project named “*Research on development of domestic timber and timber products for realization of restructuring of Viet Nam’s forestry sector*”.

2. Method

✚ Collection of secondary information and data

Data and information was compiled from reports on import and export of timber and timber products published by the Viet Nam Timber and Forest Products Association (VIFOREST); statistical data on import and export announced by the General Department of Viet Nam Customs in the 2015 – 2020 period; and comprehensive reports produced by Forest Trends. Moreover, data was collected and summarized from scientific reports and other materials related to imported timber and policies on management of legal timber.

Lastly, we consulted experts in multiple fields (incl. agro-forestry and fishery market management, agro-forestry and fishery processing, customs, forest protection) in order to supplement and finalize solutions to manage imported timber to ensure the legality of timber.

✚ Data processing

Excel software is used to process and analyze data and calculate volume, value, proportion of imported timber. Moreover, we collected major timber exporters of Viet Nam which are classified by risk geographical regions as follows:

- Major timber exporters of Viet Nam (round timber and sawn timber) to countries having the largest volume of timber exporting to Viet Nam in the 2015 – 2020 period.

- Major timber exporters of Viet Nam that are classified by risk geographical regions in accordance with the Decision No. 4832/QĐ-BNN-TCLN in 2020 of the Ministry of Agriculture and Rural Development announcing the list of timber species having been imported into Viet Nam and the list of positive geographical regions exporting timber to Viet Nam between low risk and risk geographical regions. Low-risk geographical regions include 51 countries/regions on the list of positive geographical regions exporting timber to Viet Nam.

The categorization of risk geographical regions helps assess the risk levels of timber raw materials imported into Viet Nam, as a basis for recommendation of solutions to manage this timber inputs.

3. Results

3.1. The current situation of imported timber raw materials

3.1.1 The current situation of imported round timber

a) Volume and value of imported round timber

The volume of imported round timber has increased from 1.69 million m³ in 2015 to 2.32 million m³ in 2019, equivalent to an increase of 37% compared to 2015. The value of imported round timber has also increased from 511 million USD in 2015 to 698 million USD in 2018. In 2020, due to impacts of the Covid-19 pandemic, volume of imported round timber slightly decreased, reaching 2.02 million m³, equivalent to a value of 563 million USD. The average annual volume of imported round timber is about 2.07 million m³, equivalent to 604.7 million USD. The volume and value of imported round timber are detailed in Figure 1.

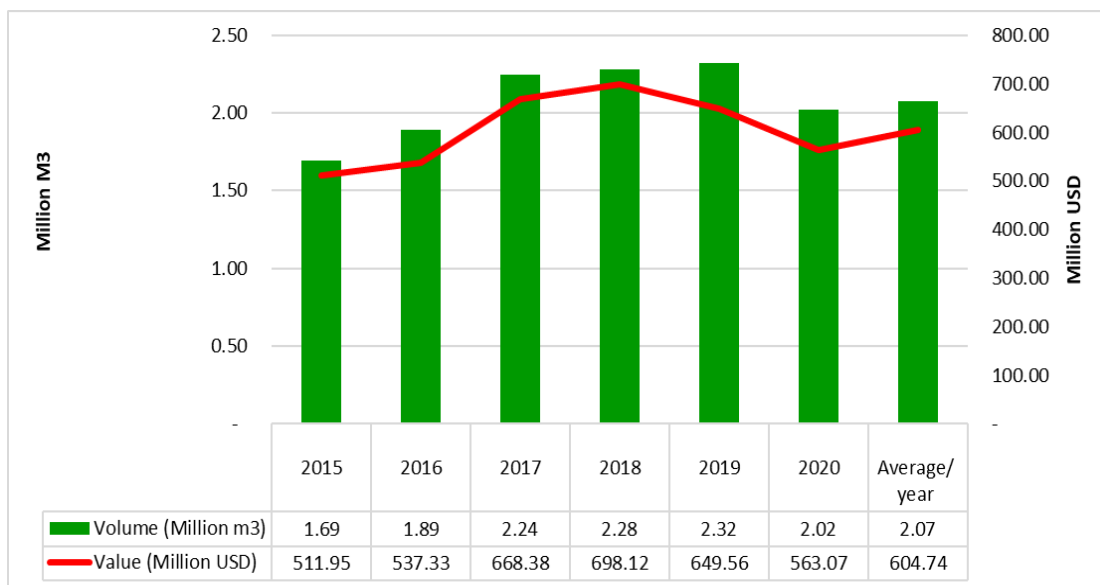


Figure 1. Volume and value of imported round timber in the 2015 – 2020 period

b) Main countries exporting round timber to Viet Nam

Round timber is imported into Viet Nam from more than 100 countries and territories. However, only few countries have large volume of round timber exported to Viet Nam. Table 1 below lists countries having large export volume of round timber to Viet Nam which accounts for about 65 – 70% of total volume of imported round timber and these countries are classified into two categories, namely positive or low-risk geographical countries, and non-positive or high-risk geographical countries

Table 1. Volume of round timber imported into Viet Nam from major exporting countries (2015-2020)

Unit: 1,000 m³

No.	Country	2015	2016	2017	2018	2019	2020	Total
I	Low-risk countries	420.16	419.95	639.27	734.62	834.62	680.67	3,729.29
1	USA	65.70	76.70	145.79	198.37	245.79	214.10	946.46
2	Belgium	74.30	92.90	145.79	173.68	256.25	188.19	931.11
3	Germany	77.20	76.20	112.50	96.95	115.11	78.06	556.02
4	France	32.52	36.59	59.92	60.85	70.52	73.68	334.08
5	The Netherlands	56.24	60.16	115.01	81.22	96.73	63.34	472.69
6	Uruguay	114.20	77.40	60.27	123.55	50.23	63.30	488.94
II	High-risk countries	806.07	797.14	857.93	813.51	803.64	701.11	4,779.40
7	Cameroon	314.70	420.70	507.39	513.86	495.53	393.67	2,645.85
8	Papua New Guinea	105.20	183.10	123.03	195.16	236.86	228.57	1,071.92
9	Cambodia	59.30	139.30	163.07	38.26	10.55	1.50	411.98
10	Laos	321.70	36.20	7.11	2.44	5.68	12.82	385.95
11	Republic of Congo	5.17	17.84	57.33	63.79	55.03	64.55	263.70

Source: Data summarized from reports on import and export of timber and timber products produced by VIFOREST, Forest Trends and statistical import and export data of the General Department of Viet Nam Customs from 2015 to 2020

Positive or low-risk geographical countries include USA, Belgium, Germany, the Netherlands and Uruguay. USA is the largest round timber exporter to Viet Nam with an average of 157,000 m³ per year and about 946,460 m³ for in the whole 2015 – 2020 period. Non-positive or high-risk geographical countries include Cameroon, Papua New Guinea, Cambodia, Laos and Republic of Congo. Cameroon is the largest round timber exporter to Viet Nam with an average of 0.4 – 0.5 million m³ per year and 2.6 million m³ for the whole period. The volume of round timber imported from Laos and Cambodia has sharply decreased between 2016 to 2020 despite both countries being the largest timber exporters of Viet Nam in the past, before 2015.

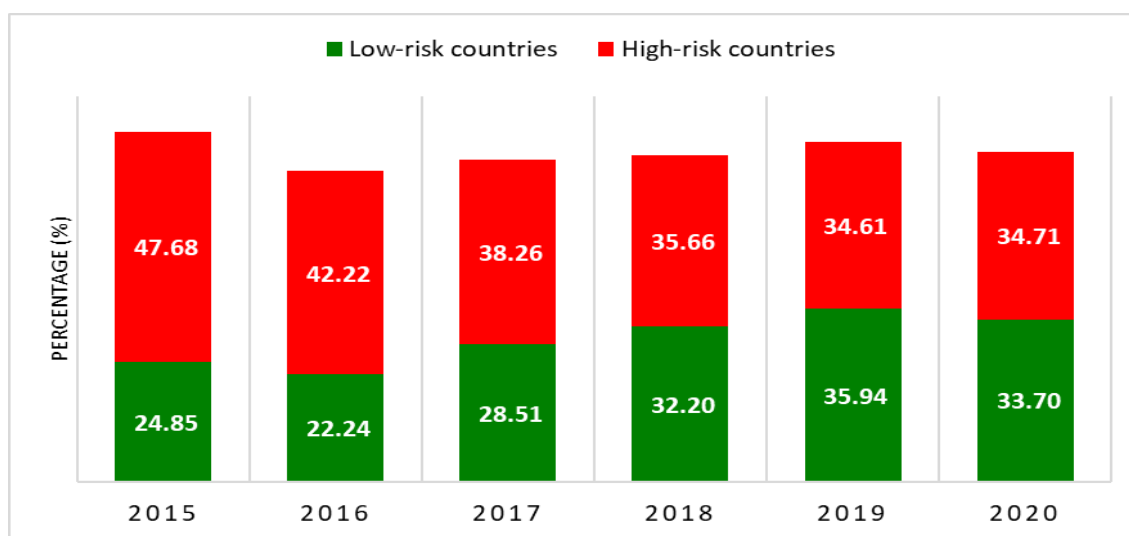


Figure 2. Proportion (%) of round timber imported into Viet Nam from major exporting countries by risk geographical countries in the 2015-2020 period

Table 1 and Figure 2 show that in 2015, the volume of timber imported from major exporting countries categorized as high-risk geographical regions totaled 806,070 m³, nearly double the volume of timber imported from low-risk geographical countries, accounting for 47.68% of total round timber supplies of Viet Nam. However, by 2020, the volume of timber imported from high-risk geographical countries decreased to about 701,110 m³, accounting for 34,71% of total volume of imported timber, while the volume of timber imported from low-risk geographical countries increased to 680,670 m³, accounting for 33.7%. The volume of round timber imported from USA and Belgium has rapidly increased over the years. The volume of round timber imported from USA alone increased from 65,700 m³ in 2015 to 214,100 m³ in 2020. In contrast, the volume of round timber imported from some countries such as Laos and Cambodia has rapidly decreased because these countries have implemented policies to restrict the export of round timber. The volume of round timber imported from Laos decreased from 321,700 m³ in 2015 to 12,820 m³ in 2020, down 96% compared to 2015.

Table 2 summarizes the value of round timber imported from low-risk and high-risk geographical countries. Cameroon, USA, Belgium, Papua New Guinea are leading with respect to the value of round timber exported to Viet Nam. Particularly, Cameroon has high export value with an average of 150-200 million USD per year, reaching over 1 million USD during in the 2015 – 2020 period. The value of timber imported from these countries accounts for 65-75%

of total import value of round timber. Moreover, in this period, the value of round timber imported from low-risk geographical countries has increased whereas the value of round timber imported from high-risk geographical countries has decreased from 55.06% in 2015 to 38.41% in 2020 (Figure 3). This is considered as a positive signal of the implementation of VPA/FLEGT and policies to control and manage timber imported into Viet Nam.

Table 2. Value of round timber imported into Viet Nam from major exporting countries (2015-2020)

Unit: Million USD

No.	Country	2015	2016	2017	2018	2019	2020	Total
I	Low-risk countries	99.53	99.04	146.43	175.41	204.23	169.60	894.23
1	USA	29.74	33.69	44.81	63.27	82.97	71.61	326.09
2	Belgium	16.39	18.51	31.80	38.33	54.15	41.16	200.34
3	Germany	15.93	15.07	24.40	20.93	23.85	17.03	117.20
4	France	7.29	7.61	13.05	13.49	15.09	16.35	72.87
5	The Netherlands	11.81	12.63	22.92	18.70	19.79	13.32	99.18
6	Uruguay	18.37	11.53	9.46	20.70	8.38	10.12	78.55
II	High-risk countries	281.88	239.11	300.52	302.29	255.06	216.29	1,595.15
7	Cameroon	133.53	164.28	207.58	215.85	181.16	146.16	1,048.56
8	Papua New Guinea	19.64	29.37	23.37	40.43	42.84	37.92	193.58
9	Cambodia	109.30	4.45	1.20	0.46	0.40	0.82	116.63
10	Laos	16.90	32.86	39.45	7.30	1.70	0.20	98.41
11	Republic of Congo	2.51	8.15	28.92	38.24	28.96	31.19	137.97

Source: Data summarized from reports on import and export of timber and timber products produced by VIFOREST, Forest Trends and statistical import and export data of the General Department of Viet Nam Customs from 2015 to 2020

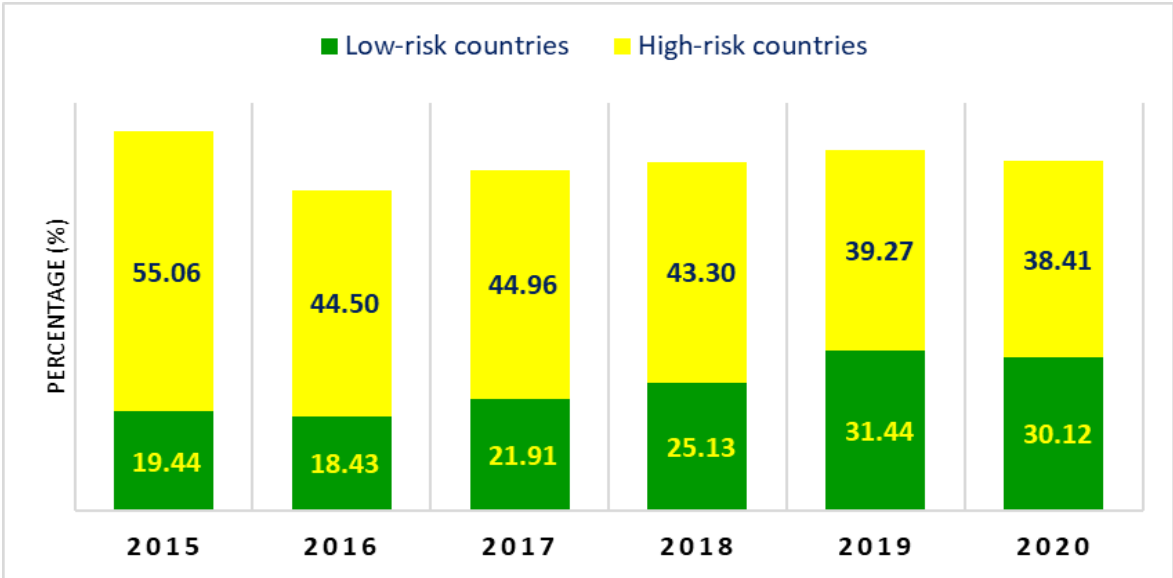


Figure 3. Proportion (%) of round timber imported into Viet Nam from major exporting countries by risk geographical countries compared to total import value of round timber in the 2015 – 2020 period

3.1.2. The current situation of imported sawn timber

a) Volume and value of imported sawn timber

The import volume of sawn timber increased from 2.22 million m³ in 2015 to 2.54 million m³ in 2020 (the annual average import volume is about 2.3 million m³). However, the import value of sawn timber decreased from 1,147 million USD in 2015 to 749.01 million USD in 2016. The average import value is about 912 million USD with small yearly fluctuations likely influenced by the decline of rare and precious timber species imported from Laos and Cambodia. The change in volume and value of imported sawn timber is summarized in Figure 4 below.

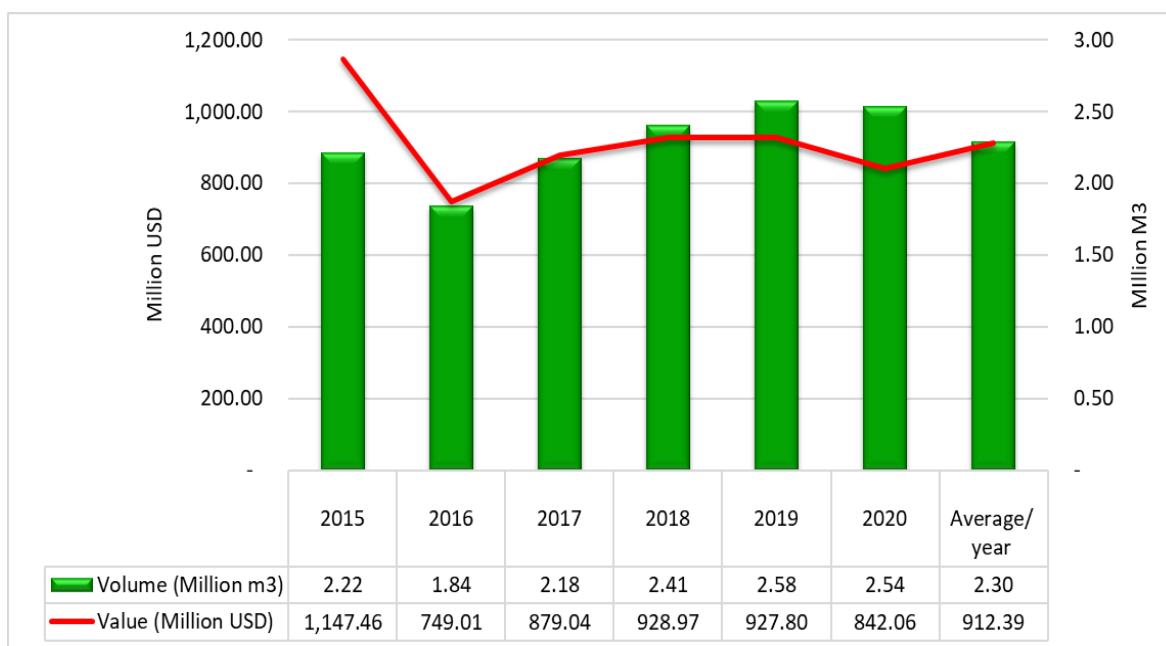


Figure 4. Volume and value of imported sawn timber in the 2015 – 2020 period

b) Major countries supplying sawn timber to Viet Nam

Viet Nam imports sawn timber from various countries including USA, Chile, Brazil, New Zealand and Cambodia (hereinafter referred to a “main import countries”). USA is the largest supplier with volumes increasing from 474,000 m³ in 2015 to 597,000 m³ in 2020. Between 2015 and 2020, the total volume of sawn timber imported from the main import countries accounts for 75-80% of the total import volume of sawn timber, equivalent to about 7.74 million m³. As can be observed in Table 3, the volume of sawn timber imported from low-risk geographical countries is strongly increasing. In 2015, the volume of sawn timber imported from the main import countries in low-risk and high-risk geographical regions amounted to approximately 850,000 m³, accounting for 38% and 40% for the low-risk and high-risk categories. However, these proportions have changed in recent years. In 2020, the volume of sawn timber from main import countries in low-risk geographical regions increased by 1.53 million m³, nearly double the import volume in 2015, accounting for 68.99% of total import volume of sawn timber. Meanwhile, the volume of sawn timber imported from main import countries in high-risk geographical regions only accounts for 14.12% of total import volume of sawn timber in 2020.

Table 3. Volume of sawn timber imported into Viet Nam from main import countries in the 2015 – 2020 period

Unit: 1,000 m³

No.	Country	2015	2016	2017	2018	2019	2020	Total
I	Low-risk geographical countries	892.30	936.70	1,130.40	1,222.41	1,442.74	1,529.66	7,154.21
1	USA	474.30	460.40	496.63	541.51	562.55	597.54	3,132.92
2	Chile	163.60	187.90	246.43	209.35	322.12	284.61	1,414.01
3	Brazil	91.80	110.70	170.40	209.71	227.80	230.22	1,040.62
4	New Zealand	155.10	164.80	171.30	166.35	169.98	178.38	1,005.91
5	Russia			11.76	14.24	62.57	138.41	226.98
6	China	7.50	12.90	32.64	79.85	76.33	50.74	259.95
7	South Africa			1.24	1.41	21.41	49.76	73.82
II	High-risk geographical countries	842.90	374.80	507.53	457.29	446.67	313.16	2,942.34
8	Cameroon	33.80	47.60	85.35	117.38	227.39	153.63	665.15
9	Laos	383.10	97.10	43.70	40.15	63.34	81.29	708.68
10	Gabon	51.00	58.70	105.78	79.85	76.33	50.74	422.39
11	Cambodia	375.00	171.40	272.70	219.91	79.61	27.50	1,146.12

(Source: Data summarized from reports on import and export of timber and timber products produced by VIFOREST, Forest Trends and statistical import and export data of the General Department of Viet Nam Customs from 2015 to 2020)

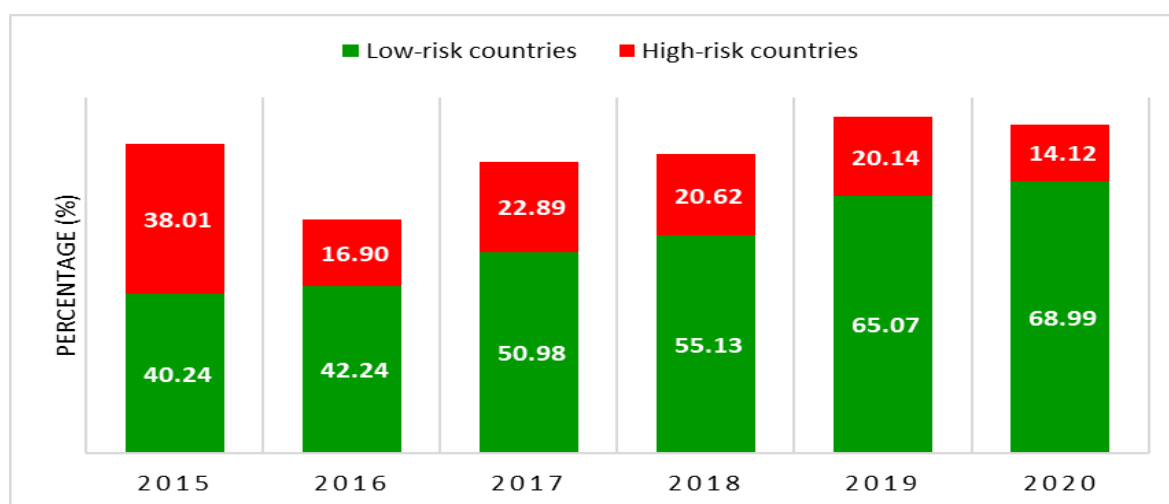


Figure 5. Proportion (%) of sawn timber imported into Viet Nam from major exporting countries by risk geographical regions compared to total import volume of sawn timber in the 2015-2020 period

Table 4 presents the value of imported sawn timber from main import countries which accounts for 75-85% of the total import value of sawn timber. The import value of sawn timber from USA amounts to 200-250 million USD per year. Noteworthy is the decrease of import value of sawn timber from Laos and Cambodia (e.g. in Cambodia the value decrease from 362 million USD in 2015 to 7.17 million USD in 2020). The total import value of sawn timber from countries in high-risk geographical regions clearly decreased

from 655.9 million USD in 2015 to around 150.4 million USD in 2020. Thus, as of 2020, the import value of sawn timber from high-risk geographical countries only accounted for about 17.86% while the import value of sawn timber from low-risk geographical countries (472 million USD) accounted for 56.1% of total import value of timber in 2020.

Table 4. Value of sawn timber imported into Viet Nam from main import countries (2015 – 2020)

Unit: Million USD

No.	Country	2015	2016	2017	2018	2019	2020	Total
I	Low-risk countries	312.87	296.30	364.74	444.32	464.84	472.38	2,355.45
1	USA	194.09	173.86	192.18	229.83	234.23	221.85	1,246.03
2	Chile	44.50	45.33	59.77	78.53	76.38	64.65	369.16
3	Brazil	27.00	26.24	41.19	57.00	60.83	52.75	265.01
4	New Zealand	41.30	41.92	43.15	43.35	42.92	43.49	256.13
5	Russia	-	-	3.00	4.09	17.06	44.62	68.77
6	China	5.98	8.95	24.72	30.15	26.42	32.02	128.25
7	South Africa	-	-	0.73	1.37	7.01	13.01	22.11
II	High-risk countries	655.90	273.47	312.30	223.87	220.99	150.39	1,836.91
8	Cameroon	23.80	26.26	38.76	53.59	102.37	69.00	313.78
9	Laos	239.20	63.68	36.43	29.42	49.02	53.43	471.18
10	Gabon	30.80	35.28	63.96	48.26	39.98	20.79	239.07
11	Cambodia	362.10	148.25	173.15	92.60	29.62	7.17	812.89

Source: Data summarized from reports on import and export of timber and timber products produced by VIFOREST, Forest Trends and statistical import and export data of the General Department of Viet Nam Customs from 2015 to 2020

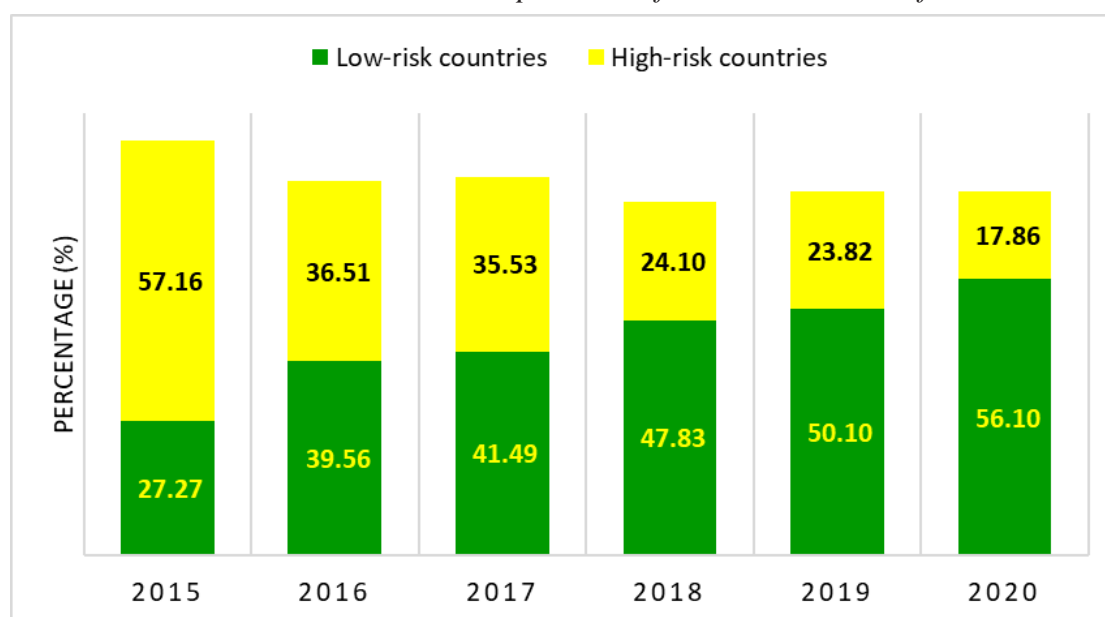


Table 6. Proportion (%) of value of sawn timber imported into Viet Nam from major exporting countries by risk geographical regions in the 2015 - 2020 period

3.2. The current situation of management of imported timber

3.2.1. Promulgation and implementation of policies on managing imported timber to ensure the timber legality

Key legislation with respect to timber legality includes the following:

- The Decision No. 1624/QĐ-TTg dated 14 November 2019 of the Prime Minister on approving plan for implementation of the Voluntary Partnership Agreement between the Socialist Republic of Viet Nam and European Union on Forest Law Enforcement, Governance and Trade (VPA/FLEGT) in order to assign specific tasks and responsibilities to relevant agencies and organizations so as that these agencies and organizations can decide on direction and management measures to fully and effectively implement the VPA/FLEGT.

- The Decree No. 102/2020/NĐ-CP dated 1 September 2020 of the Government on promulgating the Viet Nam Timber Legality Assurance System (VNTLAS). The Decree has internalized main contents of the VPA/FLEGT, including management of imported timber and supply chain control, in accordance with the context of Viet Nam. Accordingly, enterprises importing timber into Viet Nam from high-risk geographical regions are subject to due diligence with provision of legal evidence to demonstrate the legality of timber.

- The Decision No. 4832/QĐ-BNN-TCLN dated 27 November 2020 of the Minister of Agriculture and Rural Development on announcing the list of timber species having been imported into Viet Nam and the list of positive geographical regions exporting timber to Viet Nam. According to the Decision, the number of timber species which are allowable to be imported into Viet Nam has been added up to 322 species and there are 51 countries having classified as positive or low-risk geographical regions. Imported timber species and timber exporting countries that are not in these lists will be considered as risk timber species and high-risk geographical regions, respectively.

3.2.2. Control and management of imported timber to ensure legal timber requirements

Chart 1 describes the procedure and responsibilities of relevant stakeholders to ensure legal timber requirements for imported timber.

Although VNTLAS supports already existing timber policies, new regulations have been promulgated. For example, in accordance with the Decree No. 102/2020/NĐ-CP, for the management of imported timber, risk management measures must be applied to prevent, detect and timely handle violation acts, as well as to encourage and create favourable conditions for organizations and individuals to comply with the law. Imported timber is controlled and managed according to criteria of positive geographical regions to determine whether timber is imported from low- or high-risk geographical regions. Timber importers must comply with regulations on provision of dossiers, declaration of origin of imported timber, and take responsibilities for the accuracy of provided dossiers and declared information (Clause 4, Article 4, Decree No. 102/2020/NĐ-CP).

Accordingly, in order to manage imported timber, the Ministry of Agriculture and Rural Development collaborated with other agencies (incl. the General Department of Customs, Ministry of Industry and Trade, Ministry of Natural Resources and Environment, Ministry of Foreign Affairs) to agree on the list of positive geographical regions/countries

exporting timber to Viet Nam for each period in accordance with the international treaties to which Viet Nam is a signatory.

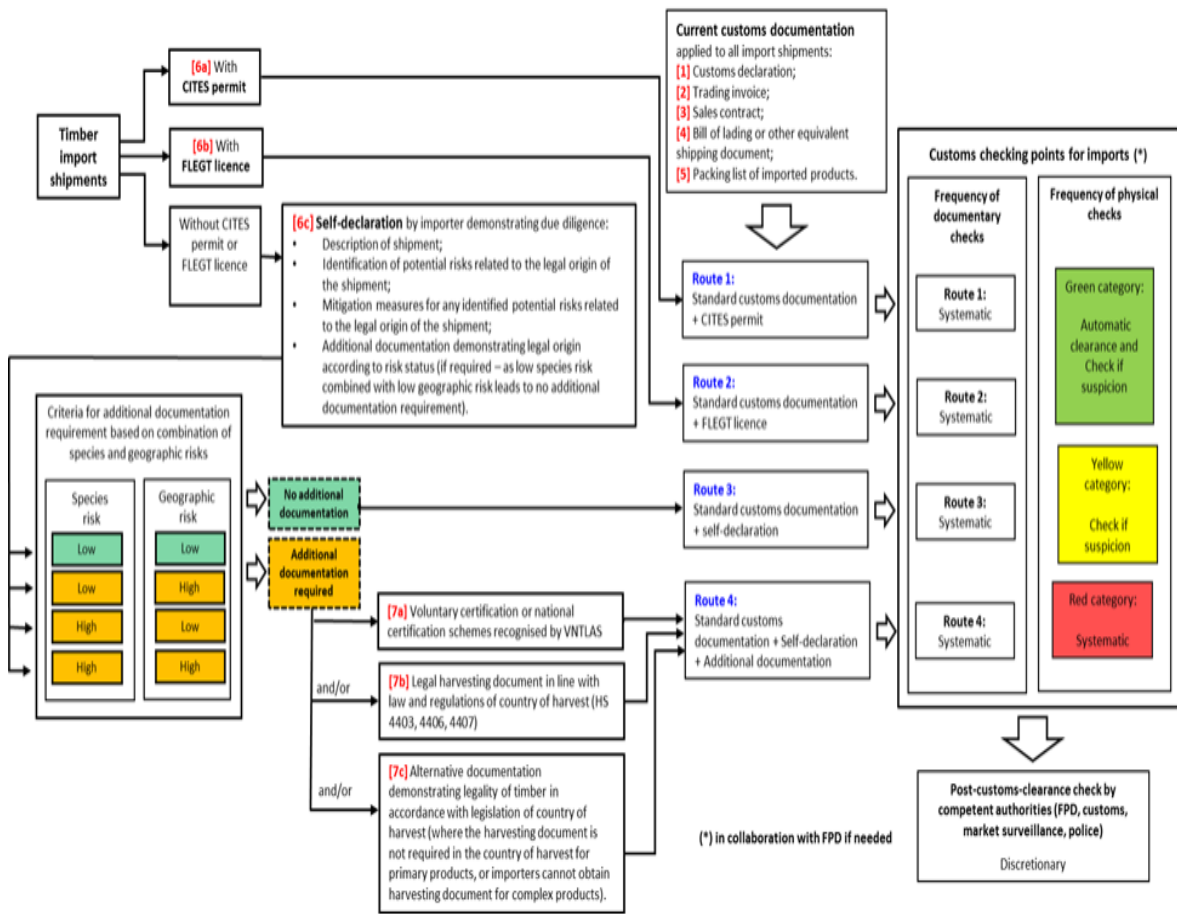


Figure 1. Imported timber control and management of VNTLAS

Source: VPA/FLEGT

Lastly, customs authorities and forest protection agencies shall be responsible for managing the imported timber, as well as coordinating the verification of the legality of imported timber shipments (incl. certification of the packing list of imported timber).

4. Discussion and Conclusion

4.1. Success and challenges to ensure the legality of timber

4.1.1. Success

One of the most important benefits of the extant timber legality system is the increase of imported timber from low-risk countries in the 2015 – 2020 period. This reduction is likely associated to the system’s capability to support the adaptability and competitiveness of the timber industry and institutionalizes the correct regulations. These policies specified in the aforementioned legal documents have reduced numerous administrative procedures for enterprises to help improve the effectiveness of control and management of imported timber to meet the VNTLAS requirements. Moreover, timber processing and trading enterprises have actively sourced timber raw materials from low-risk geographical regions while reducing volume and value of timber imported from high-risk geographical regions.

4.1.2 Challenges

Some challenges remain with respect to the legality of imported timber. First, the proportion of imported from non-positive or high-risk geographical regions remains high, accounting from 14% to 38.4% of total volume of timber imported into Viet Nam, especially with respect to imported round timber. Second, the standardization and synchronization of the national TLASs of different countries is complex because these systems are developed on the basis of independent national legal systems. Lastly, many countries have not developed legal regulations for the whole supply chain, especially the supply chain in which timber is transported or traded through middlemen.

4.2. Recommendations for managing imported timber to ensure the legality of timber

4.2.1. Completion of criteria for positive geographical regions/countries exporting timber to Viet Nam in order to ensure legal timber requirements

- The categorization of countries/regions in accordance with criteria specified in the Decree No. 102/2020/NĐ-CP and Decision No. 4832/QĐ-BNN-TCLN results in a low number of low-risk countries. We suggest that countries that have signed VPAs but have not reached the stage of FLEGT licensing, or countries that have been negotiating VPAs with EU, can also be considered low-risk countries.

- Conducting due diligence studies for timber legality covering the whole supply chain is a complex and resource consuming task. Our paper calls for more well-defined regulations in relation to the realization of due diligence studies which ultimately serve as a key criterion for being recognized by VNTLAS.

- With respect to the criterion specifying that a country needs to have a national regulatory timber certification scheme recognized by Viet Nam (aligned with VNTLAS requirements), there is a lack of information identifying the countries that already have national timber/forest certification schemes. Moreover, we recommend for the contents of these schemes to be more readily available. If followed, these recommendations would ensure the accuracy of risk geographical categories.

4.2.2. Control and management of legal timber requirements imported into Viet Nam

- In accordance to VNTLAS, Viet Nam needs to strengthen bilateral relations with low-risk countries in order to stabilize the supply of imported timber and satisfy wood processing demands for export.

- The national legal framework for each risk geographical category needs to be finalized in order to facilitate the management of imported timber.

- Strengthen the application of information and technology to better link data between agencies (e.g. forest protection agencies and customs authorities), facilitate one-door procedures, and optimize the speed of import and export procedures.

- To satisfy the VNTLAS requirements, enterprises importing timber from risk markets need to comply with additional due diligence requirement as specified in the Decree No. 102/2020/NĐ-CP. At the same time, new market research studies should be conducted to select additional low-risk countries from where to import timber – all of which must provide transparent evidence of legal timber origin.

4.3. Conclusion

Imported timber raw materials play important role in Viet Nam's wood processing industry. Our results present positive signals with respect to the origin of timber by highlighting an increase both in volume and value of imports from low-risk countries. We argue that the national legal system is a key driver of these results through the VPA/FLEGT implementation and, moreover, the compliance of Vietnamese timber processing enterprises in seeking legal timber sources. However, although timber imported from high-risk geographical regions is on the decline, the annual import volume is still high. Moreover, a significant percentage of imported timber is represented by species from natural forests, which are mostly used for domestic consumption. Therefore, in order to ensure the legal origin of timber, Viet Nam needs to adjust the criteria for categorization of low-risk countries and introduce mechanisms to effectively control and manage the timber origin through the coordination between State management agencies and the application of information and technology in the traceability of timber origin.

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IMPACT OF GREEN LOGISTICS ON INTERNATIONAL TRADE: AN EMPIRICAL STUDY IN ASIA - PACIFIC ECONOMIC COOPERATION (APEC)

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Abstract

Green logistics has been a trend in the world. This research evaluates the impact of green logistics on international trade among APEC nations over the period of 9 years (2010 - 2018). The research uses an augmented gravity model to investigate the effects of green logistics on international trade through the Environmental Logistics Performance Index (ELPI). The results show that exporting countries applying green logistics increase the export volume to other members of APEC. In the long term, importing countries engaging in green logistics increase trade volume with green logistics countries in APEC. With the aim of enhancing international trade, APEC countries must improve domestic logistics performance. Through those analyses, research proposes several recommendations to encourage nations and enterprises to apply green logistics effectively.

Keywords: *APEC, FGLS, green logistics, international trade*

1. Introduction

Logistics has been being developed, which plays an essential role in the economic development of many countries, including international trade competitiveness (Bensassi et al., 2015). However, the logistics industry consumes a large number of energy resources and generates

high carbon emissions. The estimated level of CO₂ from the logistics accounts for 13% of total global emissions (World Economic Forum, 2016), causing negative impacts on the environment and society. Therefore, applying green logistics is the solution to solve these problems.

As a global forum, however, APEC's greenhouse gas emissions account for 60% of the world. Not only that, 6/10 of the world's largest GHG-emitting economies were APEC members (APEC Policy Support Unit, 2021). To achieve the goal at COP 26, APEC needs to make a lot of effort including applying green logistics, solving the APEC's emissions problem. Therefore, it is necessary to research and make assessment of green logistics' impacts on international trade within APEC.

The research uses the quantitative research method by ordinary least squares regression (Pooled OLS), fixed-effects model (FEM), random-effects model (REM), and feasible generalized least squares (FGLS). From that, the research proposes recommendations for governments and enterprises to apply green logistics effectively.

2. Literature Review and Theoretical Framework

2.1. Literature review

The studies on logistics have been being conducted primarily from a macro viewpoint to improve the business environment for the global supply chain and from a micro to evaluate the impact of "green" regulations on the region, industry, or business.

It has been suggested that logistics has a wide-ranging impact on trade. Bilateral trade is connected to Logistics Performance Index (LPI). Efficient logistics services minimize the effect of geographical distance but do not completely eliminate it (Arvis et al., 2007). GDP and geographical distance between two nations are followed by LPI which has a significant influence on trade, mainly of the exporting country (Puertas et al., 2014). Using data from 112 countries and Hong Kong from 2007 to 2014, Wang et al (2018) discovered that the export and import country LPI is positively correlated with trade; green logistics in exporting countries is positively correlated with export volume; green logistics in importing countries has an negative relationship with export volume.

Green logistics and economic development are inextricably linked to each other (Arvis et al., 2007; Marti et al., 2014; Bensassi et al., 2015; Adalkhil et al., 2018). The environmental issues generated by logistics drive governments to impose additional rules on the exchange of products. The selling commodities to foreign nations are certain to deal with regulatory issues (Ojala & elebi, 2015; Omar et al., 2016; das Chagas et al., 2018). The "non-green" logistics system limits the chances for products exported and customs cleared (Werikhe et al., 2016). Green logistics solutions alleviate social problems and have a favorable association with economic indicators and environmental sustainability (Khan & Qianli, 2017; Wang et al., 2018; Nassani et al., 2017). The increase in emissions leads to the increase in volume of commodities and logistical services exchanged (Zaman & Shamsuddin, 2017).

In Vietnam, there have not been many studies on green logistics. Most of them use qualitative methods and have not been in-depth in relation between green logistics and international trade. Five groups of factors affect logistics development in Vietnam, including

legal framework, and administrative procedures; human resources; infrastructure; logistics enterprises; technology, and commodity exchanged (Nga, 2021). Vietnam has its own potential to develop green logistics and become a regional logistics center, but there are several limitations such as small business size, shortage of capital, lack of high-quality human resources; weak retail supply services; poor infrastructure conditions; ... (Bac, 2015). Green logistics development is an inevitable trend; and modern information technology system has a significant contribution to logistics and the level of logistics greening (Anh, 2020).

Green logistics studies are numerous in general, but they all focus on examining the correlation between logistics and environmental sustainability, as well as logistics and per capita income or FDI. They are constrained by a group of physically proximate nations such as the South Asian Association of Regional Cooperation (SAARC) and the European Union (EU), notwithstanding international trade expansion, which provides an opportunity for research to inherit the scientific value of such efforts while also broadening the scope to include APEC nations.

2.2. Theoretical framework

2.2.1. Logistics and green logistics

“Logistics is understood as a network of services that support the physical movement of goods, trade across borders, and commerce within borders. It comprises an array of activities beyond transportation, including warehousing, brokerage, express delivery, terminal operations, and related data and information management.” (World Bank, 2018).

Logistics plays an important role in trade which reduces transportation costs and stimulates growth (Bugarčić et al., 2020). The combination of logistics and economic liberalization increase the trade volume (Hausman et al., 2013). Logistics has a positive effect on economies of scale, production and growth (D’Aleo, V., & Sergi, BS, 2017).

Green logistics is environmental-friendly, including greening of various processes in logistics such as transportation, warehousing, distribution, waste treatment and green recycling (Wu, H. J. & Dunn, S. C, 1995). It strictly adheres to green consumption and production standards, to a greater extent the national capacity index for environmental protection. The purpose of green logistics is to achieve a sustainable balance among economic, environmental and social benefits (Dekker et al., 2012).

Green logistics is an important and ideal policy choice to promote global sustainability by assessing the environmental impact of logistics on sustainability (Chunguang et al., 2008). Better green logistics efficiency reduces transaction costs and eliminates inefficiencies in traditional shipping and handling operations.

2.2.2. International trade and APEC

International trade is a trade of goods and services in which the exchange takes place between entities from foreign countries (Đurović et al., 2010). The four major areas of international trade are goods, services, investment, and intellectual property rights. It plays an important role in the development and the growth of the world economy. In international specialization and division of labor, countries can make efficient use of the resources derived

from international trade. International trade increases production capacity and stimulates consumption, technology transfer, and investment, which supports growth.

APEC is an economic cooperation forum between countries in the Asia-Pacific region to strengthen economic and political ties (Canada and the Asia-Pacific Economic Cooperation (APEC), 2021). Established in November 1989, APEC has 21 members, including Australia, Indonesia, Malaysia, South Korea, Thailand, Brunei Darussalam, United States, Japan, Singapore, New Zealand, Canada, Philippines, China, Peru, Hong Kong, Taiwan (ROC), Mexico, Chile, Papua New Guinea, Russia and Vietnam. According to the APEC in Chart 2021 report, APEC accounts for 38% of the global population (in 2020), 62% of global GDP, and 48% of total trade in goods and services (in 2020). The top six economies in the region include the United States, China, Japan, Canada, Russia, and South Korea.

3. Method

3.1. Research model and hypothesis

3.1.1. Gravity model

Tinbergen (1962) firstly introduced a gravity model with three variables affecting trade between any two economies as follows:

- 1) The export turnover of a country is determined by its economic size (its GDP)
- 2) The turnover sold to a specific country varies with the size of that country's market (GDP of the importing country)
- 3) The trade turnover is affected by transportation costs (corresponding to the geographical distance between the two countries)

The equation is written as follows:

$$EXP_{ei} = \alpha_0 GDP_e^{\alpha_1} GDP_i^{\alpha_2} D_{ei}^{\alpha_3} \quad (*)$$

in which EXP_{ei} is the export turnover from the exporting country to the importing country. GDP_e and GDP_i are the GDP of the exporting and importing country, respectively. D_{ei} is the geographical distance between 2 countries. α_0 is a constant and $\alpha_1 \alpha_2 \alpha_3$ are the parameters.

The linear form of the equation (*) is as follows:

$$\ln EXP_{ei} = \alpha_0 + \alpha_1 \ln GDP_e + \alpha_2 \ln GDP_i + \alpha_3 \ln D_{ei} + \varepsilon$$

with ε is the random error.

3.1.2. Proposed research model

Developed from the gravity model, two regression models evaluating the impact of LPI and green logistics on international trade, sequentially is:

$$\ln EXP = \beta_0 + \beta_1 \ln GDP_e + \beta_2 \ln GDP_i + \beta_3 POP_e + \beta_4 POP_i + \beta_5 D + \beta_6 \ln LPI_e + \beta_7 \ln LPI_i + \beta_8 \ln RQ_i + \beta_9 PS_i + \beta_{10} BOR + \beta_{11} LANG + \varepsilon \quad (1)$$

$$\ln EXP = \beta_0 + \beta_1 \ln GDP_e + \beta_2 \ln GDP_i + \beta_3 POP_e + \beta_4 POP_i + \beta_5 D + \beta_6 \ln ELPI_e + \beta_7 \ln ELPI_i + \beta_8 \ln RQ_i + \beta_9 PS_i + \beta_{10} BOR + \beta_{11} LANG + \varepsilon \quad (2)$$

Table 1. Data sources and expected side of variables

Variable		Expected side	Source
Export volume	LnEXP		UN Comtrade Database
Gross domestic product	lnGDP _e	+	The World Development Indicators (WB)
	lnGDP _i	+	
Population	lnPOP _e	+	
	lnPOP _i	+	
Regulatory quality	RQ _i	+	
Political stability	PS _i	+	
Logistics performance index	lnLPI _e	+	Logistics Performance Index (WB)
	lnLPI _i	+	
Enviromental logistics performance index	lnELPI _e	+	Synthesis of the research team
	lnELPI _i	+	
Distance	lnD	-	GeoDist database (Mayer and Zignago, 2011) (CEPII)
Common border	BOR	+	
Common language	LANG	+	

Note: e stands for exporting country; i stands for importing country

Source: Synthesis of the research team

Regardless of restricted data sources for developing a unified index of measuring the implementation for green logistics, some research employs LPI and environmental indicators such as Kim and Min (2011) who developed the green logistics index (GLPI) based on the ratio of LPI to EPI. Hardly could ratios reflect the efficiency of inputs (total logistical efficiency) and outputs (total environmental performance) (Lu et al., 2019).

Therefore, the research incorporates the ELPI environmental logistics performance index into "eco-efficiency" (Dahlström & Ekins, 2005) as a measure of logistics efficiency and environmental performance. This is an effective scale for evaluating logistics' sustainability and environmental friendliness (Khan et al., 2016). Eco-efficiency is stated mathematically (Verfaillie, 2000):

$$\text{Eco – efficiency} = \frac{\text{Product or service value}}{\text{Environmental influence}}$$

As a result, ELPI is represented in the equation:

$$\text{ELPI} = \frac{\text{Logistics performance}}{\text{Environmental impacts}}$$

LPI indicates logistics efficiency while the logistics CO2 emission index (LCC) shows the negative impact of logistics on the environment, so the ELPI equation has been revised as follows:

$$\text{ELPI} = \frac{\text{LPI}}{\text{LCC}}$$

Transportation accounts for 80-90% of logistics carbon emissions (McKinnon, 2010). For this reason, the study uses CO2 emissions from transportation with secondary data source from Our World in Data as representative of LCC. Because of economic development discrepancies across nations, it is inappropriate to describe logistics' environmental performance by using LCC alone (Lu et al., 2019). Hence, LCC per unit of GDP has been applied to investigate CO2 emission intensity in logistics:

$$\text{Logistics CO2 intensity (LCI)} = \frac{\text{LCC}}{\text{GDP}}$$

In consumption:

$$\text{ELPI} = \frac{\text{LPI}}{\text{LCI}}$$

3.1.3. Hypothesis

There is widespread consensus among researchers that LPI and its components have a positive and significant impact on trade flows across all regions (Marti et al., 2014; Uca et al., 2016; Bugarčić et al., 2020). The logistics performance index is positively correlated with export orientation (exports as a percentage of GDP) (Chakraborty & Mukherjee, 2016), while the quality of logistics infrastructure significantly affects regional export flows (Bensassi et al., 2015). Wang et al. (2018) conclude that the LPI of importing and exporting countries is positively correlated with international trade, in which, the impact of LPI on the international trade of exporting countries is bigger than that for importing countries. Hence, *this research hypothesize the following:*

H1: Logistics performance of exporting and importing countries has a positive impact on international trade.

Companies from different sectors must comply with environmental regulations to remain competitive (Zhang & Xu, 2016). Under pressure from environmental regulations, customers, other stakeholders and internal management, exporters must comply with green logistics practices such as: green purchasing, green transportation, green packaging, etc. achieve ISO14000 certification and reverse logistics, reduce their environmental impact and promote their economic, operational, environmental and social performance. By *practicing* green logistics, exporters better comply with the environmental regulations of the importing country to enhance their competitiveness (building a positive image domestically and internationally to have more export opportunities, increase market share, seek new markets) and lead to an increase in export volume (Lai et al., 2012; Ueasangkomsate P. & Suthiwartnarueput K, 2018). Hence, *this research hypothesize the following:*

H2: The green logistics level of the exporting country has a positive impact on the export volume.

Many studies have shown the relationship between trade and the environment. However, empirical literature on the relationship between the environmental regulation of importing countries and international trade is relatively scarce (De Santis, 2012). Van Beers, C., & Van Den Bergh (1997) based on data of The Organization for Economic Cooperation and Development (OECD), concluding that the stringent environmental regulations of

importing countries have a number of effects negative impact on other countries' exports. Similarly, Wang et al (2018) based their study on data of 112 developed and developing countries plus Hong Kong, indicate that there is a negative relationship between the level of green logistics of the importing country and the export volume of the exporting country. A possible reason for this result is that environmental regulations of the importing countries, such as the End of Life Vehicles (ELV) or Restriction of Hazardous Substances (RoHS), form trade barriers to green trade, which raises the technological threshold and results in reduced export volumes for foreign exporters. Hence, *this research hypothesize the following:*

H3: The level of green logistics of the importing country has a negative impact on export volume of the exporting country.

3.2. Data processing

The study uses green logistics and international trade data for 19 APEC countries from 2010 to 2018, excluding Hong Kong and Taiwan (ROC), since international trade data of these territories is not published. Research data is obtained from some reliable sources, mainly from the United Nations (UN), the World Bank (WB), and Centre d' Etudes Prospectives et d' Informations Internationales (CEPII).

Table 2. Descriptive data statistics

Variable	Obs	Mean	SD	Min	Max
EXP	2,699	1.51e+10	4.37e+10	1	4.80e+11
GDP_e	2,699	2.50e+12	1.14e+10	1.14e+10	2.06e+13
GDP_i	2,699	2.39e+12	4.43e+12	1.14e+10	2.06e+13
POP_e	2,699	1.60e+08	3.11e+08	414.914	1.40e+09
POP_i	2,699	1.54e+08	3.05e+08	414.914	1.40e+09
LPI_e	2,699	3.39	0.44	2.57	4.14
LPI_i	2,699	3.34	0.47	2.17	4.14
ELPI_e	2,699	44,954.92	39,110.34	11,044.67	217,330.40
ELPI_i	2,699	44,264.64	38,339.77	11,044.67	217,330.40
RQ_i	2,699	0.76	0.86	-0.67	2.26
PS_i	2,699	0.12	0.86	-1.65	1.61567
D	2,699	9190.27	5532.75	315.54	19711.86
Bor	2,699	0.06	0.24	0	1
Lang	2,699	0.16	0.37	0	1

Source: Stata statistics

In general, the model's variables fluctuate considerably when a big disparity witnessed between the maximum and minimum values, notably for export volume and GDP. Apart from LPI, all variables have standard deviations greater than the mean.

Table 3. Correlation matrix

	lnEXP	lnGDP_e	lnGDP_i	lnPOP_e	lnPOP_i	lnD	lnELPI_e	lnELPI_i	RQ_i	PS_i	Bor	Lang
lnEXP	1.0000											
lnGDP_e	0.4538	1.0000										
lnGDP_i	0.5380	-0.0492	1.0000									
lnPOP_e	0.3615	0.7530	-0.0343	1.0000								
lnPOP_i	0.4296	-0.0403	0.7607	-0.0513	1.0000							
lnD	-0.3862	0.0580	0.0517	-0.0160	-0.0182	1.0000						
lnELPI_e	0.2418	0.2220	-0.0070	-0.2630	0.0179	-0.0690	1.0000					
lnELPI_i	0.2207	-0.0063	0.2276	0.0199	-0.2401	-0.0611	-0.0469	1.0000				
RQ_i	0.0373	0.0338	-0.0052	-0.5742	0.0294	0.1125	0.6911	-0.0414	1.0000			
PS_i	0.0502	-0.0002	0.0431	0.0275	-0.5119	0.0317	-0.0384	0.6500	-0.0448	1.0000		
Bor	0.2198	0.0270	0.0236	0.0599	0.0484	-0.4334	-0.0637	-0.0555	-0.0569	-0.0349	1.0000	
Lang	0.0771	0.0057	-0.0511	-0.1404	-0.1527	-0.1050	0.2023	0.1727	0.2728	0.1479	0.1585	1.0000

Source: Stata statistics

Regarding the relationship between the independent variables, all coefficients have absolute values less than 0.8. The highest correlation coefficient is observed between lnGDP_i and lnPOP_i at 0.7607. The variance inflation factor (VIF) of most variables is less than 10 excluding the VIF coefficient of POP_e at 13.95. However, the mean VIF of the variables is 5.32 less than 10, which illustrates a low multicollinearity in research data.

4. Results

4.1. Results of estimating and hypothesis testing

To analyze panel data, some models such as Pooled OLS model, FEM or REM are taken into consideration. This research uses the Breusch-Pagan LM test to select the relevance between Pool OLS and REM. The Breusch-Pagan test results show $\text{prob} > \text{chibar}2$ less than 0.05, consequently, the REM model is more suitable than Pool OLS.

Then, the Hausman test is run to choose between the FEM and REM, based on the evaluation of the correlation between the error and the independent variable. Hausman test results, $\text{Prob} > \text{chi}2$ is less than 0.05, FEM model results are better than REM. After the Breusch-Pagan test and Hausman test, the results from the FEM fixed-effects model are selected.

Table 4. Technical inspections and model selection – Model 1

Variable	Pool OLS	FEM	REM	FGLS
lnGDP _e	0.2104***	0.7434***	0.6190***	0.4000***
lnGDP _i	0.4474***	0.4732***	0.6138***	0.4831***
lnPOP _e	0.6150***	-1.1263**	0.2927***	0.3981***
lnPOP _i	0.3707***	-0.0990	0.2913***	0.3267***
lnD	-1.1548***		-1.4073***	-1.1887***
lnLPI _e	5.8238***	0.2574	0.8049***	4.7400***
lnLPI _i	5.0417***	0.3569*	0.9936***	4.6905***
RQ _i	0.2513***	-0.1013	0.0505	0.0571***
PS _i	-0.0517	-0.0500	-0.0752	-0.0557***
Bor	0.3423***		-0.1003	0.3038***
Lang	0.2515***		0.7848***	0.2777***
Const	-22.7964***	9.1925	-12.7161***	-16.5628***
R-square	0.7930	0.0353	0.7253	
Obs	2,699	2,699	2,699	2,699
		P-value		
Breusch-Pagan LM test		0.000		
Hausman test		0.000		
Wald test		0.000		
Wooldridge		0.1964		

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Source: Stata statistics

After that, technical inspections detect the model's defects. Heteroskedasticity affects the bias of a linear model. However, due to a variety of economic factors, time series data can have heteroskedasticity. In addition, autocorrelation occurs if the random errors correlated with each other across time, which does not affect the bias and stability of the linear model. However, autocorrelation is related to the variance of the estimated coefficients; therefore, detecting heteroskedasticity and autocorrelation is important to implement corrections and ensure the statistical significance of the model.

The heteroskedasticity was detected when the Wald test is taken. With $\text{prob} > \chi^2$ less than 0.05, the model has heteroskedasticity. Wooldridge test detects autocorrelation in the model. With $\text{Prob} > F$ greater than 0.05, the model does not appear autocorrelation. After the Wald test and Wooldridge test, the model has heteroskedasticity and is overcome by the FGLS method. In essence, FGLS uses equivalent transformations to bring about a new model which the random error in the model has homoscedasticity, then uses the OLS method to estimate the new model.

In the FGLS estimation results for the Model 1, only the effect of the LPI on the export volume of the exporting country. The effects of the remaining variables are studied in Model 2.

The coefficients of two variables $\ln LPI_e$ and $\ln LPI_i$ are both positive, showing that the LPI of the two exporting and importing countries have a positive impact on international trade between these two, the conclusion is significant at 1% level. It is consistent with the study of Behar & Manner (2008), Marti et al (2014), Bensassi et al (2015), Chakraborty & Mukherjee (2016), Uca et al (2016), Wang et al. (2018). The LPI of the exporting country will impose greater impacts on the export volume. However, the difference in the coefficients of two LPI variables in the model is not significant. H1 is accepted.

In Model 2, the model selection and technical testing are taken similarly to Model 1. The results from two tests Breusch-Pagan LM and Hausman reveal that the FEM model is suitable. The results from two tests Wald and Wooldridge express that the model has heteroskedasticity defect, and the FGLS estimation method is used to surmount this defect.

The environmental logistics efficiency of an exporting country has a positive effect on that country's export volume, which is significant at the 1% level. Specifically, the coefficient $\ln ELPI_e$ is 0.6519, when the ELPI index of the exporting country increases by 1%, the export volume of that country's goods increases by 0.65%, other factors being held constant. This conclusion is relevant to previous studies (Khan & Qianli, 2017; Wang et al., 2018; Lu et al., 2019). The above conclusion comes from the fact that exporting countries have proactively changed to meet the green logistics regulations issued by the importing country, thereby helping to increase export output in both quantity and quality. H2 is accepted.

The coefficient $\ln ELPI_i$ is 0.4821 opposite the expected side affecting the export volume in Model 2. When the ELPI of the importing country increases by 1%, the export volume of goods of the exporting country increases by 0.48%, *ceteris paribus*. The rationale is strict environmental protection regulations enacted by developed countries in the early stages. In the short term, the lack of ability to meet environmental regulations among

enterprises in developing country leads to trade volume downturn. In the long term, if exporters adapted to environmental regulations and comprehensively apply green logistics standards, they would significantly benefit from improved environmental quality, enhance international competitiveness, and create new comparative advantage which can offset short-term losses in the end (Porter & Van der Linde, 1995). H3 is rejected.

Table 5. Technical inspections and model selection – Model 2

Variable	Pool OLS	FEM	REM	FGLS
lnGDP_e	0.1179**	0.7720***	0.4785***	0.2592***
lnGDP_i	0.6206***	0.3696***	0.5138***	0.6088***
lnPOP_e	0.8903***	-1.1976**	0.4154***	0.6955***
lnPOP_i	0.3796***	0.1198	0.4022***	0.3563***
lnD	-1.2801***		-1.3516***	-1.2912***
lnELPI_e	0.6544***	-0.0325	0.2921***	0.6519***
lnELPI_i	0.4882***	0.1592	0.2214**	0.4821***
RQ_i	0.8747***	-0.0850	0.0483	0.5866***
PS_i	0.2890***	-0.0410	-0.0400	0.2599***
Bor	0.2749**		-0.0060	0.1680***
Lang	0.1442*		0.8296***	0.1719***
Const	-22.7964***	8.0197	-14.0312***	-21.9962***
R-square	0.7603	0.0350	0.7038	
Obs	2,699	2,699	2,699	2,699
		P-value		
Breusch-Pagan LM test		0.000		
Hausman test		0.000		
Wald test		0.000		
Wooldridge		0.1927		

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Source: extracted from stata

The size of an exporting and importing country's economy both positively affects the volume of trade between the two countries, which is significant at 1% is relevant to the conclusion in the gravity model. The GDP coefficient of the importing country is higher than that of the exporting country, which means that the quantity of demand has more impact on the trade flow between the two countries.

In geographical terms, the negative coefficient of distance variable suggests that the distance between two countries poses a negative effect on trade. This conclusion is significant at 1%. Two countries with a common border positively affect the volume of trade

between them, which is significant at 1%. Demographic factors such as population and common language have a positive effect on international trade, which is significant at the 1% level. This conclusion is relevant to the study of Puertas et al (2014); Wang et al (2018).

The regulatory quality of the importing country has a positive effect on the export volume of the exporting country, which is significant at the 1% level. Consequently, a change in a government's ability to formulate and implement policy has a significant impact on a country's export. This conclusion is similar to Anderson & Marcouiller (2002) who argued that a strong institution with a complete legal system for commercial contracts enforcement, fair laws and economic policies adopted by the government makes a great contribution to commercial development.

Political stability has a positive effect on export volume, which is significant at 1%. Govindan et al (2014), said that political instability was an obstacle for exporting countries due to a lack of support from the host country. This result is contrary to the conclusion of Wang et al. (2018) who found a negative relationship between the level of political stability of the importing country and the probability of exporting.

Table 6. Result of hypothesis testing

	Hypothesis	Result
H1	Logistics performance of exporting and importing countries has a positive impact on international trade	Accepted
H2	The green logistics level of the exporting country has a positive impact on the export volume	Accepted
H3	The level of green logistics of the importing country has a negative impact on export volume of the exporting country	Rejected

Source: Synthesis of the research team

4.2. Green logistics impact on international trade between group countries

To further investigate the relationship between green logistics and trade flows of economies at disparate economic development levels, the research classified the countries in the sample into two groups: 9 high-income countries and 10 middle-income ones, based on the threshold GNI/capita (value of income per capita in current USD exchange rate) updated by the World Bank on July 1, 2018.

Table 7. Classified countries by GNI/capita

Group	GNI/capita	Countries
High-income countries (HIC)	≥ \$12.055	Australia, Brunei Darussalam, Canada, Chile, Japan, New Zealand, Singapore, South Korea, <i>United States</i>
Middle-income countries (MIC)	\$996 - \$12.055	China, Indonesia, Malaysia, Mexico, Papua New Guinea, Peru, Philippines, Russia, Thailand, Vietnam

Source: World Bank

The research estimated equation (2) with four samples: MIC-MIC (sample 1), MIC-HIC (sample 2), HIC-MIC (sample 3), HIC-HIC (sample 4) to find out whether there is a difference among the variables in the model.

Table 8. FGLS estimation results for four samples

Variable	MIC-MIC	MIC-HIC	HIC-MIC	HIC-HIC
	(sample 1)	(sample 2)	(sample 3)	(sample 4)
lnELPI_e	0,3006*** (4,12)	0,3479*** (4,36)	0,4215*** (6,08)	0,7452*** (17,49)
lnELPI_i	-0,2618*** (-4,99)	-0,0579 (-1,01)	0,0607 (0,76)	0,8526*** (23,47)

* $p < 0,1$, ** $p < 0,05$, *** $p < 0,01$

Source: Stata statistics

For exporting countries, the regression coefficient of ELPI in four samples is positive and statistically significant, green logistics in exporting country is positively correlated with export. The higher the green logistics efficiency of the exporting country, the greater the export probability and export volume. It is consistent with the estimated results for the entire sample of 19 countries. In particular, in sample 4, the coefficient lnELPI_e is 0.7452, recording a rather large influence of green logistics efficiency on export output between the two high-income countries.

For importing countries, the regression coefficients of ELPI in four samples are different, only statistically significant in sample 1 and sample 4. In sample 4, this coefficient has a positive value (consistent with the estimated results for the entire sample of 19 countries). However, in sample 1, this coefficient has a negative value meaning that the green logistics efficiency of the importing country has a negative impact on the export output of the exporting country, between the two middle-income countries. The reason may originate from increasingly strict requirements for environmental regulations set by importing countries, so middle-income countries have to spend much more money on waste treatment, construction investment costs and infrastructure improvement,... to comply with that. In general, the initial adoption of green practices requires heavy investment leading to huge fixed costs in the end-to-end supply chain system, and has a negative impact on the firm's financial performance in the short term (Khan et al., 2019). For middle-income countries, high compliance costs are challenging for exporters to catch up; therefore, green logistics becomes a trade barrier between two countries in the group of middle-income countries.

4. Discussion and Conclusion

The study evaluates the impact of green logistics on international trade through the augmented gravity model, the FGLS technique, and the ELPI index. The study guides countries with different levels of development to regulate green logistics and promotes enterprises to implement the green logistics process.

The estimated model results show that: logistics efficiency of exporting and importing countries is positively correlated with trade, green logistics of exporting countries is positively related to export volume, and green logistics of importing countries is positively related to export volume of the exporting country.

The comparison of the green logistics' impacts on trade between groups of countries with varying levels of economic development on GNI per capita demonstrates that green logistics in exporting countries is positively correlated with export volume across all groups of countries, particularly trade between two high-income countries. In contrast, the effectiveness of green logistics in the importing nation has a negative impact on the export production of the exporting country between the two middle-income countries.

The research proposes APEC governments policies to improve the efficiency of logistics activities, such as improving logistics infrastructure and ensuring system uniformity; strengthening communication to raise awareness of green logistics by programs or campaign; encouraging the use of modern information technology; encouraging enterprises to exchange, learn, and cooperate at home and abroad; strengthening education and training of appropriate human resources, developing appropriate training programs about green logistics; building a set of criteria for green logistics for countries to establish appropriate policies.

In addition, there is a room for governments' measures to protect the environment through green logistics. In the short term, it is needed for the government to build up a green logistics environment by encouraging and supporting enterprises to implement green logistics, increasing the use of green renewable fuels, establishing a market for green logistics and industry. In the medium term, it is necessary to issue specific standards and regulations on carbon emissions; create legal requirements for green logistics; create a domestic market for green fuel resources. In the long term, the consideration of imposing high import tax, environmental tax or penalties on businesses utilizing harmful materials should be taken into.

Enterprises should use means of transport with lower emissions such as clean energy, water transport or use green packaging that is recyclable, biodegradable, and creates green supply chain to maintain and promote domestic and global competitiveness. Enterprises should update information technology to manage system data effectively, improve logistics quality, and save time in the transportation and delivery duration. The community of traditional logistics enterprises need to convert to the new version of green logistics. Import-export enterprises ought to build a reverse logistics system to satisfy consumers' demand and promote sustainable development, improve competitiveness and scale up import and export turnover.

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RESEARCH ON THE SUCCESSFUL LEVEL OF THE STATE'S ROLE IN VIETNAM'S TOURISM DEVELOPMENT AFTER FORMING THE ASEAN ECONOMIC COMMUNITY (AEC)

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Abstract

At the scene of forming the ASEAN Economic Community (AEC), the State plays a vital role in developing Vietnam's tourism. The State has many mechanisms and policies to encourage and facilitate Vietnam's tourism to develop. However, large numbers of policies and laws on tourism are still lacking and inconsistent, not really clear, and not effective; some regulations are not suitable; Legal documents are promulgated slowly compared to requirements, with low effectiveness and efficiency. Through a survey sent to 112 tourism businesses in the area of Hanoi, Da Nang, Ho Chi Minh City, and 108 managers at all levels, this research determined; to evaluate the success factor of the state's role in tourism development in Vietnam after the AEC was formed. On that basis, the research contributes to theoretically clarifying the state's role in tourism development in Vietnam after the AEC was formed.

Keywords: *State's role, tourism development in Vietnam, AEC*

1. Introduction

Vietnam is a country with advantages in natural resources and cultural resources for tourism development and has a large market of domestic and international tourists. Moreover, Vietnam is rated a safe and friendly destination. In 2019, the World Tourism Organization (UNWTO) ranked Vietnam sixth in the top 10 countries with the fastest tourism growth in the world. However, reality also shows the results that Vietnam's tourism industry has achieved are still modest, and not commensurate with the potential and advantages of the country, the development of Vietnam's tourism still has difficulties, is inadequate, and lacks sustainability. It can be affirmed that Vietnam's tourism is facing a lot of hardships and challenges: low quality of human resources, weak infrastructure, and awareness of the challenges and opportunities of Vietnam's tourism in the face of international integration is still restricted. Vietnam's tourism will have to face fierce competition from tourism in Thailand, Malaysia, Singapore, and Indonesia. These challenges will be even more evident.

There are many reasons that limit the development of tourism in Vietnam in terms of integration, in which the state's role is one of the important reasons. With that approach, the research will evaluate the success factor of the state's role in tourism development in Vietnam after the formation of the AEC.

2. Literature Review

About tourism development

The first group approaches from the perspective of researching conditions and solutions to develop Vietnam's tourism into a spearhead economic sector, as researched by Vu Dinh Thuy (1996). The second group approaches the direction of researching the significance of tourism development for socio-economic development. Some researches such as Reid (2003), Boo (1991), Goh (2017),... Development of tourism in the context of international economic integration, this research direction is also approached by many scientists such as Nguyen Trung Khanh (2012), Nguyen Duy Mau (2012), Nguyen Hong Lam (2013)),... the research often stops at only one area of tourism development, or in localities in international economic integration.

About the ASEAN Economic Community (AEC)

After the AEC was formed, many issues related to AEC were researched in-depth, such as Nguyen Tien Hoang (2018), the research direction goes into service trade in the ASEAN Economic Community. Tran Van Hung and Le Thi Mai Huong (2017), in their research, focused on the opportunities and challenges of Vietnam when joining the AEC. The authors have analyzed 5 opportunities and challenges that Vietnam will face: (i) The economic development is quite different from other countries in the region; (ii) Vietnam's labor productivity is low. From there, the authors propose several macro solutions for the State, and policies for businesses and employees for Vietnam to successfully integrate into the AEC.

Researches on the state's role

A lot of researches confirm the state's role in the process of the international economic integration of Vietnam such as Nguyen Dinh An (2016), Hoang Thi Kim Oanh (2016), Tran Thi Thu Huong (2016), Tran Huy Ngoc (2016). The common point of these researches is the use of analytical and synthesis methods, logic - history; inductive and deductive, and sociological statistics to clarify the theory of the state's role in international economic integration.

Referring to the state's role in tourism economic development, there are plenty of interested researchers such as Elliott (2002), Marzuki (2010), Cheuk et al (2010), Bui Thi Hai Yen (2013), Hall (2000). Also referring to the state's role in the tourism industry, in his research Hall (2000) approached tourism planning with a method somewhat different from other researchers. Through fieldwork, by a series of international examples that reflect the internationally integrated nature of the tourism industry. Approaching from the perspective of the state's role in facilitating tourism development has also been researched by many scientists such as Ho Duc Phuc (2009), Khadaroo and Seetanah (2008),... Research direction on the state's role in tourism crisis management is also interested by scientists, including research by Pforr (2008), Ritchie (2004),... In the research Pforr (2008) has generalized new characteristics of tourism in a changing world.

3. Method

Approach method: When researching the success of the state's role, the author focuses on the functional approach and the institutional approach.

Research objective: Clarifying the success factor of the state's role in the development of tourism in Vietnam after the formation of the AEC

4. Results

4.1. Description of the research sample

The data was collected from 200 survey sent to 112 local tourism businesses in Hanoi, Da Nang, and Ho Chi Minh City. The respondents to the survey are all experienced, holding managerial and executive positions in enterprises. The list of tourism businesses provided by the Vietnam National Administration of Tourism are ensure accuracy and legitimacy. Businesses participating in the survey all have been licensed to do business since 2012, so make sure to have at least 5 years of operation in the tourism sector, in the context before and after the formation of the AEC to be able to provide the information needed for the purpose of the research. At the same time, the author will send survey questionnaires to 108 state managers at all levels and researchers of relevant ministries, branches, and localities.

The author uses a 5-point Likert scale to conduct the research, according to the rating scale increasing from 1 to 5 (from strongly disagree to agree, from very unimportant to most important when considering importance or influence)

Before going to accreditation the value of the scales by the EFA test, the author checks whether the data are fully qualified for analysis by the KMO test and Bartlett test. The results show that KMO = 0.788; Bartlett's test has Sig statistical significance. = 0.000 < 0.05 indicates that the observations are correlated with each other in the population at a 99% significance level. So the author's research model is appropriate. Test extracted variance of factors (%Cumulative), in the table of total variance extracted (Total Variance Explained), the standard accepts extracted variance > 50%. The analysis results show that the total variance extracted with the cumulative variance of the factors is 69,648% > 50% meets the criteria. Conclusion: 69,648% of the change in the factors is explained by the observed variables.

4.2. Exploratory Factor Analysis

Table 1. Exploratory Factor Analysis Rotated Component Matrix

Rotated Component Matrix ^a							
	Component						
	1	2	3	4	5	6	7
ACS8	,871						
ACS9	,830						
ACS4	,801						
ACS1	,796						
ACS7	,781						

ACS5	,696						
ACS2	,685						
ACS3	,629						
ACS6	,503						
AQL3		,807					
AQL6		,796					
AQL5		,764					
AQL2		,758					
AQL7		,748					
AQL4		,739					
AQL1		,721					
AHT4			,806				
AHT1			,772				
AHT2			,753				
AHT3			,723				
ACL3				,916			
ACL1				,902			
ACL2				,896			
APL1					,838		
APL2					,797		
APL3					,750		
ATT1						,898	
ATT2						,752	
ATC1							,776
ATC2							,732

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.^a

a. Rotation converged in 7 iterations.

Source: Analytical results from the author's research data

4.3. Research results

The results of EFA analysis for the independent variables of the above factor rotation matrix show that the factor loading coefficients of the observed variables all satisfy the conditions when factor analysis is greater than 0.55 and the number of criteria groups created when factor analysis is 7.

Criteria group 1: "Effective, consistent and preferential tourism development policy" includes 9 observed variables:

ACS1: Financial policy (investment from the state's budget, ...)

ACS2: Credit policy (bank loans, ...)

ACS3: Tax Policy

ACS4: Land Policy

ACS5: Tourism promotion and advertising policy

ACS6: Policy on exit, entry, customs

ACS7: Policy on training and developing tourism human resources

ACS8: Policy on the construction of tourism infrastructure and technical facilities

ACS9: Policy on the application of science and technology

The author sets the criterion group 1, denoted by FAC_ACS , with the equation:

$$FAC_ACS = 0,796 ACS1 + 0,685 ACS2 + 0,629 ACS3 + 0,801 ACS4 + 0,696 ACS5 + 0,503 ACS6 + 0,781 ACS7 + 0,871 ACS8 + 0,830 ACS9$$

With the coefficient of the scale ACS8: Policy on the construction of tourism infrastructure and technical facilities with a score of 0.871, this is the scale with the largest influence, the scale has the most influence. The lowest is ACS6: Policy on exit, entry, and customs with an influence score of 0.503.

Criteria group 2: "Tourism development management"

includes 7 observed variables:

AQL1: The coordination in organizing the implementation of tourism development strategies and planning by ministries, branches, and local authorities united; tight, and efficient

AQL2: Organizing the coordination and implementation of standards and regulations in tourism activities with high efficiency

AQL3: The local government organizations have close links with Tourism Associations and Businesses

AQL4: Local authorities regularly organize conferences, and seminars and share experiences on tourism development.

AQL5: Local authorities support information, develop tourism products, promote tourism

AQL6: Local authorities regularly propagate and raise people's awareness to ensure a friendly, healthy, and civilized tourism environment.

AQL7: Local authorities regularly review, evaluate, draw lessons and set directions in tourism activities. The author sets up the symbol of criterion group 2 as FAC_AQL with the equation:

$$FAC_AQL = 0.721 AQL1 + 0.758 AQL2 + 0.807 AQL3 + 0.739 AQL4 + 0.764 AQL5 + 0.796 AQL6 + 0.748 AQL7$$

The scale group of tourism development management and management, with the score coefficient of the AQL3 scale: The local government organizations have close links with Tourism Associations and Businesses 0.807, this is a scale with an image score of 0.807.

The most influential factor on the tourism development management scale factor, the group with the lowest influence is AQL1: The coordination in organizing the implementation of tourism development strategies and planning by ministries, branches, and local authorities is united; tight and efficient.

Criteria group 3: "International cooperation in tourism development"

includes 4 observed variables:

AHT1: Ministries, sectors, and local authorities actively and effectively participate in tourism development cooperation within the ASEAN framework.

AHT2: Numerous policies and forms of cooperation in developing tourism products

AHT3: Numerous policies to facilitate tourist attraction

AHT4: Numerous policies and forms of cooperation to attract tourism investment

The author sets the three criteria group, denoted by FAC_AHT, with the equation:

$$FAC_AHT = 0.772 AHT1 + 0.753 AHT2 + 0.723 AHT3 + 0.806 AHT4$$

With the coefficient of the AHT4 scale: Numerous policies and forms of cooperation to attract tourism investment, this is the scale with the largest influence, the scale has the lowest influence. is AHT3: Numerous policies to facilitate tourist attraction with an influence score of 0.723.

Criteria group 4: "Developing strategies and planning for tourism development"

includes 3 observed variables:

ACL1: Timely tourism strategy and planning; synchronized; specifically, practical, suitable with the context of Vietnam's tourism development

ACL2: Tourism strategy and planning fully assess the potential and ability of tourism development, high feasibility

ACL3: Tourism strategy and planning propose targets; solutions suitable for practice and each stage of development

The author sets the group of 4 criteria, denoted by FAC_ACL, with the equation:

$$FAC_ACL = 0.902 ACL1 + 0.896 ACL2 + 0.916 ACL3$$

With the coefficient of the scale of ACL3: Tourism strategy and planning propose targets; solutions suitable for practice and each stage of development with a score of 0.916, this is the scale with the largest influence, the scale with the lowest level of influence is ACL2: Tourism strategy and planning fully assess the potential and ability of tourism development, high feasibility

Criteria group 5: "Developing a legal system, mechanism, and policy for tourism development" includes 3 observed variables:

APL1: Documents and policies related to tourism management are synchronous, timely, effective, and efficient.

APL2: Developing and promulgating standards and regulations in tourism activities to meet real development requirements

APL3: Documents and policies on tourism are regularly checked; summarizing for experience

The author sets the criteria group of 5, denoted by FAC_APL, with the equation:

$$\text{FAC_APL} = 0.838 \text{ APL1} + 0.797 \text{ APL2} + 0.750 \text{ APL3}$$

The scale group of developing the legal system, mechanism, and policy for tourism development, with the score of the scale APL1: Documents and policies related to tourism management are synchronous, timely, effective, and efficient is 0.838, this is the scale with the highest score affecting the factor of the scale for building a legal system, mechanisms, and policies for tourism development. The group of factors with the lowest influence is APL3: Documents and policies on tourism are regularly checked; summarizing for experience

Criteria group 6: "Testing and inspecting for tourism development" includes 2 observed variables:

ATT1: The coordination between ministries, branches, and local authorities to check, review and supervise tourism activities is regular and effective.

ATT2: Local authorities receive and promptly handle tourists' complaints

The author sets a group of 6 criteria, denoted by FAC_ATT, with the equation:

$$\text{FAC_ATT} = 0.898 \text{ ATT1} + 0.752 \text{ ATT2}$$

In the group of testing and inspection scales for tourism development, the score coefficient of the ATT1 scale: The coordination between ministries, branches, and local authorities to check, review and supervise tourism activities is regular and effective is 0.898 higher than the ATT2 scale Local authorities receive and promptly handle tourists' complaints

Criteria group 7: "Building an organization of management apparatus" includes 2 observed variables:

ATC1: Building a smooth, unified, and stable state management apparatus for tourism from the central to local levels

ATC2: Building an organizational structure for the state management of tourism is corresponding to the task of managing and developing a spearhead economic sector.

The author sets the 7 criteria group, denoted by FAC_ATC, with the equation:

$$\text{FAC_ATC} = 0.776 \text{ ATC1} + 0.732 \text{ ATC2}$$

The coefficient of the scale ATC1: Building a smooth, unified, and stable state management apparatus for tourism from the central to local levels is 0.776, this is the scale that has the greatest influence on tourism standards. even building up the management apparatus organization after the formation of the AEC.

5. Discussion and Conclusion

5.1. Proposals to improve the state's role in tourism development in Vietnam after the formation of the AEC

Proposal on building appropriate and progressive institutions

Firstly, carry out a far-reaching administrative reform, focusing on reforming the public administration apparatus, streamlining the apparatus, and improving the quality and efficiency of the public administration apparatus

Secondly, continuing to increase the innovation process, and perfect the macroeconomic management mechanism of the economy, the State manages business activities with oriented economic tools and leverage tools for economic management, through tax policy, credit interest rate, exchange rate appreciation policy, and other macro tools... That is effective macro-management in the institutional market economy mechanism.

Proposing the development of tourism development strategy and planning

Firstly, properly assessing the role of investigation and survey work in the planning process can thus improve the planning quality and ensure feasibility.

In the condition of forming AEC, Vietnam's tourism must fulfill the commitments and goals in the ASEAN Tourism Agreement, the ASEAN Tourism Strategy 2016 - 2025. Therefore, in the coming time, it is necessary to continue to promote the construction planning, research, and adjustment; supplementing the Tourism Development Strategy accordingly, the contents needing adjustment focus on the following main orientations: Adjusting the implementation period and vision of the Strategy, Adjusting and supplementing development goals tourism, adjusting and supplementing development solutions in a number of fields.

Proposing to build a system of laws, mechanisms, and policies, creating conditions for tourism development

Firstly, the State needs to soon strengthen the contingent of law-making staff in the direction of professionalism, sufficient quantity, and quality in terms of expertise, and profession

Second, perfect the policy system to remove barriers and create all favorable conditions for tourism development in the context of the formation of the AEC. Promote public-private cooperation.

Proposing to increase initiative and creativity in participating in agreements, agreements, and commitments in international tourism cooperation.

Firstly, in the coming time, it is necessary to strengthen activities related to tourism cooperation in ASEAN, which are being implemented by the Departments under the direction of the Vietnam National Administration of Tourism.

Secondly, the Embassy actively campaigned to expand the market in combination with propaganda about the culture and tourism of the country and the people of Vietnam.

5.2. Conclusion

Tourism is complex, related to many industries, vulnerable, and unlike any other economic sector. This economic industry besides its advantages and achievements, also has various limitations; difficulties, and challenges. Especially when the AEC has been formed, these difficulties become even more obvious. These difficulties and challenges each tourism business, and tourism industry cannot solve by themselves. Therefore, it is urgent for Vietnam to study state's role in tourism development after the AEC is formed.

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CURRENCY, FINANCIAL STABILITY IN VIETNAM IN THE PROCESS OF INTERNATIONAL ECONOMY INTERGRATING

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Abstract

Currency, financial stability promoting socio-economic development in Vietnam with the participation of the State Bank of Vietnam operating as the Central Bank. In recent years, it can be affirmed that the State Bank of Vietnam has had certain successes in the currency and financial stability, contributing to the realization of the country's macroeconomic goals. However, there are still many potential issues in the implementation process. To clarify this issue, the article focuses on studying future problems for the State Bank of Vietnam, on that basis, proposes some necessary recommendations for the State Bank of Vietnam in the context that Vietnam is in the process of international economic integration.

Keywords: *currency stability, financial stability, international economic integration, State Bank of Vietnam.*

1. Introduction

Vietnam's economy is integrating more and more deeply into the world economy. Along with the development of the financial market, in the context of the volatile global economy, economic and currency transactions are becoming more and more complicated. The State Bank of Vietnam has gradually innovated in operating the money supply mechanism, currency regulation, financial system management, etc..., thereby promoting currency and financial stability, bringing certain successes in macroeconomic development. Pointing out issues to support the State Bank of Vietnam's operations in ensuring currency and financial stability for the operation of the economy in the context of international economic integration is necessary. Therefore, the challenges facing the State Bank of Vietnam will be presented in this article in order to draw the necessary recommendations.

2. Method

The article uses the method of synthesis, statistics, describes, analysis and comparison. Based on research data on currency financial stability published in articles, scientific journals or by reputable organizations in the field of finance – banking, some necessary recommendations for the State Bank of Vietnam in the context that Vietnam is in the process of international economic integration are proposed.

3. Theoretical basis

Based on the research of Thammarak Moenjok (2014) and Frederic S. Mishkin (2016), central banking has evolved considerably since its start about 400 years ago. Starting

with coin sorting and storing, and in certain cases war financing, central banks have taken on the functions of banknote issuers, banker to the government, banker to banks, protector of the financial system, bank supervisor, as well as conductor of monetary policy. Currently, there are commonalities as well as diversity in modern central banking. Commonalities include (1) *the focus on monetary stability*. Currency stability is the stability of the value of currency expressed through inflation. To support long-term economic growth, Central Banks carry out to provide a stable currency environment by maintaining low and stable inflation. Under such conditions, households and firms have more capacity to optimize investment and consumption. According to the Bank of England, currency stability is defined as "stable prices and confidence in the currency" as one of its core purposes. The US Federal Reserve Act has also set stable value for currency as a target for the US Federal Reserve. The European Central Bank and the Central Bank of Japan also consider stable value for currency as one of their goals; (2) *the focus on financial stability*. Financial stability refers to the state of the economy in which the financial system (including financial intermediaries, markets and financial infrastructure - special focus on financial intermediaries) is able to withstand shocks and risks caused by financial imbalances. Experiences from various financial crises around the world, suggest that in order to ensure long-term economic growth, Central Banks should have a direct role in maintaining financial stability and this role should apply regardless of whether the central bank has a banking supervisory function. Central banks can help maintain financial stability, either as a regulator helping to ensure that the system is resilient to the past, or acting as a lender of last resort helping to prevent complete collapse of the financial system. A well-functioning financial system ensures that capital is allocated efficiently, and is therefore vital to the long-term, sustainable growth of an economy. Therefore, Central banks are extremely important tool. Paiman Ramazan Ahmad (2016) argued that Central banks can be considered as the engine of the economy, where like the engine the power is controlled and regulated, any malfunction in the engine creates a risk and problem in the system. However, in the context of the global economy, in order to maintain currency and financial stability, the Central Bank always has to make appropriate adjustments in the face of many challenges such as globalization, development of financial activities, impact of industrial revolution 4.0, post-crisis issues.

4. Results

In recent years, the Government and the State Bank of Vietnam (SBV) have always paid special attention to currency and financial stability in macroeconomic management. In terms of currency stability and inflation control, the SBV has operated a proactive and flexible currency policy in close coordination with fiscal policy and other macroeconomic policies to control inflation, stabilize the macro-economy, contributing to supporting economic growth. In the period 2015-2021, our country's inflation is always at a single-digit level, always below 5%, reaching the target set by the National Assembly. Inflation is controlled thanks to the SBV's synchronous implementation of currency and credit solutions. In addition to keeping inflation under control, the interest rate level in recent years has also been maintained stable by the SBV in the context of increasing interest rates in the world. By the end of 2021, lending interest rates of credit institutions will be around 6%-9% per

year for short-term loans and 9%-11% per year for medium and long-term loans. In addition, in recent years, the way the State Bank's exchange rate is managed has also undergone many changes. The SBV has used market-based tools rather than administratively imposed tools. This shows the determination to pursue a flexible and market-oriented central exchange rate mechanism. This has impacted the Vietnamese exchange rate to remain relatively stable.

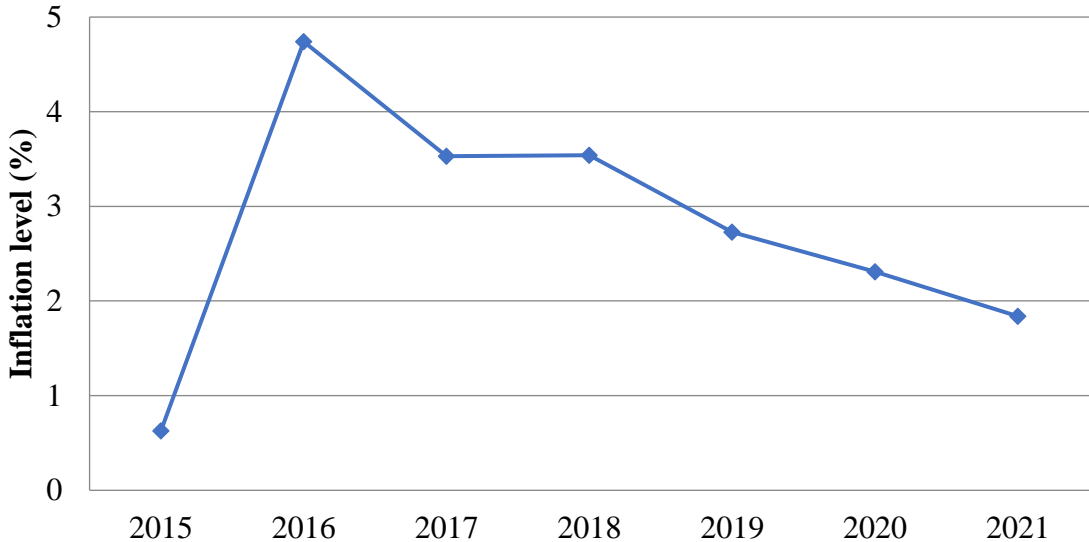


Figure 1. Vietnam's inflation in the period of 2015 - 2021

Source: General Statistics Office

The VND/USD exchange rate in the period 2015-2021 tends to increase slightly to stimulate import and export activities. If the exchange rate in 2015 is at 22,547 VND, by 2021, the exchange rate will increase about 23,200 VND, equivalent to an increase of 10.29% per 6 years, it shows a high level of stability of VND compared to some other currencies in the world. The SBV's exchange rate management method is said to be suitable for the money market, contributing to stabilizing the macro economy, reducing import pressure on inflation, and supporting businesses.

Regarding financial stability, according to Article 2, Point 20 of Decree No. 16/2017/ND-CP defining the functions, tasks, powers and organizational structure of the SBV, the SBV has the task of stabilizing the currency system - financials including summarizing, analyzing and forecasting currency and financial position; propose measures to prevent systemic risks in the currency and financial sector and develop policies and measures to respond to crises, ensuring the stability of the currency, banking and financial systems. In Circular 36/2014/TT-NHNN on regulations on prudential limits and ratios in operations of credit institutions, foreign bank branches must comply with: Minimum capital adequacy ratio (CAR) at 9% to ensure the ability to cover unforeseen losses with equity; Credit limit to limit the risk of credit concentration for one customer and related persons; The solvency ratio to ensure the bank has sufficient liquidity when risks arising from the imbalance in terms of term, capital source and use of capital; The maximum ratio of short-term funds used for medium and long-term loans to limit liquidity risks; Limit capital

contribution and share purchase to ensure that the bank avoids expanding its operations into non-banking sectors; Ratio of outstanding loans to total deposits to avoid the risks of lending exceeding the deposit level of commercial banks. It can be considered that these are the first tools that the SBV has implemented to stabilize the financial system. In addition, the SBV also enforces macroprudential supervision by limiting investment in government bonds as prescribed in Circular 09/2017/TT-NHNN and Circular 06/2016/TT-NHNN to replace and supplement a number of articles of Circular 36/2014/TT-NHNN. According to this Circular, credit institutions can buy and invest in Government bonds compared to the average short-term funds of the previous month, specifically these limits: 25% for the State Commercial Bank, 30% for joint stock commercial banks, joint venture banks and 100% foreign owned banks; 30% for foreign bank branches, 10% for non-bank credit institutions, 35% for cooperative banks. With the implementation of macroprudential supervision, banks will minimize systemic risks, avoid unexpected shocks from the economy, and maintain and increase stably.

However, in order to maintain currency and financial stability in Vietnam in the coming time, the SBV will have to pay attention to issues arising in the process of international economic integration, specifically:

Firstly, the impact of globalization. In economic terms, globalization involves the reduction and removal of cross-border barriers to trade, production, investment and international labor. The dramatic increase of globalization has brought about changes in terms of politics, technological progress and trust in market mechanisms. Even when a crisis occurs, the trend of globalization continues. Through globalization, countries have become so interdependent on international trade and investment that any attempt to break the dependence is too difficult and costly.

External factors will have an increasing influence on financial and currency stability in Vietnam as the intensification of globalization will lead to freer international capital flows. This could put pressure on the domestic exchange rate and inflation, as well as trigger an asset price bubble. If international capital flows are not controlled, a large inflow of capital into a small open economy can easily lead to a sharp appreciation of the exchange rate. When these capital flows work their way into the economy, it can lead to an increase in economic activity, an increase in speculative activities that cause asset price bubbles as well as inflation. Conversely, a sudden reversal in capital flows can lead to a sharp drop in the exchange rate, a slowdown in economic activity, and a sharp drop in inflation and domestic asset prices. Thus, increasing globalization and increasing international capital flows have the potential to destabilize both currency and financial stability, and freer cross-border flows of goods and services. Globalization also allows countries to reap the benefits of comparative advantage, greater reliance on imports and exports of goods and services, and global supply chains that affect domestic economies. For imports, changes in the international price level are likely to affect domestic inflation through the import prices of inputs. Especially for Vietnam, which imports energy, oil price fluctuations affect not only the domestic energy price but also the general price level because of cost inflation. For exports, changes in global demand also affect economic activity, domestic inflation, and the development of

international intermediaries. As financial liberalization took place around the world, financial intermediaries began to expand internationally. The growing importance of international banks and their implications for global financial stability has been partially recognized in the Basel Committee guidelines on common standards in the operation of the global banking system.

Secondly, the development of financial activities. The increasing degree of globalization, the continuous development of financial services will create changing requirements in the management activities of the SBV. The development of financial activities includes:

- The increase in market-based financial activities always poses challenges to the SBV in terms of financial stability due to the lack of supervision or strict management by the SBV.

- The increase of electronic payments: With the advancement of information and communication technology, new electronic payment methods have become more popular and to some extent, have replaced coins, banknotes and even checks, specifically. It can be card payment, payment by "payment gateway" such as Payoo, Vnpay, Vtcpay, etc... appearing on e-commerce sites, paying by "e-wallet" as a form of payment is quite convenient. , quite popular, not only used in large commercial centers, electronic trading floors but also can be used for any restaurant, cafe, etc... that have a contract with an e-wallet like Momo , Smartpay, Airpay, etc..., pay by "smartphone" to transfer money from one bank account to another by mobile phone. The development of new forms of payment also creates financial risks due to cyber security.

- The development of digital currency. Along with the strong development of the Industrial Revolution 4.0, digital money was born and is used as a means of payment increasingly popular in many countries around the world. Digital currency is an invisible currency that is stored in a distributed database on the internet, an electronic computer database, in a digital file, or in tokens of store value. Digital currency is not physical, meaning there is no physical equivalent in the real world, but it has almost all the characteristics of traditional money. Digital currency is used as a means of payment when buying goods, services, etc., it can even be transferred or exchanged for another currency. In particular, digital currency has no geographical and political limitations, can be used as a means of payment for all transactions taking place anytime, anywhere in the world. With the participation of Central Bank Digital Currency (CBDC), the birth and strong development of private digital currencies are also significant challenges in terms of currency management of SBV. Many are concerned that private digital currencies can interfere with the national currency system and national currency policy. Private digital currencies backed by tech giants could also quickly establish a dominant position in the global financial system. In the context that the global acceptance of private digital currencies continues to increase, there will also be great pressure on the SBV in the process of currency management as well as the implementation of international currency policy.

Thirdly, the impact of the industrial revolution 4.0. Some of the typical technologies of the industrial revolution 4.0 are new technologies including blockchain, automated robots, and Big Data. These specific technologies have been and will be the application trend of the global banking system, causing a strong impact on financial - banking - currency activities in countries around the world. Blockchain technology is making transactions faster, cheaper, safer and transparent. Blockchain technology acts as a ledger for all transactions, with the ability to share real-time transparent data information, save storage space and high security. Blockchain is a technology that stores and transmits information using blocks that are linked together and expand over time. Each block contains information about the time of creation and is linked to previous blocks, in the field of banking and finance, with blockchain, the participants only need to build a ledger network that shares all transaction information, when one member updates the information, all other members are allowed to view, read, etc... Before the wave of impact of the industrial revolution 4.0, Robotic process automation, a form of process automation by software- Robotic process automation (RPA) was invented and used to automate processes, support for the management, information and data searching, processing transactions and communicating with other digital systems is done quickly, efficiently and uniformly. The use of RPA can create a more transparent environment as data for each transaction is easily and quickly recorded, categorized and stored for search and review at any time as required. Big data is getting more attention and application both for Central Banks in many countries as well as for financial institutions. New big data sources can support services such as data sources from exchanges, credit card payment transactions, mobile banking data, records related to systems for cash settlement, securities settlement, clearing and derivatives as well as commercial and retail transactions. Big data can assist Central Banks in capturing real-time movements of the economy as well as providing early warning indicators to help identify turning points in the economic cycle. Thus, when applying advances in technology, it will change the structure, operation method and provide many modern services of the banking system, forming new financial products and services, such as M-POS, Internet banking, Mobile banking, chip card technology, e-wallets, etc.. The technology platform to exchange information and perform transactions between banks and customers takes place entirely on the internet environment, helping customers not have to go to the bank as well as the bank to not have to meet customers in person to complete the transaction. Each bank will become a direct bank, and the operations of the branches must change. As technology increasingly directly affects all activities and the need to use cash, paper money and coins will plummet, replaced by crypto currencies. Industry 4.0 will bring opportunities for the application of intelligent management technology, artificial intelligence, and automation in business processes, accelerating progress towards the future standard model, including non-cash payment activities. In addition, digital technology associated with the 4.0 industrial revolution has created an important infrastructure foundation in asset transformation, from using traditional bank staff to increasing the use of artificial intelligence. Digital identification becomes the basis of basic identification and is secured through biometric factors such as voice or fingerprint. This revolution not only helps to shift the distribution channels of traditional banking

products and services from physical branches, transaction counters, ATMs to digital channels, helping customers interact more and more effectively, It also has the ability to change business models, business processes, product and service structures towards digitization, helping banks to gradually become digital banks, providing new conveniences, experiences and services, bring real benefits to customers. The application of technology helps banks simplify processes, procedures and papers. Simultaneously with the use of distribution channels, access to users on digital platforms, points of interaction with customers via smartphone applications, social networks, etc., and the application of digital technologies in improving By improving the efficiency of internal system operations, optimizing business processes, banks can improve customer relationship management capabilities, helping banks gain a deeper understanding of customer habits and preferences to provide suitable products and services, to support the management of risk portfolios. Therefore, the SBV must make changes in the way it manages the operations of commercial banks in the future.

Fourthly, post-crisis problems. Post-crisis problems always leave heavy consequences for the economy, specifically:

- The financial debt burden, especially the financial debt burden in major economies, will have an impact on the global economic context and global financial markets.
- Impact of currency policy implementation of the SBV: The SBV will be under great pressure to determine when to withdraw from the quantitative easing strategy.
- Push the reform process to take place: The crisis exposed structural weaknesses in an increasingly complex global financial system.

The weaknesses reflected the fact that the regulations in force at the time did not keep up with the changes in the global financial environment. Whether the reforms proposed by the State Bank of Vietnam are approved or not will have a strong impact on economic activities, economic actors, and the behavior of banks and non-banking financial institutions as well as the governing bodies themselves. Therefore, regulatory reforms may also pose new challenges for the SBV.

4. Discussion and Conclusion

From the above analysis, in line with the SBV's management requirements for currency and financial stability in the future, the recommendations include:

Recommendation 1: Completing the legal framework to better strengthen the management of the SBV, specifically:

- Continue to research, issue, amend and supplement the legal framework to adapt to Industry 4.0, support digital transformation in the banking industry; strengthening the standard of connection and sharing of data (open API) between credit institutions and between credit institutions and other organizations;
- Continue to improve the management of banking and financial services on the technology platform; continue to build and complete the infrastructure of the interbank electronic payment system (IBPS), the automatic clearing house for low value retail transactions (ACH), the common data sharing system banking industry (CIC), etc..

- Expanding international cooperation in digital banking, Fintech; apply digital technology to enhance management, supervision and operational efficiency (SupTech).
- Continue to improve the contents of banking inspection and supervision activities; regulations related to currency management with entities in the economy.

Recommendation 2: Improve the real initiative and capacity of the SBV to manage currency policy. The SBV currently follows the model of a Central Bank dependent on the Government. In the management of currency policy, the National Assembly and the Government determine the objectives of the currency policy, and the SBV actively uses the tools of currency policy to achieve the set goals. Therefore, the SBV needs more sensitivity according to economic developments to effectively handle temporal issues of currency policy. This can only be done well when the planners must have basic macroeconomic knowledge of the market economy, be able to analyze and forecast macroeconomic indicators. In addition, the SBV should further strengthen the transparency of mechanisms and policies, provide clear information on policy directions for the market, and enhance self-responsibility for decision-making. And in order to ensure the maximum effectiveness of currency policy, the suitability of the objectives and solutions of macro policies such as fiscal policy is an important condition to enhance the ability to plan and implement the quality economic and financial policies.

Recommendation 3: Improve the quality of banking inspection and supervision activities on the basis of perfecting and synchronizing a system of mechanisms and policies sufficiently suitable to reality and international practices in order to improve the quality of inspection activities. Implement the model of banking inspection and supervision in the direction of ensuring the uniform direction of inspection and supervision activities of the inspection agency, avoid overlapping or omitted tasks, build a mechanism for decentralization, and clear division of responsibilities. Strengthening the coordination and information sharing between banking inspection and supervision agencies and law enforcement agencies and functional agencies in inspection and supervision of the financial system to ensure safety and stability of the financial system.

Enhance the effectiveness of the risk monitoring, assessment and early warning system with the "Macro prudential supervision" system that provides all the specific information about the credit institution in the system.

Recommendation 4: Ensuring the quality of statistical analysis and forecasting activities to enhance the value of statistical information, making "statistics really speak", helping the SBV use statistical information to understand know more fully and deeply about statistics for currency and financial management of the economy. The requirements for statistical analysis and forecasting are the honesty, objectivity and comprehensiveness of the data and data to be analyzed. This activity is maintained regularly through in-depth analysis, reporting and forecasting topics with close coordination between units in the SBV.

Recommendation 5: Improve the information system to support predictive analysis according to econometric models and quantitative analysis. A standardized database is a necessary condition in management. Therefore, with the current dispersion of data as well

as the untimeliness of data for analysis, it will be necessary for coordination between data management agencies such as the General Statistics Office, Ministry of Finance, Ministry of Planning and Investment, Securities Commission, SBV to have a complete national market information system – a national data warehouse with a complete, consistent and scalable database and application of modern monitoring technology ensure the connection of regulatory agencies in general and in particular for the SBV with this data warehouse.

Recommendation 6: Strengthen the strategy to develop high-quality human resources. The SBV needs to proactively build high-quality human resources to meet long-term and sustainable development goals, implement human resource management according to best practices, and maximize human resources to promote management activities. The SBV needs to be consistent on the policy framework, manage human resource risks well, enhance specialization in human resource work, and optimize the effective value of human resource management on the basis of improving staff capacity ministry, develop talents, maintain a professional working environment.

Recommendation 7: Promote information and communication on mechanisms and policies in the currency and banking sector to all social groups to orient the market and create a high consensus in society, contributing to bring mechanisms and policies to life quickly, have a more positive effect in operating the economy.

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THE RECENT EVOLUTION OF EXCHANGE RATE POLICIES IN VIETNAM

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Abstract

Economists and central bank policymakers agree that “getting the exchange rate right” is essential for economic stability and growth in developing countries. This paper attempts to examine the recent evolution of exchange rate policies in Vietnam. The paper applies several models to analyze impacts of the exchange rate to macroeconomic variables. We use the Threshold Vector Autoregression (TVAR) model to study the exchange rate pass-through to domestic prices in different inflation regimes. In addition, we apply structural macroeconomic approach, the Dynamic Stochastic General Equilibrium (DSGE) model, to examine the effects of introducing exchange rate flexibility to macroeconomic variables and to study how central bank’s approach to exchange rate stability can affect potential macroeconomic volatility. We argue that the models’ results corroborate the State Bank of Vietnam’s gradual and cautious move toward exchange rate flexibility.

Keywords: *exchange rate, macroeconomic stability, structural macroeconomic model.*

1. Introduction

Central banks employ monetary policy as a tool to influence and control monetary aggregates to achieve the goals of macroeconomic management such as full employment, price stability, sustainable growth and healthy balance of payments. In the pursuit of these goals, central banks set intermediate objectives for monetary policy such as interest rates, money supply, bank credit, exchange rate, which are regarded as channels through which monetary policy is transmitted to the macroeconomy.

Among these intermediate objectives, the exchange rate plays a dual role in the macroeconomic adjustment process. Firstly, the exchange rate plays a critical role in international macroeconomic theories and monetary practices because it lies at the core of the transmission mechanism of monetary policy, especially in the case of small and open economies. Changes in the exchange rate might induce changes in the relative prices of goods and services, affecting the level of consumption, production, and resources distribution in the economy. Thus, the exchange rate can influence important macroeconomic variables such as output gap and inflation. Secondly, the exchange rate can

serve as shock absorber, accommodating domestic and external shocks through changes in real exchange rate. Over the past several decades, during a period of rapid economic growth, driven by the forces of globalization and market liberalization, many countries have moved toward more flexible exchange rate regimes. Among other factors, greater exchange rate flexibility is expected to provide a greater degree of monetary policy autonomy and flexibility in responding to external shocks, including large and volatile capital inflows. In small open economies, given the central bank enjoys credibility, by allowing the exchange rate to adjust in response to exogenous shocks, impacts on output and inflation can be mitigated while the volatility of interest rate is attenuated. Edwards and Levy-Yeyati (2005) provides empirical evidence on the relative benefits of exchange rate flexibility regimes to cope with terms of trade shocks. Reflecting in part the rationale and belief, many countries have gradually, albeit with varying degree of difficulty and success, shifted away from fixed or “pegged” exchange rates and moved toward more flexible exchange rates.

On the other hand, in central banking practice, there is often a reluctance to adopt flexible exchange rate regimes despite theoretical benefits (fear of floating) (Calvo and Reinhart, 2000). The reluctance to accept greater flexibility stems from concerns about costs of exchange rate volatility which may trigger: (1) losing policy credibility; (2) inflationary pressures associated with high exchange rate pass-through effect; (3) adverse effects of over-appreciation of currency on external balances and economic growth; and (4) impact of exchange rate fluctuations and unhedged FX positions of domestic agents on financial stability. Beyond the fear of floating, many developing and emerging market economies have relied on the exchange rate as nominal anchor in monetary policy framework to curtail inflationary pressures.⁸⁵ These countries attach their exchange rate to that of a larger economy to borrow the monetary policy credibility or to compensate for underdeveloped monetary policy framework (when institutional capacity to implement flexible exchange rate regimes is inadequate) (Levy-Yeyati and Struzenegger 2010, and El Hamiani Khatat and Veyrune 2019). Furthermore, as pointed out in the Integrated Policy Framework (IPF) of the International Monetary Fund, the presence of market frictions and imperfections (export prices being sticky in dollars – Dominant Currency Paradigm (Gopinath, 2015); currency mismatches on borrowers’ balance sheet) reduce the automatic stabilizer role of the exchange rate. That is, external shocks are not easily absorbed by financial markets’ adjustment, amplifying their impact on the domestic economy. For example, the exchange rate depreciation following an adverse shock can increase burden of unhedged foreign currency debt liabilities, worsening balance sheet and increasing borrowing costs. This rationale serves as a basis for the IPF proposal for deploying alternative policy tools such as foreign exchange intervention, capital flow managements and macroeconomic prudential measures instead of solely relying on exchange rate flexibility (IMF, 2020).

These considerations illustrate both the importance of the exchange rate in monetary policy and the challenges of exchange rate policy formulation in practice. Economists and

⁸⁵ According to the AREAER, an exchange rate anchor is a monetary policy framework where “The monetary authority buys or sells foreign exchange to maintain the exchange rate at its predetermined level or within a range. The exchange rate thus serves as the nominal anchor or intermediate target of monetary policy.”

central bank policymakers agree that “getting the exchange rate right” is essential for economic stability and growth in developing countries. Therefore, this paper attempts to examine the recent evolution of exchange rate policies in Vietnam.

2. Literature Review

The monetary economic literature has been prolific on topics related to monetary policy frameworks, inflation targeting, and other related topics such as monetary policy transmission mechanism, prerequisite conditions for monetary regime changes, and forecasting and policy analysis systems (Svensson, 1997; Clinton, Laxton and others, 2015; Mason and others, 1997; Freedman and Otker-Robe, 2010; Laxton and others, 2009). There also exists a plethora of studies discussing and analyzing exchange rate regimes, monetary dynamics under different exchange rate regimes, transition from a fixed to a more flexible exchange rate arrangement (Otker-Robe and others, 2007; El Hamiani Khatat and Veyrume, 2019). Economists and central bankers have also explored the topic of FX interventions, importance of exchange rate stabilization in open economies (Ostry and others, 2012). With respect to literature on exchange rate regimes from country experience, Otker-Robe and David Vavra and others (2007) presents steps several countries (Chile, Israel, Poland, Brazil, Czech Republic, Uruguay) took in transitioning to greater exchange rate flexibility, elaborating on attributes of order and disorder transitions. Rojas-Suarez (2003) studies alternative exchange rate regimes from Latin America, identifying the necessary preconditions to make alternative regimes sustainable of proposing policy recommendations.

The literature also discussed the topic of exchange rate pass-through on domestic prices (Campa and Goldberg, 2006; Gagnon and Ihrig, 2004). Regarding relationship between exchange rate pass-through and inflation environment, Takhtamanova (2008) employs Phillips curve framework to analyze exchange rate pass-through and focusing on the link between the real exchange rate and inflation, suggesting that the reduction in responsiveness of CPI inflation to real exchange rate can be in part explained by the low-inflation environment of the 1990s. Taylor (2000) shows the degree of exchange rate pass-through depends positively on the level of inflation. Baqueiro et al (2003) studies the exchange rate pass-through in different countries in high and low inflation regimes. Aleem and Lahiani (2014) applies TVAR model to examine exchange rate pass-through in Mexico, showing that the response of inflation to exchange rate shocks will be statistically insignificant when annual rate of inflation is less than 9,48%.

The past three decades have witnessed the development of modern macroeconomics and a new class of models (DSGE) that are useful for macroeconomic policy analysis. With that development, there has been a significant evolution in the conduct of macroeconomic research in academia as well as in the formulation and communication of monetary policy at advanced central banks around the world. Obstfeld and Rogoff (1995) introduces the novel model framework open-economy macroeconomics to study a two-country open economy with exchange rate, expanding the scope of DSGE literature. Gali and Monacelli (2005) studies monetary policy and exchange rate volatility in a small open economy using DSGE model. Marcos (2006) built a two-country version of Gali and Monacelli (2005), allowing nominal rigidities of foreign country to affect domestic variables.

3. Method

The paper applies several models to analyze impacts of the exchange rate to macroeconomic variables. Firstly, we use a multivariate process, the Threshold Vector Autoregression (TVAR) model, to study the exchange rate pass-through to domestic prices in different inflation regimes. Secondly, we apply structural macroeconomic approach, the Dynamic Stochastic General Equilibrium (DSGE) model, to examine the effects of introducing exchange rate flexibility to macroeconomic variables and to study how central bank's approach to exchange rate stability can affect potential macroeconomic volatility. We argue that the models' results corroborate the State Bank of Vietnam's gradual and cautious move toward exchange rate flexibility.

4. Results

4.1. Recent evolution of exchange rate policies in Vietnam

4.1.1. Background on Vietnam's monetary and exchange rate regime

This section reviews background on the role of State Bank of Vietnam in formulating exchange rate policies and the operation of Vietnam's exchange rate regime. As elaborated upon the Law on the State Bank of Vietnam (2010), the tasks and powers of the State Bank of Vietnam include, but not limited to, the following:

(i) To conduct operations for the purpose of currency stability; to assure the safety for banking operations and the systems of credit institutions; to assure the safety and effectiveness of the national payment system; and to contribute to accelerating socio-economic development along the socialist orientation.

(ii) To perform the state management of foreign exchange, foreign exchange and gold trading activities.

(iii) To manage state foreign exchange reserves.

As such, the State Bank of Vietnam pursues multiple policy objectives. However, from a purely monetary perspective, it has a triple final objectives, inflation, economic growth and macroeconomic stability. To implement the national monetary policy, the Governor of the State Bank of Vietnam is empowered to “decide on the use of tools for the implementation of the national monetary policy, including re-financing, interest rates, exchange rates, compulsory reserves, open-market operations and other tools and measures as prescribed by the Government”. The State Bank of Vietnam administers the exchange rate regime in Vietnam and announces exchange rates. Specifically, according to Vietnamese law, exchange rate regime is a managed floating system; and exchange rates of Vietnam dong shall be determined on the basis of the foreign currency supply and demand in the market regulated by the State.⁸⁶

Vietnam is a small and highly open economy while financial and monetary markets are still at early stage of development. Financial dollarization, although has declined in

⁸⁶ According to the Annual Report on the Exchange Arrangements and Exchange Restrictions in 2019 of the IMF (AREAER), 34.4% of the IMF member countries conduct floating and free floating exchange rates. The majority or 65.6% apply either fixed or managed exchange rate regime.

recent years, still exists; the foreign exchange market stability is heavily influenced by market's sentiments and expectations. These include characterized factors of Vietnam's market such as the expectation over currency's depreciation (the nominal value depreciation of the dong) as well as over high inflation due to past events. Therefore, exchange rate fluctuations could significantly impact macroeconomic stability. As such, the State Bank's exchange rate policy aims at mitigating excessive fluctuations of the VND so as to achieve macroeconomic stability and price stability.

4.1.2. Introducing exchange rate flexibility

The State Bank of Vietnam has started to gradually and cautiously introduce exchange rate flexibility. Since January 2016, the State Bank of Vietnam announces a central parity exchange rate against the U.S. dollar on a daily basis. There is a trading band for the interbank exchange rate of +/- 3 percent around the official rate:

(i) Central exchange rate mechanism: According to Decision No. 2730/QĐ-NHNN dated 31/12/2015, the central exchange rate of USD/VND is determined on the basis of reference to the movements of weighted average exchange rate on the interbank foreign currency market; exchange rate movements of some currencies on international markets that having significant trade, borrowing, debt repayment, and investment relations with Vietnam; macro-economic balance; monetary and monetary policy objectives.

(ii) Exchange rate band: According to Decision No. 1636/QĐ-NHNN dated August 18, 2015, banks, non-bank institutions and foreign bank branches are allowed to conduct and provide foreign exchange trading services. The institutions could provide spot buying and selling rates between VND and other foreign currencies under the following principles: (1) For USD, not exceeding the band of $\pm 3\%$ against the central exchange rate announced by SBV applicable to that transaction date; (2) For other foreign currencies, determined by permitted credit institutions.

(iii) FX intervention: The interventions in the foreign currency market is a measure in managing the State Bank of Vietnam's exchange rate policy in order to achieve monetary policy objectives. The central bank intervenes foreign exchange market in both buying/selling directions.

(iv) Regarding the process of increasing exchange rate flexibility: The State Bank of Vietnam's exchange rate management has undergone transformation and reform in 2016. Compared to the past, the SBV has widened the exchange rate band from $\pm 1\%$ to $\pm 3\%$, also flexibility managed the central rate (midpoint) on a daily basis instead of making a few adjustments per year as in the period before 2016. In recent years, the monetary policy framework with the current exchange rate management mechanism has helped the State Bank to generally achieve the ultimate objectives of macroeconomic stability and inflation control.

Adjustments and changes in the management framework must be carefully and prudently considered. Any adjustments and changes must synchronize with the modernization of the monetary policy framework, policy managing capacities (system, procedure of management, forecast and analysis capabilities), the improvement of policy communication, and the gradual liberalization of international capital accounts (coupled with

the development of macro safeguards), along with the development of the capital markets and modernization of the banking system, thereby promoting the effectiveness of monetary policy transmission.

Strengthening the policy managing capacity and reforming the monetary policy framework is a continuous and long-term cumulative process. The success of this process depends on the existing monetary policy framework foundation, the specific macroeconomic conditions of each country and the international economic conditions. International experience shows that this process should be done systematically, carefully and may take a long time.

4.2. Exchange rate pass-through in different inflation regimes

4.2.1. TVAR model and data

Movements in the nominal exchange rate are transmitted directly to tradable goods prices and inflation. Indirectly, there is an effect on the economy and prices through changes in real exchange rate and impacts on the output gap. In addition, the exchange rate can get involved in expectation channel of transmission mechanism by affecting the process of expectations formation. In high inflation environment, if economic agents and firms perceive any increase in the cost of production to be more persistent, they adjust inflation expectations and choose a higher frequency of price adjustment for a given menu cost. As such, there exists an interaction between exchange rate channel and expectation channel in monetary policy transmission mechanism. Ceteris paribus, we expect that the exchange rate pass-through to inflation should be higher during high inflation environment than low inflation environment. As the exchange rate plays a dual role of monetary policy transmission channel and shock absorber, policymakers should consider both costs and benefits of exchange rate flexibility (i.e, benefits of allowing exchange rate flexibility to be a policy tool to buffer adverse external shocks and costs of cost-push shocks from exchange rate fluctuations). Aleem and Lahiani (2014) maintains that the credibility of monetary policy to stabilize inflation in the economy determines the degree of exchange rate pass-through. As such, it is important to consider nonlinearity of exchange rate pass-through in formulating exchange rate policies.

We use TVAR model to investigate the nonlinear responses of domestic prices to an exchange rate shock by using a threshold level of inflation which is determined endogenously. The general TVAR model is presented as follows:

$$Y_t = \begin{cases} (I \otimes X_t)\beta_1 + u_t, & Eu_t u_t' = \Sigma_1 \text{ if } T_{t-d} \leq \lambda \\ (I \otimes X_t)\beta_2 + u_t, & Eu_t u_t' = \Sigma_2 \text{ if } T_{t-d} > \lambda \end{cases}$$

In this paper, we estimate the following two regime TVAR model with a threshold level of inflation:

$$Y_t = \begin{cases} c_1 + \Pi_{11}Y_{t-1} + \Pi_{12}Y_{t-2} + \dots + \Pi_{1p}Y_{t-p} + u_{1t}, & Eu_t u_t' = \Sigma_1 \text{ if } Inf_{t-1} \leq \lambda \\ c_2 + \Pi_{21}Y_{t-1} + \Pi_{22}Y_{t-2} + \dots + \Pi_{2p}Y_{t-p} + u_{2t}, & Eu_t u_t' = \Sigma_2 \text{ if } Inf_{t-1} > \lambda \end{cases}$$

Where the vector of endogenous variables Y_t consists of the rate of inflation, the growth rate of GDP, the nominal effective exchange rate (NEER) and the interest rate.

$$Y_t = [Inflation \quad GDP \quad NEER \quad IR]'$$

Inf_{t-1} indicates inflation rate in the previous period and λ indicates the threshold level of inflation. Intuitively, the TVAR model consists of two separate VAR models corresponding to two inflation regime. Thus, it is possible to estimate each equation using OLS as in the case of standard VAR models. Following previous work, we use 4 as the lag for the TVAR model.

Table 1. Data for TVAR model

Variable	Data transformation	Source
GDP	$d1gdp = 400(\log(gdp)/\log(gdp(-1)))$	GSO
Inflation	$d1cpi = 400(\log(cpi)/\log(cpi(-1)))$	GSO
NEER	$d1neer = 400(\log(neer)/\log(neer(-1)))$	GSO; IFS; Reuters; Calculated by authors
Interest rate	ir	Reuters

Augmented ADF test shows that transformed variables are stationary:

Table 2. Augmented ADF test

Variable	Critical Value	Stationary
d1gdp	-7,40**	I(0)
d1cpi	-4,667**	I(0)
d1neer	-9,244**	I(0)
ir	-3,626*	I(0)

4.2.2. Identifying the threshold level of inflation

The threshold level of inflation in the TVAR model is determined maximum likelihood estimation following Balke (2000) methodology and algorithm. The algorithm loops over the usable values of the threshold (the rate of inflation) and computes the log likelihood of the model with a break at the value of threshold, identifying the threshold value to be 4,7% (annualized rate of inflation). The likelihood ratio is graphed against the threshold value as follows:

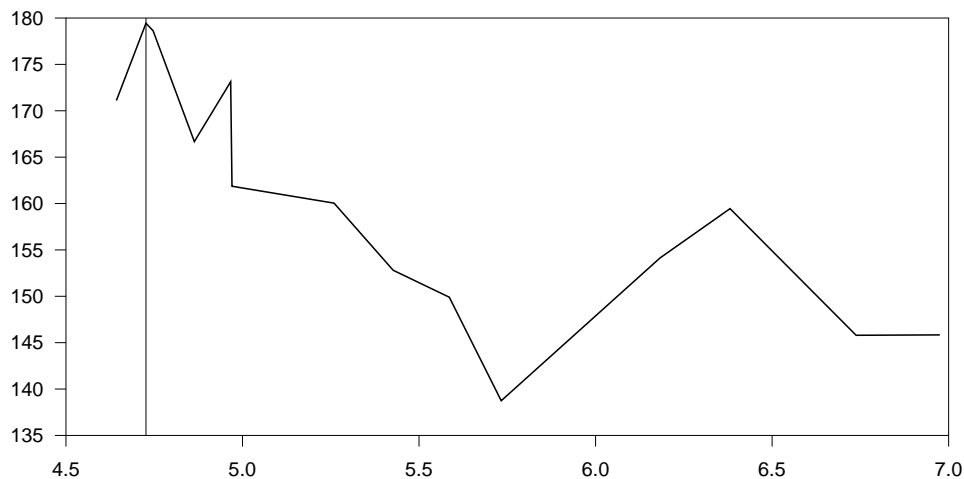


Figure 1. Likelihood ratio and threshold value

4.2.3. Empirical results

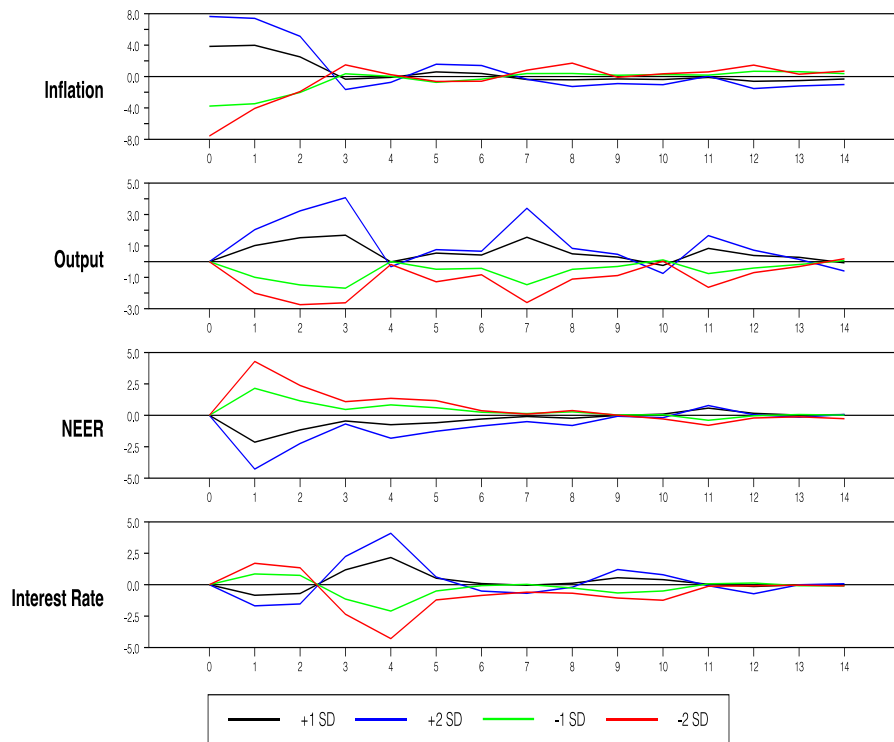
Table 3. Estimation results of the TVAR model

Dependent Variable INFLATION	Low Regime		High Regime	
Variable	Coeff	Std Error	Coeff	Std Error
1. INFLATION{1}	0.243667307	0.605332939	0.70991680	0.22419746
2. INFLATION{2}	-0.095971122	0.283348634	0.12243583	0.20806655
3. INFLATION{3}	-0.239939017	0.256114210	-0.25742568	0.17023209
4. INFLATION{4}	0.370027336	0.222361394	0.45526585	0.24574588
5. D1GDP{1}	0.137726700	0.468496156	107.149.927	0.63988561
6. D1GDP{2}	-0.263803649	0.618646733	0.59392068	0.42051249
7. D1GDP{3}	0.314381956	0.745515218	216.786.910	0.49779779
8. D1GDP{4}	1.017.124.468	0.683383545	-120.972.689	0.60408313
9. D1NEER{1}	-0.024419398	0.114734673	-0.48027621	0.12022777
10. D1NEER{2}	-0.126551156	0.143729468	-0.04620360	0.13506221
11. D1NEER{3}	0.039161757	0.122860239	-0.11336752	0.11252564
12. D1NEER{4}	-0.144503461	0.140967972	-0.11341416	(0.09045097)*
13. IR{1}	-0.035563978	0.794717643	-0.87681178	0.56392969
14. IR{2}	-0.966766812	1.023.762.337	-0.70371415	0.49423729
15. IR{3}	0.694715873	1.199.490.761	0.04411886	0.56526933
16. IR{4}	0.543377097	0.665894698	0.45409525	0.78071498
17. Constant	-5.394.976.198	9.493.427.167	-1.490.868.086	749.051.967

Note: * represents the 10% level of significance.

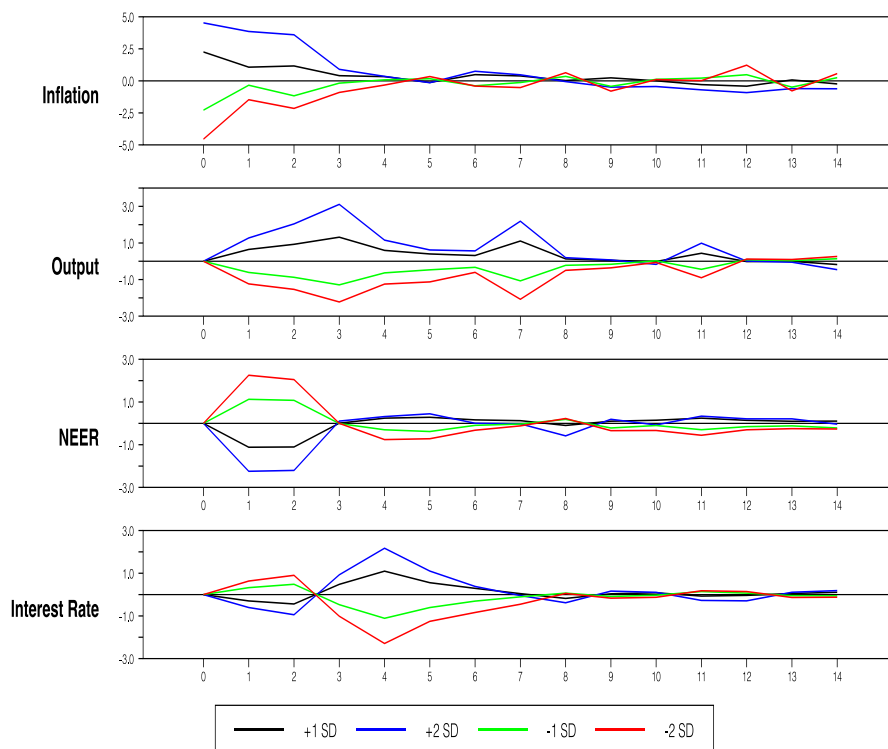
Table 3 reports the results of the TVAR model with the rate of inflation (4,7%) as a threshold variable. The exchange rate pass-through is negative and statistically significant only in the upper regime (the rate of inflation is greater than 4,7%) at the fourth lag. In the lower regime (the rate of inflation is smaller than 4,7%), the exchange rate pass-through is statistically insignificant.

Impulse responses conditional on inflation regimes of macroeconomic variables to exchange rate shock are obtained by bootstrap algorithm (generalized nonlinear impulse responses as defined by Koop, Pesaran and Potter (1996)). Figures 2 and 3 illustrate impulse response of the rate of inflation, GDP and interest rate to exogenous exchange rate shock in standard deviation unit (+1SD, +2SD, -1SD và -2SD). Impulse response results are in line with monetary economic theories: negative exchange rate shock (VND depreciates) creates inflationary pressure. Specifically, in the high (low) inflation regime, in response to one unit standard deviation negative exchange rate shock, inflation increases 2,5 (1) percentage point in the first quarter and gradually declines toward 0 in sixth (third) quarter.



Response of Inflation to Shocks, Conditional on High Inflation Regime

Figure 2. Impulse responses of inflation in the high inflation regime



Response of Inflation to Shocks, Conditional on Low Inflation Regime

Figure 3. Impulse responses of inflation in the low inflation regime

Empirical results from TVAR model corroborate theoretical hypothesis that the exchange rate pass-through to inflation should be higher during high inflation environment than low inflation environment. The clear policy implication is that the authority should implement the shift toward more flexible exchange rate in the low inflation regime and avoid it in the high inflation regime. Hence, we argue that the State Bank of Vietnam’s gradual move toward more flexible exchange rate since 2016 is well timed and auspicious as it coincides with a regime switch of inflation (as shown in Figure 4).

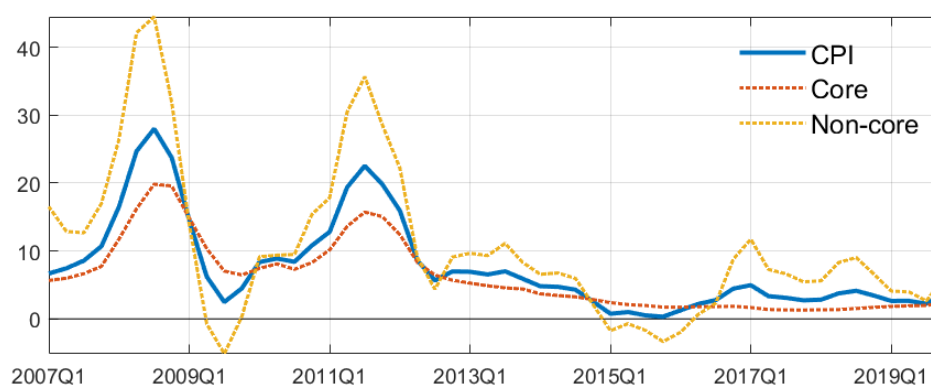


Figure 4. Inflation development (% yoy)

4.3. Exchange rate in monetary policy framework from structural models

Lucas “critique” (1976) states that traditional Keynesian macroeconomic models – relying on historical data and ad hoc theorizing about the relations between macroeconomic aggregates – would lead to incorrect answers about policy questions as their parameters are time-invariant conditionally upon policy or regime changes. In response to the critique, the efforts of many researchers to understand the relationship among the business cycle, inflation, and the monetary policy have led to the development of the New Keynesian DSGE framework which is a synthesis between new classical macroeconomics and New Keynesian modeling approach (Goodfriend and King, 1997).

As it would be challenging and inconsistent to investigate impacts of alternative exchange rate regimes and monetary policy approaches to the economy using macroeconomic models and historical data (Lucas critique), the paper applies structural models in the New Keynesian framework.

4.3.1. Semi-structural model

The International Monetary Fund has also proposed the Forecasting and Policy Analysis System (FPAS) which consists of methodologies developed in the modern dynamic macroeconomic literature. Berge, Karam, and Laxton (2006a, b) developed a semi-structural DSGE model-based approach to monetary policy analysis, which has been adopted by many developing countries’ central banks. For instance, based on such a framework, Anand et al. (2011) proposed a quarterly projection model for India; Dizioli and Schmittmann (2015) developed a macro-model approach to monetary policy analysis and forecasting for Vietnam. FPAS models have been completed and applied in Australia, Brazil, Canada, Singapore, and Thailand and under construction for many countries.

Following Berge, Karam, and Laxton (2006 a,b), a standardized semi-structural FPAS model consists of four equations: (1) an aggregate demand (IS curve) equation that relates the output gap to expected and past real activity, real interest rate, real exchange rate; (2) Phillips curve equation that relates inflation to expected and past inflation, the output gap and the exchange rate; (3) an uncovered interest parity condition for the exchange rate with certain degree of backward-looking expectations; (4) central bank's policy rule in setting the interest rate as a function of the output gap, expected inflation and other objectives. The model explains movements of deviation of each macroeconomic variables from equilibrium (i.e., in gap terms).

(a) Output gap equation

$$\hat{y}_t = \beta_1 \cdot \hat{y}_{t-1} - \beta_2 \cdot (\beta_4 \cdot \hat{r}_t + (1 - \beta_4) \cdot \hat{z}_t) + \beta_3 \hat{y}_t^* + \epsilon_t^{\hat{y}}$$

(b) Phillips curve equation

$$\pi_t = \alpha_1 \cdot \pi_{t+1} + (1 - \alpha_1) \cdot \pi_{t-1} + \alpha_2 \cdot (\alpha_3 \hat{y}_{t-1} - (1 - \alpha_3) \hat{z}_{t-1}) + \epsilon_t^{\pi}$$

(c) UIP condition

$$s_t = \lambda_1 \cdot E_t s_{t+1} + (1 - \lambda_1) \cdot (s_{t-1} + \frac{\Delta \bar{z}_t + \pi_t^4 - \pi^*}{2}) + (i_t^* - i_t + prem_t)/4 + \epsilon_t^s$$

(d) Policy rule

$$i_t = \gamma_1 i_{t-1} + (1 - \gamma_1) [i_t^{neutral} + \gamma_2 (E_t \pi_{t+1}^4 - \pi_{t+1}^{tar}) + \gamma_3 \hat{y}_t + \gamma_4 (\Delta s_t - \Delta s_t^p)] + \epsilon_t^i$$

Where \hat{y}_t is the output gap; \hat{r}_t is the real interest rate gap; \hat{z}_t is the real exchange rate gap; \hat{y}_t^* is the foreign output gap; π_t is the rate of inflation; s_t is nominal exchange rate; and i_t is policy interest rate.

If another objective of a central bank is to smooth exchange rate movements, monetary policy can aim to influence exchange rate (IMF, 2018). Following previous work regarding exchange rate policy in FPAS literature, we assume the central bank has objective (policy) for exchange rate movement represented as follows:

$$\Delta s_t^p = p_1 \Delta s_{t-1}^p + (1 - p_1) [\Delta \bar{z}_t + \pi_t^{tar} - \pi^* - p_2 (E_t \pi_{t+1} - \pi_{t+1}^{tar}) - p_3 \hat{z}_t] + \epsilon_t^{\Delta s^p}$$

Where Δs_t^p is objective of exchange rate movement (policy), consisting of exchange rate smoothing (Δs_{t-1}^p) and others such as long run equilibrium real exchange rate ($\Delta \bar{z}_t + \pi_t^{tar} - \pi^*$), inflation target and real exchange rate gap. As such, the exchange rate equation can be restructured as weighted function of UIP condition and exchange rate policy objective as follows:

$$s_t = \lambda_1 \cdot \left(s_{t-1} + \frac{\Delta s_{t-1}^p}{4} \right) + (1 - \lambda_1) [\lambda_2 \cdot E_t s_{t+1} + (1 - \lambda_2) \cdot (s_{t-1} + \frac{\Delta \bar{z}_t + \pi_t^4 - \pi^*}{2}) + (i_t^* - i_t + prem_t)/4 + \epsilon_t^s]$$

It is worth noting that parameter λ_1 represents the importance of exchange rate policy management (or its effectiveness). If $\lambda_1 = 0$, the exchange rate equation represents uncovered interest parity condition for the exchange rate with certain degree of backward-

looking expectations. If $\lambda_1 = 1$, the exchange rate equation represents tightly managed (or fixed) exchange rate regime.

Figure 5 compares impulse responses of macroeconomic variables to a foreign demand shock in a managed exchange rate regime (as modeled above) (blue impulse responses) and in a floating exchange rate regime ($\lambda_1 = 0$) (orange impulse responses). Allowing the nominal exchange rate to adjust flexibly as a tool to buffer adverse foreign demand shock leads to lower volatility in the rate of inflation and the output gap. This result supports the case that the exchange rate can serve as shock absorber, accommodating domestic and external shocks. Hence, we argue that the State Bank of Vietnam’s gradual move toward more flexible exchange rate since 2016 is in line with its overarching objectives of prices and macroeconomic stability.

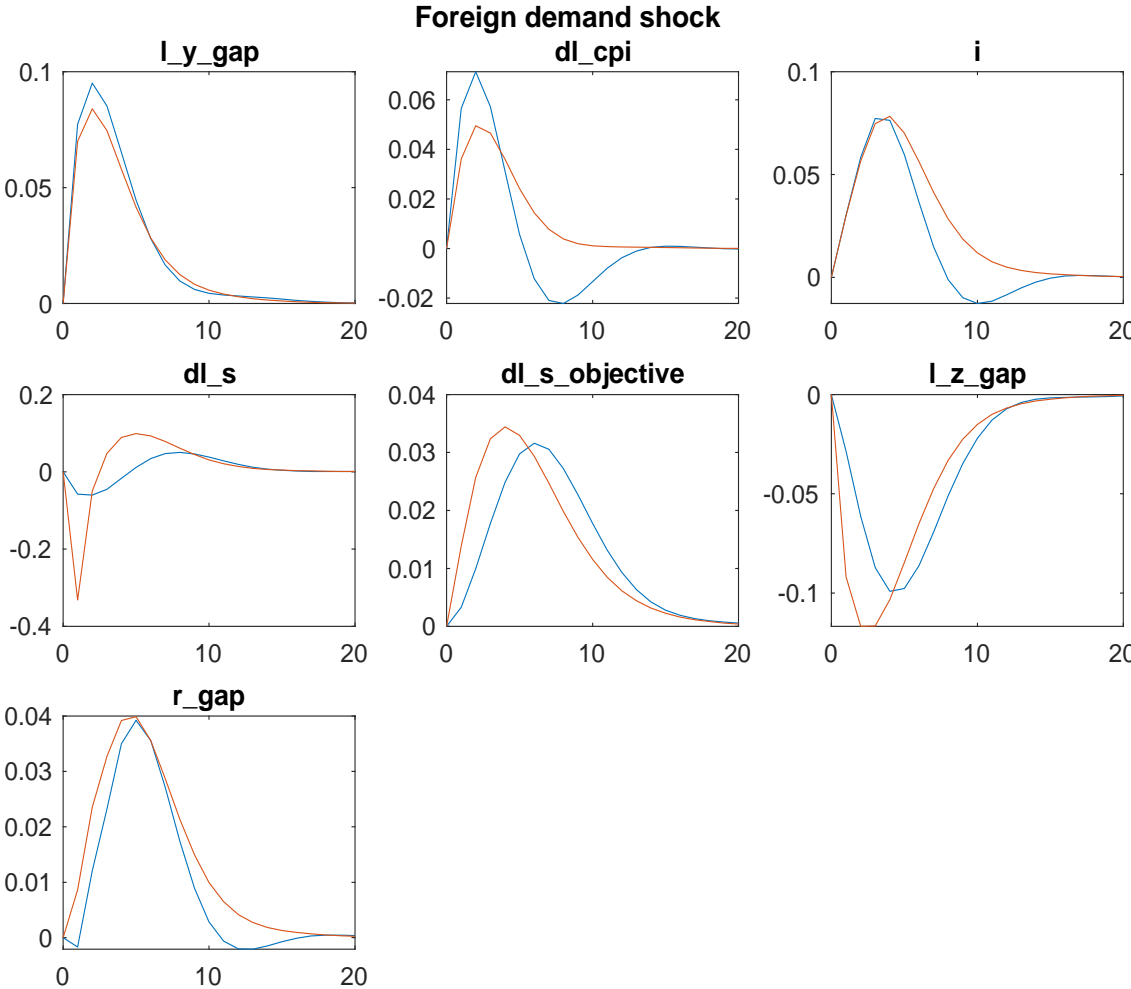


Figure 5. Impulse responses in different exchange rate regimes

4.3.2. Policy function in DSGE model and theoretical economic volatility

Further, we estimate a New Keynesian open economy DSGE model and apply a counterfactual exercise to central bank’s policy function to assess importance of policy objectives with respect to macroeconomic volatility. Monetary policy function in the DSGE model is presented as follows:

$$i_t = (1 - \rho)(\alpha_\pi \pi + \alpha_y y + \alpha_s s) + \rho i_{t-1}$$

Where α_π , α_y , and α_s represent policy weighted in corresponding monetary objectives such as inflation, output and exchange rate; ρ is interest rate smoothing parameter.

Table 4 reports theoretical variance of imacroeconomic variables (inflation, output, nominal exchange rate) in different sets of monetary policy function. Without the exchange rate stabilization objective ($\alpha_s = 0$) – that is, the central bank doesn't adjust the nominal interest rate to influence exchange rate with a view to smooth movements of the exchange rate, macroeconomic variables' variances are significantly larger compared to the baseline scenario (estimated model), implying higher economic volatility (scenarios (1) and (2)). Even when the central bank focus more on inflation objective (higher weight on α_π), the exchange rate stabilization objective plays critical role in reducing macroeconomic volatility (scenarios (3) and (4)).

Table 4. Theoretical economic volatility in different policy scenarios

	(1) $\alpha_\pi = 1,2425$ $\alpha_y = 0.4639$ $\alpha_s = 0.5407$	(2) $\alpha_\pi = 1,2425$ $\alpha_y = 0.4639$ $\alpha_s = 0$	(3) $\alpha_\pi = 2,5$ $\alpha_y = 0.4639$ $\alpha_s = 0$	(4) $\alpha_\pi = 2,5$ $\alpha_y = 0.4639$ $\alpha_s = 0.5407$
Variance	Estimated model	Without exchange rate stabilization objective	Without exchange rate stabilization objective; more weight on prices stability objective	With exchange rate stabilization objective; more weight on prices stability objective
π	21.661	27.941	17.554	16.376
y	46.636	128.440	62.119	42.816
s	26.352	61.426	83.956	38.158
y (<i>observed</i>)	0.6036	0.6870	0.6551	0.5957
π (<i>observed</i>)	21.661	27.941	17.554	16.376
s (<i>observed</i>)	26.352	61.426	83.956	38.158

These results correspond with preceding evidence by the IMF's application of DSGE model with respect to exchange rate stabilization using FX intervention. According to the IMF's model, without FX interventions, Vietnam would have experienced significantly larger volatility (the red lines in Figure 6) (IMF, 2019).

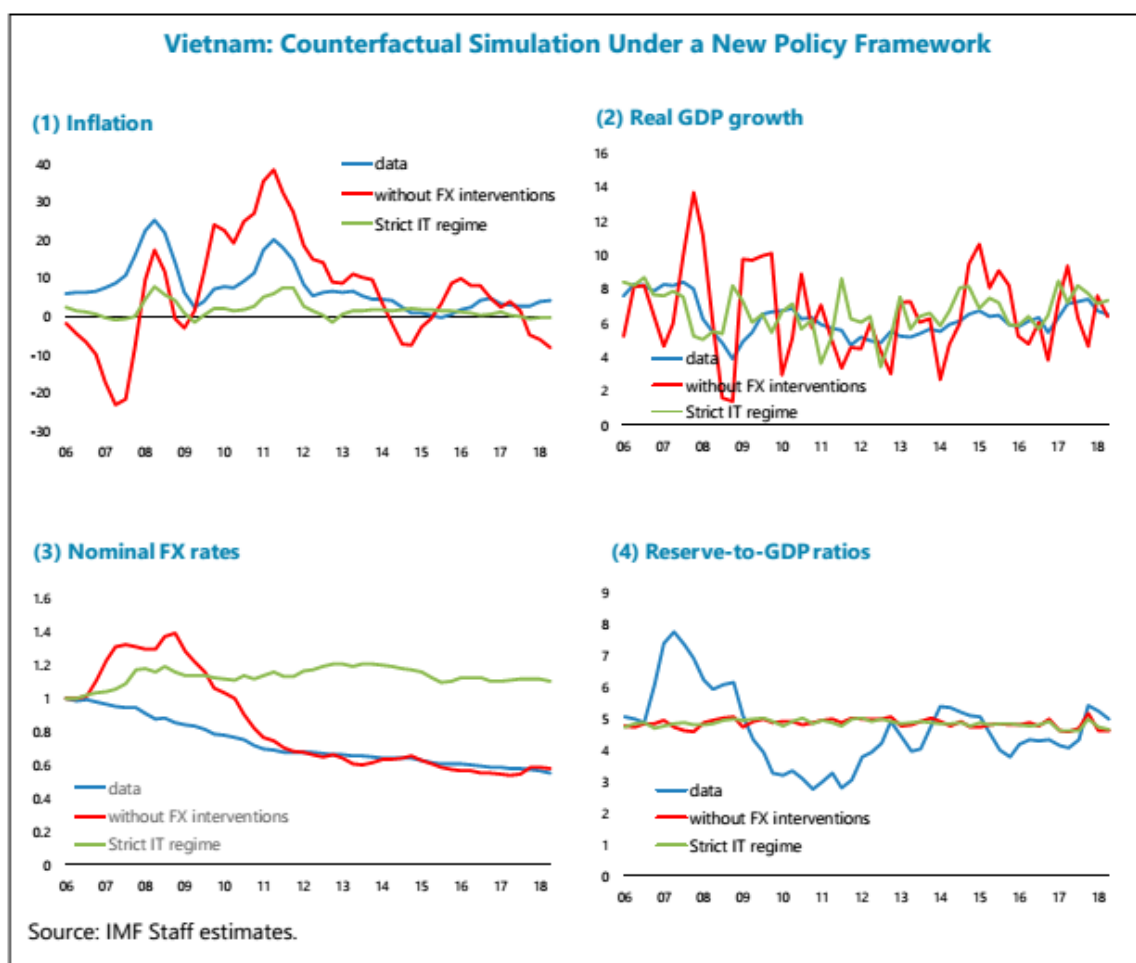


Figure 6. Vietnam counterfactual simulation under a new policy framework

As such, these results show the importance of exchange rate stabilization in monetary policy framework, reinforcing the role of exchange rate stabilization policies in Vietnam and supporting the gradual and cautious move toward more exchange rate flexibility of the State Bank of Vietnam.

5. Conclusion

The exchange rate plays a dual role in the macroeconomic adjustment process. Firstly, the exchange rate is at the core of the transmission mechanism of monetary policy. Secondly, the exchange rate can serve as shock absorber, accommodating domestic and external shocks. Greater exchange rate flexibility is expected to provide a greater degree of monetary policy autonomy and flexibility in responding to external shocks, including large and volatile capital inflows in small open economies. On the other hand, in central banking practice, there is often a caution to adopt flexible exchange rate regimes with concerns about costs of exchange rate volatility and with the critical role of exchange rate stabilization in monetary policy frameworks. Using models' results, the paper argues that the State Bank of Vietnam's gradual and cautious move toward more flexible exchange rate since 2016 is well timed and auspicious as it coincides with a regime switch of inflation. There exists evidence of both benefits of more flexible exchange rate and critical roles of exchange rate to

macroeconomic stabilization. As such, the road to flexibility should be gradual and supported by institutional, policy and operational measures. As pointed out in the Integrated Policy Framework of the International Monetary Fund, the presence of market frictions and imperfections reduce the automatic stabilizer role of the exchange rate. That is, external shocks are not easily absorbed by financial markets' adjustment, amplifying their impact on the domestic economy. Thus, in response to adverse external shocks, central banks should deploy alternative policy tools such as foreign exchange intervention, capital flow managements and macroeconomic prudential measures instead of solely relying on exchange rate flexibility.

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PART 2:
BUSINESS ADMINISTRATION

EFFECTS OF GREEN MARKETING STRATEGY ON GREEN FOOD PURCHASE INTENTIONS: CASE STUDY OF WINMART SUPERMARKETS

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Abstract

This study aims to analyze the impact of green marketing strategy on green food purchase intention as well as evaluate the current green marketing strategy at Winmart supermarket chains (previously known as Vinmart). The survey was conducted on 260 consumers aged 18 and over, with a variety of occupations and income levels. This study is one of the first quantitative studies to examine the impact of green marketing mix on Vietnamese consumers' intention to buy green food. The results show that all of 4Ps in the green marketing mix have positive impact on green food's purchase intention. The green product and green place variables have been shown to have positive influences on attitudes towards green food. Meanwhile, except for green place, the environmental knowledge variable has a moderating effect on the relationship between other elements of green marketing mix and green food purchase intention. This study provides useful information for WinMart supermarkets and other businesses in the industry of green food in Vietnam. Additionally, the study also proposes solutions for the government to support these businesses as well as stimulate consumer demand for green food.

Keywords: *Attitude Towards Green Food, Environmental Knowledge, Green Food, Green Marketing*

1. Introduction

Vietnam has been a potential market for green and organic food for some recent years. According to a report from Nielsen in 2019, health is the top concern of Vietnamese people, confirmed by 43% of people surveyed, while this number is 40% in 2020. In the context of the Covid-19 pandemic, consumers have gradually changed their shopping behaviors with increasing attention to "green" consumption channels and they have risingly prioritized health and environmental benefits. Green consumption is a goal in the Green Growth Strategy for the period 2011-2020 and a vision to 2050 of Vietnam, showing the government's interest in this new consumption trend.

In Vietnam, VinMart (renamed to WinMart since April 2021) is a big supermarket chain providing a variety of products, in which food is one important item of the company. In November 2017, VinMart supermarket chain and VinMart+ retail stores were in the top 2 favorite retailers voted by consumers. In recent years WinMart has focused on building a green marketing strategy to catch up with the current trend. Perceiving its ideal position and condition in the market, we decided to choose Winmart supermarket to be analyzed in this study.

For the purpose of studying the impact of green marketing strategy on green food purchase intention, we chose to investigate customers at Winmart supermarket chain. The study will clarify specifically the role of four elements in green marketing mix strategies affecting green food purchase intention at Winmart supermarket chain as well as green food purchase intention of Vietnamese consumers in general.

2. Literature review and Theoretical background

2.1. Literature review

Green food

Green food is produced under farming practices that use only natural ingredients, complied with certain production standards, which is, they are grown without the use of conventional pesticides, artificial fertilizers, human waste or sewage sludge and they are not treated with radiation or food additives. Green food refers to controlling and limiting the use of synthetic fertilizers, pesticides, growth regulators, additives, and genetic engineering (Liu et al., 2013).

Green Marketing

Since the 1970s, the concept of green marketing had been widely introduced, but in the late 1980s, green marketing was highly interested because at that time, consumers were paying more attention to green products. Hennion and Kinnear first introduced the concept of green marketing in 1976, indicating that green marketing is the implementation of marketing towards the customer segments that care about the environment. Till 1995, Peattie stated that period as the first era of green marketing. Since that milestone, the theoretical background for green marketing has been significantly developed and many definitions have been proposed. At the same time, Peattie believed that green marketing is an overall management process, responsible for certain tasks. In context of this study, green marketing is defined as a marketing plan aimed at achieving strategic and financial objectives to minimize negative impacts on the natural environment (Berger et al., 2013).

Green marketing mix strategy (4Ps)

Green Marketing Mix is a concept that denotes a set of marketing tools and elements to achieve organizational goals without harming the natural environment (Al-Salaymeh, 2013). Marketing mix 4Ps model includes: Product, Price, Place, Promotion.

Green product refers to products designed to minimize negative impacts on the environment as well as save energy and natural resources. Green product is not only limited to final goods but involves all elements and factors relating to the product, such as the materials it requires, the manufacturing process, the packaging of the product, etc. (Fan and Zeng, 2011).

Green price refers to a specific price set for green products to induce consumers to buy more. However, green products often cost higher because of environmental factors, but in the long run, they will provide economic benefits (Fan and Zeng, 2011).

Green place is the management of the logistics and distribution of a product from its place of production to its place of sale and finally to the customer, with an aim of optimizing distribution efficiency under conditions of strict environmental requirements.

Green promotion is the communication with customers via different channels and methods to convey the company's environmental messages as well as promote its products to encourage customers to make purchase decision.

Green food purchase intention

Intention is a factor used to evaluate an individual's ability to perform a behavior, in marketing field, it is a customer's willingness to buy and use a product (Tirtiroglu and Elbeck, 2008). According to TPB theory by Ajzen (1991), purchase behavior can be predicted from purchase intention with considerable accuracy. Many studies have confirmed that there is a strong correlation between purchase intention and purchase behavior (Ajzen, 2006) and that this is also true in research on purchase behavior of green products (Kumar et al., 2012). The difference between the intention to buy green food and regular food lies in the features of environmental friendliness and safety for customer health, which are considered as top priority by consumers.

2.2. Theoretical background and hypothesis development

Based on the theory of green marketing, integrating the theory of reasoned action (Fishbein and Ajzen, 1970), and the theory of planned behavior (Ajzen, 1985; Ajzen, 1991), as well as regarding previous studies, we build a conceptual model to evaluate the impact of green marketing mix on consumers' intention to buy green food and expect the following hypotheses:

Green Product

Prior research (Siddique and Hossain, 2018) has found that green product is an important, far-reaching factor affecting consumers' purchasing decisions. If consumers perceive product quality such as freshness or assurance of safety, their purchase intention will positively influenced (Manget et al. 2009).

Previous studies confirm that green product element has an impact on consumer attitudes (Bhal and Chandra, 2018; Jain and Kaur, 2006). Environmental issues are always

associated with green products that are made environmentally friendly, not harmful to the nature, without toxic gas emissions and are designed to be recyclable (Ramayah et al., 2010). This has had a stronger impact on consumer attitude towards green consumption.

Therefore, the study proposes the following hypothesis:

H1a: Green product has an impact on green food purchase intention

H1b: Green product has an impact on attitude towards green food

Green Price

Pricing green products is an important issue for businesses because it will influence costs that these businesses need to spend and affect consumer intention to buy green food (Hashem and Al- Rifai, 2011). Lower price will motivate customers to buy more green products, and vice versa. Enterprises need reasonable green pricing to stay competitive (Soonthonsmai, 2007).

Prior researches show that consumer attitudes vary and depend on a combination of green marketing strategies including green pricing (Bhuiyan and Kim, 1999). Therefore, this study proposes the following hypothesis:

H2a: Green price has an impact on green food purchase intention

H2b: Green price has an impact on consumer attitudes towards green food

Green Place

Several studies have found a positive and significant relationship between green marketing mix including green place and purchase intention (Wanninayake and Randiwela 2008; Ansar, 2013; Juwaheer et al., 2012; Solaiman et al., 2015). Green place will affect consumer purchase intention because very few customers will spend money to buy green products just for its benefits without accompanying utilities (Sharma, 2011).

Previous studies confirm that green place has a direct impact on consumer attitudes (Bhal and Chandra, 2018; Jain and Kaur, 2006). If green place makes green food more accessible to consumers, consumers will have a more positive attitude about consuming green food. Therefore, this study proposes the following hypotheses:

H3a: Green place has an impact on green food purchase intention

H3b: Green place has an impact on consumer attitude towards green food

Green promotion

The use of advertising and promotional campaigns in promotion strategy will convey effective messages about a company's green attributes, leading to the increase in purchase intention of customers (Ansar, 2013; Hartmann và Apaolaza-Ibanez, 2009).

Some previous studies have also concluded that green promotion has an impact on consumer attitudes (Bhal and Chandra, 2018; Jain and Kaur, 2006). Tanner and Kast (2003) found that green food is strongly and positively influenced by consumer attitudes. Therefore, our study proposes the following hypotheses:

H4a: Green promotion has an impact on green food purchase intention

H4b: Green promotion has an impact on customer attitudes towards green food

Environmental Knowledge

Environmental knowledge is defined as an individual's level of knowledge about an environmental issue that significantly affects their decision-making process (Rashid, 2009). Environmental knowledge is a well-studied variable that has been found to have a positive influence on consumer purchase intention and behavior of green product (Chan et al., 2000; Eze et al., 2013; Joshi and Rahman, 2015). In addition, the study by Mahmoud et al. (2017) found that environmental knowledge moderates the relationship between green marketing and purchase intention. Therefore, the following hypotheses are proposed:

H5a: Environmental knowledge has a moderating effect on the relationship between green product and green food purchase intention

H5b: Environmental knowledge has a moderating effect on the relationship between green price and green food purchase intention

H5c: Environmental knowledge has a moderating effect on the relationship between green place and green food purchase intention

H5d: Environmental knowledge has a moderating effect on the relationship between green promotion and green food purchase intention

Attitude towards Green Food

Attitude is an important predictor of behavioral intention, which has been confirmed in various studies. Research in the field of green food by Chen (2007) has shown that attitude towards product has a positive relationship with consumers' intention to buy green food. Teng and Wang (2015) argued that a positive attitude towards green food is an important premise that promotes the intention to buy green food. Therefore, stated formally:

H6: Attitude towards green food has an impact on green food purchase intention

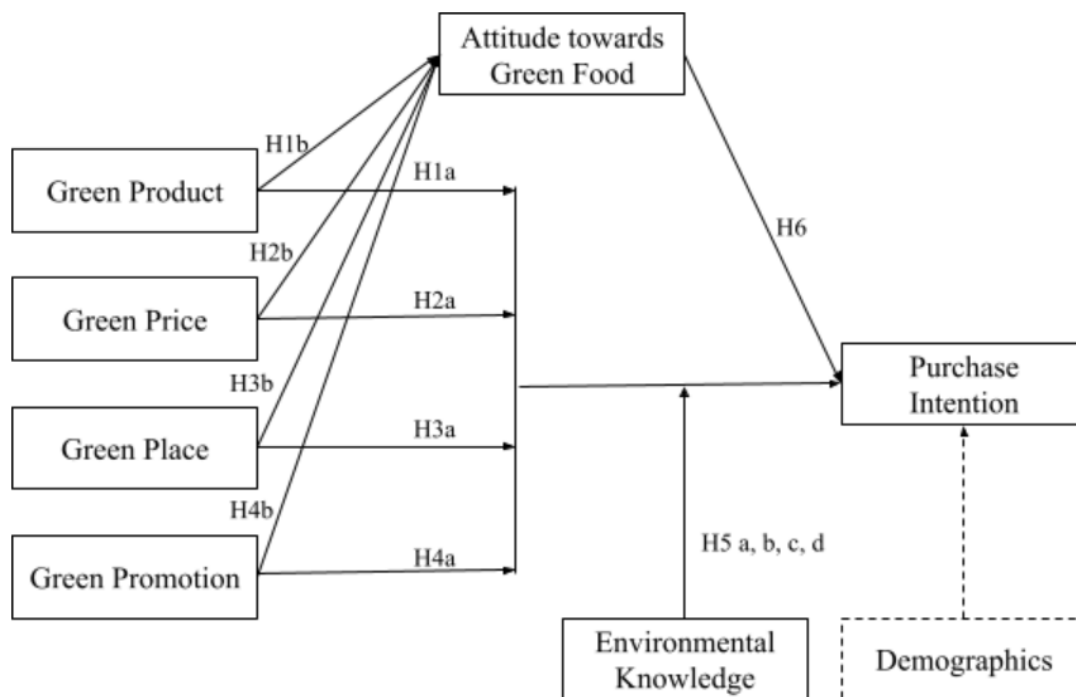


Figure 1. Conceptual Model

3. Method

We researched and collected data through two main sources.

Secondary information: Through the desk-based research method, we searched and collected data through research papers, master's theses, doctoral theses, journals officially published, etc. about green marketing, green purchase intention and green food to build the conceptual model and determine the scale.

Primary information: This source of information was collected through qualitative and quantitative methods. The qualitative method was carried out through an individual survey using a pre-designed questionnaire while the measurement variables were set up to suit the context in Vietnam. Quantitative methods were used to determine variables and test models. Our research model includes 7 concepts - latent variables are measured and evaluated through observable variables. A total of 280 surveys were distributed and 260 qualified samples were collected.

Collected data then were synthesized and analyzed by techniques including: descriptive statistics, confirmatory factor analysis, linear structural model analysis, reliability testing, t test and analysis of variance with the help of data analysis software namely Excel, SPSS and AMOS.

4. Results

4.1. Preliminary test results of the scale

Preliminary assessment of the scale was conducted with 80 survey samples to assess the reliability of the scale and check the convergence of observable variables in measuring 7 latent variables.

Through the analysis of Cronbach's Alpha, it shows that the scale's Cronbach's Alpha coefficient is greater than 0.6 (0.769 to 0.878), the correlation coefficient of the total variables of the scale is larger than the allowed level of 0.3 (the smallest is 0.727). Therefore, 28 factors in this scale are reliable (Hair et al., 2010; Nunnally and Bernstein, 1994) and are used in the EFA factor analysis step.

EFA factor analysis criteria are (1) factor loading larger than 0.5, (2) Eigenvalue index is greater than 1, (3) Kaiser-Meyer-Olkin index (KMO) is greater than 0.5, (4) Bartlett test has p-value less than 0.05, (5) extracted variance is greater than 50%. The research results show that the scale of all 7 factors (green product, green price, green distribution, green promotion, attitude towards green food, environmental knowledge, green food purchase intention) is internally consistent and is a unidirectional scale.

Table 1. Preliminary Test Results of The Scale

Variable	Cronbach's Alpha coefficient	Corrected Item - Total Correlation min	Eigenvalues	KMO	P-value	AVE (%)	Factor loading min
Green Product (5)	0,846	0,604	3,093	0,785	0,000	61,858%	0,770
Green Price (4)	0,794	0,587	2,549	0,778	0,000	63,722%	0,763
Green Place (4)	0,791	0,538	2,471	0,775	0,000	61,765%	0,733

Variable	Cronbach's Alpha coefficient	Corrected Item - Total Correlation min	Eigenvalues	KMO	P-value	AVE (%)	Factor loading min
Green Promotion (3)	0,777	0,544	2,074	0,683	0,000	69,137%	0,781
Environmental Knowledge (3)	0,780	0,567	2,091	0,675	0,000	69,707%	0,798
Attitude towards Green Food (4)	0,769	0,514	2,383	0,705	0,000	59,568%	0,728
Purchase Intention (5)	0,878	0,601	3,381	0,839	0,000	67,626%	0,727

Source: Data analysis results calculated by SPSS software

4.2. Scale test results by CFA

The results of the critical model show that the following indexes: Chi - square/df = 1.473 < 3 meet the compatibility requirements, TLI = 0.940, CFI = 0.948, RMSEA = 0.043 < 0.8, although GFI = 0.885 < 0,9 (according to Hair and ctg) but apparently, GFI=0.885 is very close to the requirement. Furthermore, results greater than 0.8 are still accepted (according to Baumgartner and Homburg (1995); and Doll, Xia and Torkzadeh (1994)).

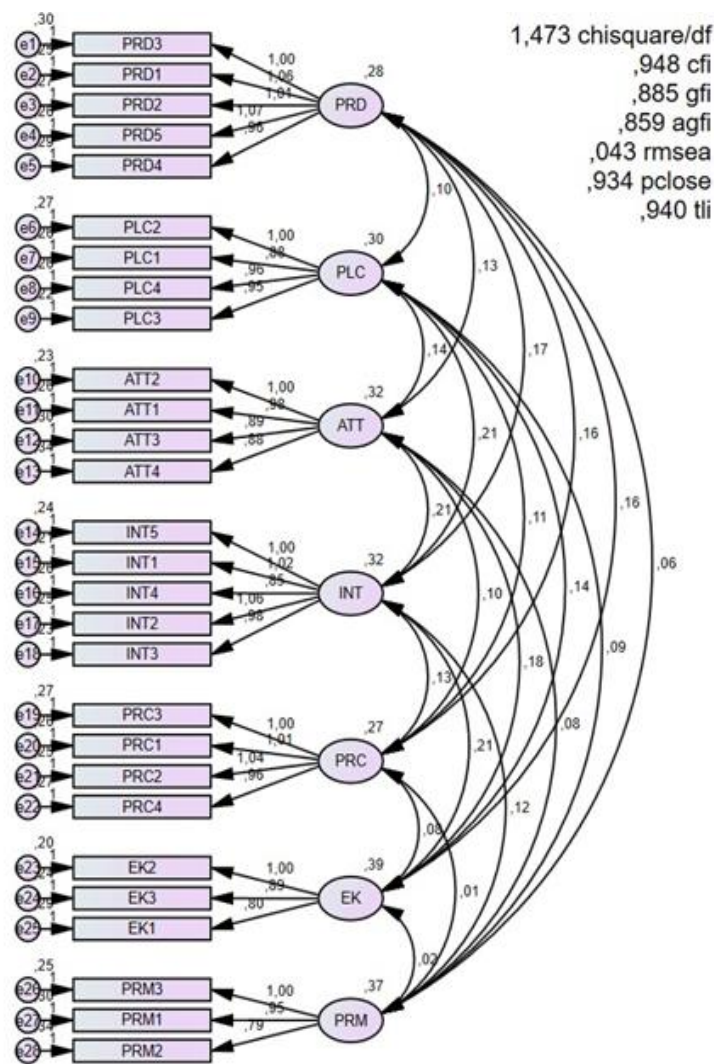


Figure 2. Confirmatory Factor Analysis

4.3. Research model test results

Table 2. Hypothesis Testing Results

Hypothesis	Relationship	Estimate	S.E.	C.R.	P	Results
H1a	INT <--- PRD	,169	,055	3,098	,002	Supported
H1b	ATT <--- PRD	,278	,074	3,783	***	Supported
H2a	INT <--- PRC	,110	,053	2,069	,039	Supported
H2b	ATT <--- PRC	,139	,074	1,887	,059	Rejected
H3a	INT <--- PLC	,401	,064	6,293	***	Supported
H3b	ATT <--- PLC	,295	,074	3,987	***	Supported
H4a	INT <--- PRM	,135	,047	2,874	,004	Supported
H4b	ATT <--- PRM	,113	,064	1,759	,079	Rejected
H5a	INT <--- EKxPRD	-,073	,020	-3,549	***	Supported
H5b	INT <--- EKxPRC	,096	,023	4,203	***	Supported
H5c	INT <--- EKxPLC	-,025	,019	-1,321	,187	Rejected
H5d	INT <--- EKxPRM	,058	,023	2,502	,012	Supported
H6	INT <--- ATT	,259	,066	3,943	***	Supported

Source: Data analysis results calculated by AMOS software

Based on the data in Table 2, we make the conclusion that the impact of green price on attitude, green promotion on attitude, and moderating effect of environmental knowledge on the relationship between green place and purchase intention are rejected (or H2b, H4b and H5c).

The group of marketing mix factors including green product, green price, green place and green promotion have all been proved to have an influence on purchase intention. In details, the strongest influence is green place with estimate of 0.401 and weakest is green price with estimate of 0.110.

In the correlation between marketing mix factors to attitude towards green food, the impact of green price and green promotion was rejected because their P-values are both greater than 0.05; the two other factors, green product and green place have a positive impact on attitude, of which the stronger influence is with green place (0.295). In addition, the attitude factor has a significant influence on purchase intention with a regression coefficient of 0.259.

The group of marketing mix factors moderated by environmental knowledge have impacts on purchase intention, except for the green place with $P = 0.187 > 0.05$. Besides, green product moderated by environmental knowledge have a negative impact (-0.073) on purchase intention.

4. Discussion and Conclusion

Baessed on the results of this research, the following conclusions are drawn:

(1) Green product, green price, green place and green promotion all have positive effects on green food purchase intention, in which green place has the biggest impact and green price has the weakest one.

(2) Green product and green place have positive effects on attitude towards green food. Attitude has a positive effect on the intention to consume green food, so green product and green place have positive effects on green consumption intention through attitude mediating variable.

(3) Environmental knowledge has a positive moderated effect on the relationship between (green price, green promotion) and green food purchase intention. Environmental knowledge has a negative moderated effect on the relationship between green product and green food purchase intention due to $P = 0.073$.

(4) Factors including age, occupation and income have influences on the intention to consume green food. Factors such as gender, education, awareness level, and frequency of consumption do not affect the purchase intention of green food.

On the other hand, the research results lead us to figure out a number of solutions to increase the quality of green marketing campaigns which then will promote consumer buying intention and behavior, as follows:

Recommendations for WinMart supermarket chain

Winmart needs to develop a more complete 4Ps green marketing strategy that is in line with market and consumer condition:

Firstly, regarding green product, green food from Winmart must be of freshness, safety, complying with international standards of production processes. The results of the study that fully-informed and eco-labelled packaging will help increase consumers' intention to consume green food, so the packaging design process should pay attention to the 3R principle (Reduce – Reuse – Recycle) helps to minimize the environmental impact of the product.

Secondly, Winmart can adopt flexible pricing method (Currency) based on market demand and availability. Winmart needs to innovate the mindset to improve productivity, quality and operational efficiency through the application of advanced management technologies into its organization. Moreover, Winmart should work on development of strategies to minimize investment costs. As a result, it is possible to reduce the cost of green food as much as possible but still bring the desired profit.

Thirdly, green place has a great impact on consumer intention, so Winmart needs to develop an effective and optimal green product place strategy such as promoting logistics and environmentally friendly transportation.; There should be priority policies for green food items, for example setting up a priority payment zone for green foods/green products.

Fourthly, green promotion needs to be consistent and in line with WinMart's brand positioning such as providing clear information to customers and creating opportunities for them to participate in activities through green marketing campaign; promoting promotional

programs for customers to buy green food to increase competitiveness against its competitors. In addition, Winmart cannot ignore public relations activities to increase awareness and consumption of green food.

Recommendations for government

Firstly, Vietnamese government needs to develop the policy of green food consumption to help businesses implement better green marketing strategy. Besides, the government should propose policies to encourage and promote the green production through technological innovation; price subsidy policy for this type of food product should be released in order to change consumer behavior; support for businesses in marketing activities can be improved in terms of policy.

Secondly, government should invest in technical and technological infrastructure within areas of green food production facilities; supporting infrastructure for e-commerce to support businesses to keep up with current information technology trends. From management aspect, it is necessary to quickly develop criteria for certification of green food enterprise as well as provide useful information about green food to consumers to enhance demand for this type of food product.

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RESEARCH ON FACTORS AFFECTING TO CAPITAL STRUCTURE OF TOURISM ENTERPRISES IN VIETNAM

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Abstract

The study aims to identify and analyze the influence of internal factors on the capital structure of tourism enterprises. Research data are collected using a sample size of 25 tourism businesses from 2016 to 2020. With the E-view software application in quantitative analysis to construct a table data regression model, the study has designed a regression model to determine the relationship and level of impact of factors which affect the capital structure of tourism businesses. The research results show that the variables: profitability; liquidity; asset structure; growth opportunities have a negative effect, while firm size has a positive influence on capital structure of tourism enterprises.

Keywords: *capital structure; influential factors; tourism enterprises*

1. Introduction

Over the last decades, there have been researches on the capital structure of enterprises. Most of these studies employ modern theoretical models to clarify capital structure models and provide empirical evidence for the power of the models in practice. Studies on factors affecting capital structure have been approached from different angles with the aim of efficiently managing the capital structure of the enterprise by appropriately combining the ratio between debts and equities to increase corporate value. Examining the interrelation between factors affecting capital structure will evaluate whether the enterprise's decisions to apply debt financing or equity financing is reasonable or not, whether any inadequacies and risks can arise in order to propose recommendations to improve the efficient use of financial leverage and maximize the corporate value.

The negative effects of the global financial crisis starting in 2008 began a period of serious recession for the Vietnamese economy. Up to now, the economic recession situation in Vietnam has not completely improved. In particular, since the beginning of 2020, the COVID-19 pandemic has had a heavy impact on the tourism industry, with the number of visitors dropping sharply, tourism activities almost having to hibernate, which has had direct impact on all businesses in the tourism industry. This is the time when tourism businesses need to thoroughly review their capital structure.

Based on this current situation, this study aims at figuring out the factors affecting the capital structure of tourism enterprises in Vietnam, assess the influence level in order to build an effective capital structure in tourism enterprises.

2. Literature Review

Theory of capital structure

M&M Theory: The modern capital structure theory was first put forward by Modigliani and Miller (1958), and there are many definitions of capital structure offered. With two case studies, enterprises operating in a tax-free environment and in a tax-affected environment, M&M has proposed important conclusions about the enterprises' capital structure. Under perfect market conditions (no financial distress costs, no transaction costs) the value of the unlevered and leveraged firms is the same under the no-tax case. In the case of taxes, the leveraged firm's value is higher than the value of the unlevered firm.

Trade-off theory: The trade-off theory was developed by Alan Kraus and Litzenberger (1973). Researchers divide it into two types, including: static capital structure trade-off theory and dynamic capital structure trade-off theory. The trade-off theory of capital structure explains the effects of corporate income tax, personal income tax, and costs related to the use of debts in the capital structure of the firm. Besides, the trade-off theory also explains the difference in capital structure between industries and enterprises. Consequently, businesses with safe tangible assets and high profitability have a high target debt ratio. Businesses with low profitability, mainly invisible assets, have a low debt ratio. However, the trade-off theory of capital structure has limited application since it is not easy to quantify the costs associated with the use of debt.

The pecking order theory: The pecking order theory (Donaldson, 1961) solved one of the irrational assumptions in M&M theory, accordingly capital markets are perfect markets, which do not currently exist asymmetric information. Donaldson's work in 1961 is considered to be the first foundation of pecking order theory related to capital structure. Then, Myers and Majluf (1984), Myers (1984) continued to develop pecking order theory based on the analysis of asymmetric information affecting investment and financing decisions of firms. Myers and Majluf (1984) in the study drew conclusions about the classification of capital types, in which retained earnings are better than debt and debt is better than equity. Therefore, managers will often prioritize the use of retained earnings. If the capital is still insufficient, the management will prioritize using capital financing through debts with fixed interest rates so as not to have to divide profits among new shareholders. Issuing shares is often the last choice of managers when finding funding for projects. In

addition, pecking order theory also states that there is no well-defined target equity and debt mix. Myers (1984) argues that since equity includes both retained earnings and the issue of new shares, it is difficult to determine the optimal capital structure.

Agency Cost Theory: The agency cost theory proposed by Jensen & Meckling (1976) states that an agency relationship is a contractual arrangement in which many owners of the business hire another one acting as a representative and authorized agency to perform transactions on behalf of the owner of the business. As a result, there are agency costs to resolve conflicts of interest used in corporate financing. Agency costs include: (i) Owners' control costs, (ii) Managers' compliance costs, (iii) impaired benefit value due to differences in management decisions and decisions to maximize the interests of the owners. In addition, equity includes capital owned by managers and equity owned by public shareholders outside the business. Therefore, the business must bear the share of agency costs by shareholders and loans from outside the business. To determine the capital structure where agency costs are lowest, Jensen & Meckling (1976) suggests that capital structure should be measured as the ratio of equity held by shareholders outside the firm to total owner's equity outside the business. In his further research, Jensen (1986) argues that conflicts of interest generate agency costs, so the only way to reduce this agency cost is to increase the use of debt by firms. Therefore, according to the agency cost theory of capital structure, an increase in equity will result in a high agency cost; conversely, an increase in the cost of debt will reduce the agency cost. This implies that the agency cost of equity has a positive relationship with capital structure, conversely, the agency cost of debt has a negative relationship with capital structure.

Experimental studies

In addition to the above theories, previous empirical studies have also provided evidence of factors affecting capital structure of firms.

Research results by Chun-Hung (Hugo)Tang & Soo Cheong (Shawn) Jang (2007) on revising determinants of capital structure: A comparison between US lodging and software companies states that fixed assets, growth opportunities and the common influence of those two variables are significant determinants of long-term debt of the accommodation industry. Common effect analysis also shows that fixed assets and opportunities to grow influence each other on the relationship of long-term debt utilization by lodging firms.

Murray Frank & Vidhan Goyal (2009) used a dataset of listed US firms in the period 1950 - 2003 to examine the importance of many factors affecting capital structure. The research results show that the factors of industry average leverage, tangibles, asset size, expected inflation have a positive influence, the factors of market price -to-book ratio, profitability have a negative affect the capital structure of the firm.

Research by Luis Pacheco and Fernando Oliveira Tavares (2015) on the determinants of capital structure of small and medium enterprises in the hotel sector used a sample of 43 hotels in Portugal from 2004 to 2013. The hospitality sector was considered because of its importance in the Portuguese economy and the sector has been largely understudied. The research results show that profitability, asset tangibles, firm size, total liquidity and risk are the main factors affecting the capital structure of SMEs in the hospitality sector.

Research by Ahmad Mohammad Gharaibeh (2015) collected data samples from 49 companies in many industries listed on the Kuwait stock market during 2009 - 2013. By using the Pooled OLS method, the research has shown that the characteristics of industry, age, business size, growth opportunities, liquidity and profitability have an effect on the dependent variable which is total debt/total assets, in which profit has a negative relationship whereas other variables has positive relationship.

In research by Mouna Amraoui, Ye Jianmu, Kenza Bouarara (2018) on the determinants of capital structure of industrial enterprises in Morocco, data were collected from the Moroccan capital regulator and the official website of the Casablanca stock exchange between 2009 and 2016 of 52 companies. The research results show that among the seven variables, there are four more significant ones: return on assets, tangibles of assets, business size and liquidity, in which firm size has a positive impact, while the remaining variables have a negative impact on capital structure.

Research by Beta Budisetyorini (2015) on determining factors affecting capital structure of tourism, hotel and restaurant businesses listed on the Indonesian Stock Exchange. This study analyzes the influence of determinants on capital structure, using trade-off theory and pecking order theory to find out the proportion of debt and equity financing decisions in tourism companies. calendar. The data table includes 26 companies in the tourism industry listed on the Indonesia Stock Exchange from 2008 to 2012. The results show that the decisive factor affecting the capital structure of tourism enterprises is liquidity, profitability and scale.

Research by Jorge HF Mota; Antonio C. Moreira (2017) on the determinants of the capital structure of Portuguese companies investing in Angola. The data is aggregated from 26 major Portuguese companies that invested in Angola between 2006-2010. The research results show that factors affecting capital structure including age of the enterprise, asset structure, profitability ratio and tangibles have a positive effect, while tax shield and liquidity has a negative effect on the capital structure of these firms.

Research by Pham Thi Van Trinh (2020) on capital structure and debt term structure of real estate investment and construction enterprises. Synthesized data of the study are collected from the financial statements of 70 construction investment and real estate businesses listed on the Vietnam stock market in the period 2008 to 2017. The research results show that: Asset structure, corporate income tax, firm size and growth opportunities have a positive influence on capital structure, and liquidity, inversely profitability, financial development have a positive impact on capital structure.

In research by Le Tham Duong, Bui Dan Thanh, Le Thi Han (2020) with financial report data for 52 food companies listed on Vietnam's stock market from 2011 to 2018, the authors have conducted research on the factors affecting capital structure. The research shows that the profitability of food businesses, the ratio of fixed assets plus total assets and the number of years of operation have a negative impact on capital structure. In contrast, size and growth rate are two factors which having a positive effect on the capital structure.

Research by Syeeda Shafiya Mohammadi, Tamanna Dalwai, Dure Najaf, Ashwaq Saif Al-Yaarubi (2020) investigates the factors determining capital structure of Omani tourism companies. The sample in the study includes 9 listed travel companies between 2007 and 2016. The results show that the capital structure of tourism businesses is influenced by size, growth rate and risk.

On the basis of an overview of empirical studies, it shows that the works focus on studying the micro-factors affecting capital structure, but the level of impact of these factors is not the same among countries. This depends on the economic characteristics of each surveyed country. The research results provide evidence that factors including profitability, liquidity, firm size, asset structure and growth opportunities affect capital structure. The obtained research results are quite consistent with theories of capital structure such as MM theory, trade-off theory, pecking order theory.

3. Method

Hypotheses

Based on theoretical and empirical research on factors which affect capital structure of enterprises, the author has hypothesized about specific factors that affect capital structure of listed tourism enterprises on the Vietnamese securities market as follows:

Capital structure (TDR)

The capital structure variable is measured by liabilities over total assets, reflecting the firm's use of debt. This is the basic measure of the enterprise's choice of capital structure and is a suitable variable used to evaluate the impact of factors on the choice of capital structure. This indicator is widely used in experimental studies of Beta Budisetyorini (2015) Luis Pacheco and Fernando Oliveira Tavares (2015); Mouna Amraoui et al (2018); Syeeda Shafiya Mohammadi et al (2020); Nguyen Thi Van Trinh (2020); Le Tham Duong, Bui Dan Thanh, Le Thi Han (2020).

Inheriting the above studies, the author used TDR as a dependent variable to include in the model.

Profitability (ROE): The trade-off theory states that firms with high profitability tend to use a lot of debt to receive the benefit of the tax shield of interest and low risk of bankruptcy. In contrast, according to the pecking order theory and research by Obeid Gharaibeh (2015); Luis Pacheco and Fernando Oliveira Tavares (2015); Mouna Amraoui et al (2018); Beta Budisetyorini (2015); Syeeda Shafiya Mohammadi et al (2020); Nguyen Thi Van Trinh (2020); Le Tham Duong, Bui Dan Thanh, Le Thi Han (2020), researchers argue that there is a negative relationship between profitability and debt use. Indeed, according to their argument, the more profitable a firm is, the more likely it is to retain earnings for reinvestment, the more likely it is to use low financial leverage. Therefore, the factor of profitability is included in this research model and is determined by profit after tax on equity.

Hypothesis H1: Profitability has a negative (-) effect on capital structure

Liquidity (LIQ): Liquidity reflects the solvency of a business. According to pecking order theory and agency cost theory, firms with high liquidity will have no need to raise capital from outside. In contrast, according to trade-off theory, firms with higher liquidity, lower costs of financial distress, and lower risk of bankruptcy tend to maintain a higher debt ratio due to easier access to and mobilization of long-term capital. Empirical studies which have supported this view include studies by Obeid Gharaibeh (2015); Beta Budisetyorini (2015); Pham Thi Van Trinh (2020). Therefore, the liquidity factor is included in the research model and is measured by the ratio of current assets to short-term liabilities.

Hypothesis H2: Liquidity has a positive (+) effect on the capital structure of the firm

Firm size (SIZE): According to the trade-off theory, large firms are generally expected to have high debts and leverage. Accordingly, large enterprises usually have low bankruptcy risk and bankruptcy costs, and therefore, have high negotiating power with credit institutions. Studies supporting this view include those by Murray Frank & Vidhan Goyal (2009); Luis Pacheco and Fernando Oliveira Tavares (2015); Mouna Amraoui et al (2018); Obeid Gharaibeh (2015); Beta Budisetyorini (2015); Pham Thi Van Trinh (2020); Le Tham Duong et al (2020). Therefore, the firm size factor is included in the research model and is measured by the logarithm of the total book value of assets.

Hypothesis H3: Firm size has a positive (+) effect on the capital structure of the firm

Asset structure (TANG): According to the trade-off theory, businesses can use tangible fixed assets as collateral when borrowing, so a business has a higher proportion of tangible fixed assets in total assets can borrow easier. Therefore, businesses with high tangible fixed assets tend to have high financial leverage. Tangible fixed assets used as collateral are an important basis for commercial banks to consider when approving credit. Experimental studies of Chun-Hung (Hugo) Tang & Soo Cheong (Shawn) Jang (2007); Murray Frank & Vidhan Goyal (2009); Obeid Gharaibeh (2015); Jorge HF Mota; Antonio C. Moreira (2017); Pham Thi Van Trinh (2020); Le Tham Duong et al (2020) are also consistent with this statement. Therefore, the asset structure factor is included in the research model and is measured by the ratio of net fixed assets to total assets.

Hypothesis H4: Asset structure has a positive (+) effect on the capital structure of the enterprise.

Growth Opportunity (GRO): The higher the growth opportunity, the more investors appreciate the growth opportunity and potential of the business in the future. According to the trade-off theory, the ability to grow will reduce the level of debt use of firms. This is supported by Chun-Hung (Hugo) Tang & Soo Cheong (Shawn) Jang (2007); Le Tham Duong et al (2020); Syeeda Shafiya Mohammadi et al (2020). Therefore, the growth opportunity factor is included in the research model and is measured by the ratio between liabilities and the market value of capital to the book value of total assets of the enterprise.

Hypothesis H5: Growth opportunity has a negative (-) effect on the capital structure of the firm.

Table 1. Summary of research hypotheses

Variables	Symbol	Measurement	Effect on capital structure
1. Profitability	ROE	$\frac{\text{Profit after tax}}{\text{Owner's equity}}$	Negative (-)
2. Liquidity	LIQ	$\frac{\text{Current assets}}{\text{Short-term liabilities}}$	Positive (+)
3. Enterprise size	SIZE	Ln(Total assets)	Positive (+)
4. Asset structure	TANG	$\frac{\text{Net tangible assets}}{\text{Total assets}}$	Positive (+)
5. Growth opportunity	GRO	$\frac{\text{Liabilities} + \text{Market value of capital}}{\text{Book value of total assets}}$	Negative (-)

Research Model

Based on research by Murray Frank & Vidhan Goyal (2009); Obeid Gharaibeh (2015); Beta Budisetyorini (2015); Pham Thi Van Trinh (2020); Le Tham Duong et al (2020); Syeeda Shafiya Mohammadi et al. (2020), econometric models selected to test the impact of factors influencing capital structure of tourism businesses listed on Vietnam's stock market are:

Overall regression model:

$$Y = \beta_1 + \beta_t X_t + u_i$$

In which:

Y : Dependent variable

X_t : The independent variable influencing the dependent variable

β_1 : Coefficient of freedom

β_t : Regression coefficient ($t = 2 \div n$)

u_i : Random error

In the specific regression model of the study, the dependent variable is the capital structure of the TDR firm. The independent variables include: (1) Profitability (ROE); (2) Liquidity (LIQ); (3) Enterprise size (SIZE); (4) Asset structure (TANG); (5) Growth Opportunity (GRO)

Model building and testing

The parameters of the regression model are estimated by E-view software.

The overall regression model:

$$\text{LOG(TDR)}_i = \beta_1 + \beta_2 \text{ROE}_i + \beta_3 \text{LOG(LIQ)}_i + \beta_4 \text{LOG(SIZE)}_i + \beta_5 \text{LOG(TANG)}_i + \beta_6 \text{LOG(GRO)}_i + u_i$$

Overall regression function:

$$\text{LOG(TDR)}_i = \beta_1 + \beta_2 \text{ROE}_i + \beta_3 \text{LOG(LIQ)}_i + \beta_4 \text{LOG(SIZE)}_i + \beta_5 \text{LOG(TANG)}_i + \beta_6 \text{LOG(GRO)}_i$$

Research Method

The article runs the model with E-view software and uses the least squares method (OLS) to determine the regression coefficient β_i . On the basis of the results obtained when running the program, we will write equations of the factors affecting the business performance of the enterprise. Then test the fit of the model, that is, test β_i to know whether the independent variable can explain the dependent variable or not. Evaluate the fit of the model through the adjusted coefficient of determination R_2 (Adjusted R Square) to determine the explanatory ability of the model in practice.

4. Results

Scale test

The statistics are presented in the table below:

Table 2. Descriptive Statistics

Variables	Observation	Minimum	Maximum	Mean	Std. Deviation
TDR	125	0,0286402	2,386035	0,449387	0,428563
ROE	125	- 0,4571053	0,467895	0,033643	0,157779
LIQ	125	0,007012	31,875498	3,870240	5,757194
SIZE	125	24,094622	32,200360	26,783053	1,525805
TANG	125	0,006554	0,964394	0,441298	0,291533
GRO	125	0,011592	7,557271	1,236190	1,313720

The data in Table 2 show that the mean value of capital structure (TDR) is 0.449387, that is, 25 enterprises of tourism enterprises listed on the Vietnam stock market during the research period during the period 2016-2020 has an average debt-to-asset ratio of 44.9%. This shows that tourism businesses use less debt than equity.

Table 2 also shows that profitability (ROE) has an average value of 0.033643 (3.36%). This is a relatively low level, showing that for every 100 dong of equity put into the business, the enterprise earns a profit after tax of 3.36 dong. Liquidity (LIQ) has an average value of 3.870240, which means that tourism businesses are 3.8 times more likely to pay short-term liabilities with short-term assets. Enterprise size (SIZE) is calculated using the natural logarithm of total assets, with an average value of 26,783053 equivalent to total assets of more than VND 428 billion. This shows that tourism businesses are mostly large-scale. The proportion of fixed assets (TANG) has an average value of 0.441298 (44.1%). Thus, in tourism enterprises, the proportion of fixed assets accounts for a relatively large proportion of total assets, which is reflected in the value of facilities that the business has invested. A growth rate (GRO) with an average value of 1.236190 shows that the asset value of the tourism business by market value is about 1.23 times as high as its book value.

Using E-view software to Panel data, to increase the accuracy we put the variables LIQ, SIZE, TANG, GRO in logarithmic form. We get the following results:

Table 3. Regression results with Fixed Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-20.84604	9.521591	-2.189344	0.0311
ROE	-0.516616	0.248419	-2.079614	0.0404
LOG(LIQ)	-0.469907	0.043669	-10.76068	0.0000
LOG(SIZE)	5.807718	2.918011	1.990300	0.0496
LOG(TANG)	-0.454574	0.144355	-3.149014	0.0022
LOG(GRO)	-0.199773	0.060408	-3.307079	0.0014
Effects Specification				
Cross-section fixed (dummy variables)				
Period fixed (dummy variables)				
R-squared	0.977598	Mean dependent var	-1.319682	
Adjusted R-squared	0.969474	S.D. dependent var	1.127634	
S.E. of regression	0.197018	Akaike info criterion	-0.184498	
Sum squared resid	3.532264	Schwarz criterion	0.584804	
Log likelihood	45.53110	Hannan-Quinn criter.	0.128029	
F-statistic	120.3350	Durbin-Watson stat	1.474496	
Prob(F-statistic)	0.000000			

Table 4. Regression results with Random Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-14.79467	4.707842	-3.142559	0.0021
ROE	-0.321387	0.219092	-1.466907	0.1450
LOG(LIQ)	-0.463106	0.037545	-12.33458	0.0000
LOG(SIZE)	4.086491	1.438306	2.841183	0.0053
LOG(TANG)	-0.140348	0.063932	-2.195265	0.0301
LOG(GRO)	-0.217688	0.047305	-4.601835	0.0000
Effects Specification				
			S.D.	Rho
Cross-section random			0.433627	0.8247
Idiosyncratic random			0.199909	0.1753

Weighted Statistics

R-squared	0.663850	Mean dependent var	-0.266477
Adjusted R-squared	0.649726	S.D. dependent var	0.358817
S.E. of regression	0.212362	Sum squared resid	5.366623
F-statistic	47.00176	Durbin-Watson stat	1.106850
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.764102	Mean dependent var	-1.319682
Sum squared resid	37.19485	Durbin-Watson stat	0.159701

Use Hausman test to select the model

Hausman test is used to choose between two models Random Effect Model and Fixed Effect Model. This is essentially a test of whether unique errors are correlated with the explanatory variables.

Hypothesis test:

H₀: There is no correlation between the explanatory variables and the random component (choose Random Effect Model)

H₁: There is a correlation between the explanatory variables and the random component (choose Fixed Effect Model)

Table 5. Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.	
Cross-section random	20.288078	5	0.0011	
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
ROE	-0.336111	-0.321387	0.006134	0.8509
LOG(LIQ)	-0.433988	-0.463106	0.000286	0.0848
LOG(SIZE)	6.508368	4.086491	6.240453	0.3323
LOG(TANG)	-0.302209	-0.140348	0.012237	0.1434
LOG(GRO)	-0.249476	-0.217688	0.000877	0.2830

Prob. = 0.0011 < 5% inferred rejecting H₀. Therefore, this article will use the Fixed Effect Model to regress to find out the key factors affecting the capital structure of tourism businesses in the period 2016-2020.

The sample regression function of the model is:

$$\text{LOG(TDR)} = - 20.84604 - 0.516616\text{ROE} - 0.469907\text{LOG(LIQ)} + 5.807718\text{LOG(SIZE)} - 0.454574\text{LOG(TANG)} - 0.199773\text{LOG(GRO)}$$

With Prob(F-statistic) = 0.000000 < 5% Regression function is suitable.

5. Discussion and Conclusion

5.1. Discussion

$R_2 = 0,977598$ indicates in the regression model ROE variables; LOG(LIQ) LOG(SIZE); LOG(TANG); LOG(GRO) has the ability to explain 97,7598% for the volatility of the variable LOG(TDR), which means that 97,7598% of the change in capital structure of Vietnamese tourism businesses is due to the impact of 5 ROE variables; LOG(LIQ); LOG(SIZE); LOG(TANG); LOG(GRO) triggers. Only the remaining 2,2402% were influenced by other determinants that were not considered in this study.

Among the 5 factors, there is a factor of firm size LOG(SIZE) that has a positive influence and the remaining factors have a negative influence, specifically:

+ $\beta_2 = - 0,516616$ means that return on equity (ROE) increases by 1 unit, then TDR decreases by 0.516616%. Thus, ROE has a negative impact on capital structure, meaning that when tourism businesses operate effectively, they will tend to use less debt and will use retained earnings to supplement business capital. The use of external sources of capital such as borrowing more debt can increase the financial burden. Instead of borrowing, they often use retained earnings to finance their capital needs. Tourism businesses with low profitability should raise the amount of loans to ensure business operations. This result is consistent with research hypothesis, pecking order theory and research by Luis Pacheco and Fernando Oliveira Tavares (2015); Beta Budisetyorini (2015); Obeid Gharaibeh (2015); Mouna Amraoui et al (2018); Pham Thi Van Trinh (2020); Le Tham Duong et al (2020).

+ $\beta_3 = - 0,469907$ means that when LIQ increases by 1%, TDR decreases by 0.469907%. Thus, liquidity (LIQ) has a negative effect on capital structure, because the highly liquid assets of tourism enterprises have been used to pay for investment or production activities, there is no need to raise capital from outside. Travel businesses with high liquidity will use less debt because they do not need to take out debt for their current payments. This result is supposed to be consistent with pecking order theory, agency cost theory and with empirical studies such as Luis Pacheco et al (2015); Mouna Amraoui et al (2018); Jorge HF Mota; Antonio C. Moreira (2017); Pham Thi Van Trinh (2020).

+ $\beta_4 = + 5,807718$ means that when SIZE increases by 1%, TDR increases by 5.807718%. Thus, firm size (SIZE) has a positive relationship with capital structure, the larger the enterprise, the more debt it tends to take. This result is consistent with the proposed hypothesis, trade-off theory, agency cost theory and previous studies such as Murray Frank & Vidhan Goyal (2009); Luis Pacheco et al (2015); Mouna Amraoui et al (2018); Obeid Gharaibeh (2015); Beta Budisetyorini (2015); Pham Thi Van Trinh (2020); Le Tham Duong et al (2020).

+ $\beta_5 = - 0,454574$ shows that when TANG increases by 1%, TDR decreases by 0.454574%. Thus, fixed assets (TANG) have a negative relationship with capital structure. Normally, businesses with a high ratio of fixed assets will increase their debt because they increase their assets to secure loans, but in fact, the results show that tourism businesses do not give priority to using loan capital. This result is contrary to the proposed hypothesis, consistent with the study of Mouna Amraoui et al (2018); Le Tham Duong et al (2020).

+ $\beta_6 = - 0,199773$ means that when GRO increases 1%, TDR decreases 0,199773%. Thus, growth rate (GRO) has a negative impact on capital structure. If the market appreciates a company's stock relative to its book value, the firm uses less debt and mainly uses equity to build assets. If the tourism business is in a growth period and there are many good investment opportunities, the conflict of interest between managers and shareholders will be less tense, so the business tends to use more equity. This result is consistent with the research hypothesis, trade-off theory, agency cost theory and previous studies such as Le Tham Duong et al. (2020); Syeeda Shafiya Mohammadi et al. (2020).

5.2. Recommendations

The results of analyzing factors affecting the capital structure of tourism businesses are based on historical financial data, so the choice of capital financing form is suitable for the characteristics of each tourism business and need to be adjusted to suit reality. Managers need to consider the order of priority in analyzing the factors affecting capital structure, which factors have a strong impact and are the main and important factors in choosing a target capital structure in each stage of business development. Besides, the experimental research results show that the pecking order theory is based on the problem of information disparity, the trade-off theory explains the firm's financing decisions. Capital structure decisions must be based on the conditions and assumptions of modern theories of capital structure.

Based on the research results on the factors affecting the capital structure of tourism enterprises listed on the Vietnam stock market, the author proposes some solutions associated with determining the capital structure as follows:

- Improving business efficiency: Research results indicates that business efficiency has a negative relationship with capital structure. When tourism businesses have effective business operations, they tend to use less debt, businesses can take advantage of internal capital obtained from retained earnings and issue new shares instead of using debt. Besides, when operating effectively, tourism businesses will be more appreciated by creditors as well as more trusted by investors in the financial market. Therefore, a reasonable solution for businesses to improve business efficiency is to combine factors that increase business efficiency with investment opportunities in the market. On the contrary, if the tourism business encounters a difficult period, its business performance is poor, and the pressure to repay loans increases rapidly, the optimal solution is to prioritize the use of equity financing, following the pecking order theory in fundraising. Therefore, tourism businesses need to maintain business efficiency, control incurred costs, lower product costs, improve product quality, accelerate project completion to reduce costs, minimize costs incurred..., especially restructuring debt portfolios in order to minimize financial costs for businesses.

- Taking advantage of asset size when using debt and taking advantage of business growth when using equity: Based on the research results, it can be seen that between the size of tourism enterprises and the use of debt capital has a positive relationship with each other. The larger the enterprise size, the more businesses should promote their strengths and seek commercial credit capital to bring high efficiency to the business. However, managers should also be careful in increasing debts because it can lead to spreading loans and high business risks. On the other hand, when the market is appreciating the enterprise value, tourism businesses can take advantage of this when raising capital by issuing shares, increasing the debt guarantee ratio and increasing the credit rating, reduce the financial risk of the business.

- When enterprises have high liquidity, they should use retained earnings, equity financing instead of debt. Decisions on increasing the liquidity of enterprises need to be made such as boosting business activities, reducing inventory, controlling and strictly managing incurred expenses that do not bring profits and revenue, regularly review the norms of material consumption ... these solutions also contribute to improving business efficiency and enhancing the management capacity of enterprises.

- It is necessary to pay attention to the value of fixed assets of the tourism business, and at the same time consider the appropriateness between the asset term and the debt maturity. Since most tourism businesses have large fixed assets, there will be many opportunities to access easy long-term loans compared to other businesses. Tourism businesses should take advantage of this feature to build debt policies with long debt maturities.

- Improving the role of financial managers in tourism businesses: To be able to implement the above proposals, financial managers play an important role. Therefore, improving the quality of human resources must be given comprehensive attention. Financial managers need to constantly improve their knowledge, apply modern financial management models, and risk measurement models of corporate financial activities in financial decisions. The choice of capital structure must be properly acknowledged and paid much attention by the managers, to develop a specific plan, especially a financial plan (based on the revenue and profit development goals of the enterprise, determining capital needs and plan capital sources along with mobilization policies). Then, new tourism businesses plan to choose the appropriate capital structure to achieve the target capital structure, and at the same time forecast development trends, problems arising from the business environment, changes in physical structure, etc. economic mechanisms benefit, identifying strengths, weaknesses as well as opportunities and potential risks in business activities in the future.

5.3. Conclusion

In summary, the article has studied the factors that affect the capital structure of tourism enterprises in Vietnam through data collected from 25 tourism enterprises during the period 2016-2020. The empirical model indicates that the correlation between intrinsic factors and capital structure including profitability, liquidity, asset structure and growth rate has a negative impact on capital structure, and the firm size factor has a positive impact on the capital structure of the firm. Based on the above research results, the author proposes some solutions associated with determining the capital structure of tourism enterprises. The results of the study have supplied useful information in determining the capital structure for tourism businesses.

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MOSCOW TECHNIQUE IN PROJECT MANAGEMENT: RESEARCH ON REQUIREMENT PRIORITIZATION RATIO IN SOFTWARE PROJECT TO INCREASE CUSTOMER SATISFACTION BASED ON MOSCOW-INTEGRATED KANO MODEL

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Abstract

Prioritizing customer requirements is an important task that can decide the success or failure of a project in general and a software project in particular. In Agile software development project, MoSCoW is an analytical technique commonly used to prioritize customer requirements. In fact, despite applying the above technique, many projects are still not as successful as expected. Few reports suggest a 60% rate of MUST Haves for project success, but this figure has not been proven to ensure a certain customer satisfaction level besides time & budget constraints. In this study, we propose a combination of Kano model and MoSCoW technique which we call the MoSCoW-integrated Kano model to measure customer satisfaction. Our empirical research was conducted on three Vietnamese enterprises. The paper aims to shed light on the priority given to customer requirements that the project must fulfill, aimed at increasing customer satisfaction. Research results show that the results are contrary to the above rate, the high-level requirements ratio of the effective MUST is at about 20-30%.

Keywords: *Project management, software project, MoSCoW technique, satisfaction.*

1. Introduction

A project usually ends in failure or unexpected outcomes. Projects in general, technical projects in particular, only 2.5% of projects reach success, the rest either failed to meet some of their user's requirements or missed the original budget or deadlines (Andriole, 2020). According to Andriole (2020), in software projects, the issue happens frequently, and these failed IT projects cost the United States \$50-\$150B in lost revenue and productivity. Successful projects need desired outcomes or customer expectations. Indeed, most software projects fail because of misunderstanding customers' requirements (Reel, 1999). As a matter of fact, a project fails because, the accuracy and quality of requirements immensely contribute to the success of a project (Krauss, 2012), quality requirements are pivotal and key to customer or user product satisfaction (Hussain et al., 2015; Serrador & Turner, 2015).

In order to enhance communication with customers and their expectations, especially focusing on the time and value of products delivered to customers, the Agile approach in software project management is increasingly being applied. For a project to be as successful as expected, user's requirements need to be prioritized appropriately, thus the technique of Agile-Moscow which is an effective prioritization technique has been applied widely.

MoSCoW technique begins from software process management that can be applied to any kind of situation or project management for managing requirements (Hatton, 2007). A software product can go wrong or fail if the right requirements are not prioritized at right time. MoSCoW revealed weaknesses in the accuracy of time estimates and low customer satisfaction (Mohamed et al., 2015; Rida et al., 2017); Literature review shows that there has not been any empirical research demonstrating the design requirements breakdown for the MoSCoW classification to guarantee project success and satisfy customers.

The Kano Model is an approach to assessing the impact of services or product features on customer satisfaction, it is also therefore an insightful way of prioritizing customers' requirements. No comparison has been made in previous studies, however, MoSCoW and Kano share comparable similarities. We are going to research on MoSCoW rules requirement prioritization ratio in a software project to increase customer satisfaction based on the Kano model

2. Literature Review

In software projects, Agile is a 'flexible' approach that has been widely adopted in recent years. This comment sounds reasonable as Agile is a conventional approach that is believed to be able to solve complex, uncertain, and heavy time-limited issues (Daniel & John, 2008; Serrador & Pinto, 2015; Kowalczyk, Marcinkowski & Przybyłek, 2022). There are not many large-scale empirical studies confirming that Agile can improve the likelihood of project success, therefore Serrador and Pinto (2015) surveyed 1002 projects across multiple industries and countries, and the authors examined the effectiveness of using Agile in organizations on two aspects of project success: efficiency and satisfaction. The above findings suggest that Agile methods have a positive impact on both aspects of project success, however, they do suggest the need for future research on defining the "quality of the vision/goals".

It can be said that Agile project is suitable for changes as Agile project requires us to break down the requirements of customers. It is necessary to prioritize requirements to help react quickly to changes, and identify value-adding (high-level requirements) through Agile tool-MoSCoW (Mohamed et al., 2015; Wińska & Dąbrowski, 2019 because changes in product requirements are not a matter, the problem is an unnecessary effort (handling unnecessary functions), which leads to waste of resources and certain risks. (Mohamed et al., 2015). The MoSCoW rules are commonly used when prioritizing stakeholder requirements in the area of business management (Shafiee et al., 2018), however, MoSCoW method is the prioritization technique that is beginning from the dynamic software development method (Hatton, 2007). MoSCoW, the first letter of each of the four prioritization categories stands for:

- *M (MUST)* - Crucially, the absence of any requirement in this group results in a high probability of project failure;
- *S (SHOULD)* - High-priority requirements (less important than Must) that should be included if it is possible.
- *C (COULD)* - Not as important as Should have. These can be left out but still are significant.
- *W (WON'T)* - All requirements have been recognized as not a priority for the project time frame.

Gaining the advantage in terms of delivery time and product quality, MoSCoW can be considered a superior technique, which in itself achieves 2/3 of the criteria, because the success of the project is usually assessed through 3 criteria: time, cost, and quality (Atkinson, 1999). According to the above research result, quality will be the most important criterion, the goal is to complete the product that can fulfill user requirements, time, and cost otherwise become secondary criteria. Determining user requirements effectively is one of the factors that make “high-quality software” (Tiwari, Rathore & Gupta, 2012). However, the project management literature emphasizes the importance of on-time delivery (Atkinson, 1999; Chan and Chan, 2004). A great many projects run late, the delay can cause costly and operational problems for clients, resulting in the conclusion that the project was not successful. Thus, in comparison with the level of success of the two projects, first of all, it is necessary to consider whether these two projects meet the conditions of the project's allowable time limit or not. To evaluate the quality of the project, the satisfaction index is used to measure the high-level requirements, because, with the project on schedule, there is a positive relationship between quality and satisfaction. (Williams et al., 2015). Relationship quality is a crucial driver of satisfaction which reinforces the work of other researchers in the project management domain.

There has not been an official study giving the safe percentage of MUST requirements. Some guides show the 60/20/20 proportion of MUST, SHOULD, and COULD requirements in MoSCoW prioritization, but there has been still no verification on this issue, and the time estimation accuracy is not high (Tufail et al., 2019), there is even an opinion that MoSCoW is not useful for adapting customer satisfaction (Mohamed et al., 2015; Rida et al., 2017). Therefore, the question is how to divide the requirements ratio so that the project not only ensures the project has an acceptable probability of success but also improves customer satisfaction.

In fact, customer satisfaction assessment is often quite difficult. Bhardwaj et al. (2021) suggest Kano model analysis is a technique to guide us to make decisions regarding requirements based on predictions of user satisfaction. Kano Model has become one of the most popular quality models that analyzes the key features of a product or service and how they affect customer satisfaction, it adopted the Kano model to examine perceived user satisfaction levels of the various system features on a software project. Consequently, there has been research exploring the impact of persuasive features on customer satisfaction levels of e-commerce websites based on the Kano (Alhammad, Wiafe, & Gulliver, 2021).

There are four levels of customer requirement characteristics (Matzler et al., 1996; Alhammad et al., 2021):

- *Threshold attributes*: ‘Must haves’ requirements, the absence leads to total dissatisfaction. If any requirement is absent, the customer will be extremely dissatisfied. However, their presence on the product does not increase customer satisfaction as this is the minimum requirement the system needs to meet.
- *Performance attributes*: absence of requirements may lead to customers being dissatisfied. The more requirements belonging to this group are fulfilled, the higher the customer satisfaction.
- *Excitement attributes*: The more these requirements are fulfilled, the more satisfied the customer is. However, dissatisfaction is not affected if requirements are not met.
- *Indifferent*: Whether or not this kind of requirement exists does not affect the state of satisfaction or dissatisfaction.

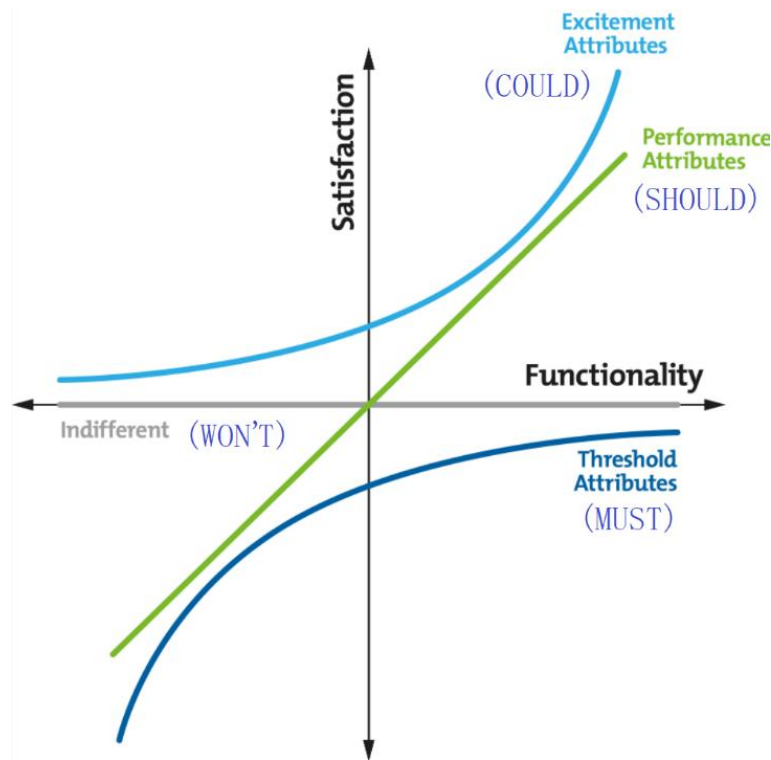


Figure 1. MoSCoW-integrated Kano model proposal for requirement prioritization (Authors edit)

There has never been a previous study comparing, and combining Kano model and MoSCoW, in our opinion, because MoSCoW is often applied by engineers while Kano model is used by researchers and practitioners working in the management field. It is recognized there's a general equivalence between the two measurements, so we propose a combination of MoSCoW and Kano model to classify user requirements which we call MoSCoW-integrated Kano model (Figure 1). Based on MoSCoW-integrated Kano model, we are going to conduct research on the requirement prioritization ratio in software project to increase customer satisfaction, and guarantee the possibility of success.

2.1. Steps in the research process

Our empirical observation took place in the condition that we developed a mobile application to manage online ticket sales of cinemas (family scale) of 3 businesses in 2 months. According to Agile, we have to work with customer requirements that user requirements are not clear, but to be able to evaluate objectively, we think it is necessary to examine the same standard measure. Specifically, when working with clients, we presented our research and recommended the same high-level requirements available to all three companies. The recommended High-level requirements are as follows (Table 1):

Table 1. Comprehensive list of requirements for timeboxing

No.	High-level requirements	Estimated time for completion
1	As a managerial staff, they want automated movie scheduling	4 days
2	Customers need to be able to real-time choose their seats when making the booking.	2 days
3	The system allows users to see upcoming attractions.	4 days
4	The system can trigger notifications when new movies come out.	3 days
5	The app can generate a digital ticket	3 days
6	Users can deposit via an online payment method	7 days
7	User can vote favorite movie	3 days
8	As a user, they want a virtual room to deliver a fully immersive adventure.	15 days
9	As management staff, he needs monthly automated reports.	5 days
10	As a managerial staff, he wants a reward system	12 days

In order to avoid the influence of the skill factor, we have practiced in advance to ensure that the ability to execute projects A, B and C is relatively the same. In addition, the projects were implemented according to the available scenario, that is, the High-level requirements are predefined proportionally to the MUST; Customers can manually adjust the SHOULD and COULD, in addition, they can add the WON'T requirements to the COULD. An overview of the study design is depicted in Figure 2.

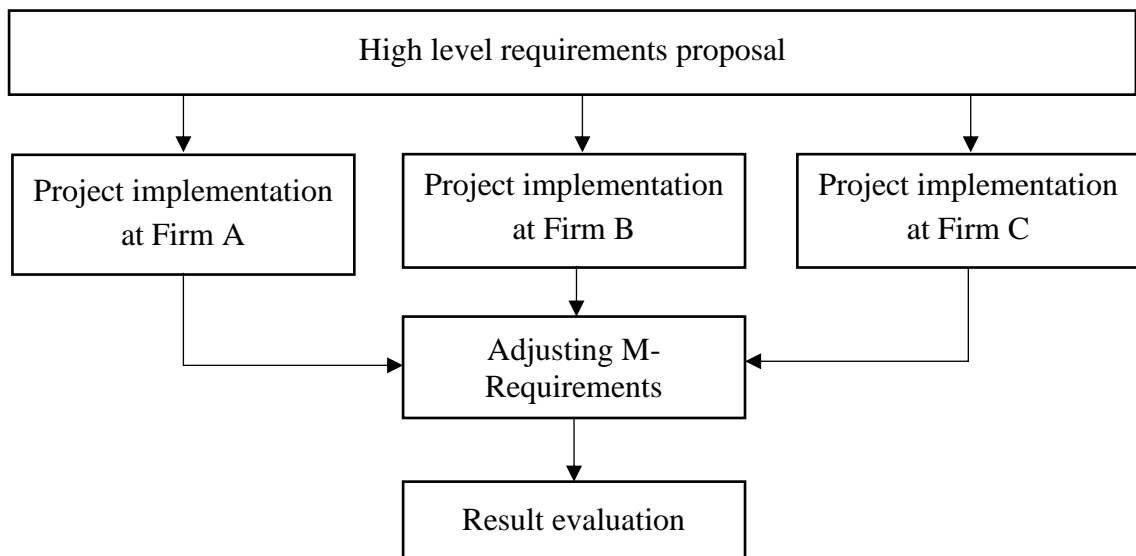


Figure 2. Research design

2.2. Built-in evaluation

The calculation of this customer satisfaction is as follows:

Satisfaction: (Excitement attributes + Performance attributes) / (Excitement attributes + Performance attributes + Threshold attributes)

3. Results

Table 2. Time, cost, and satisfaction level after adjusting the MUST

	Firm A (M: ~20%)	Firm B (M: ~30%)	Firm C (M: ~40%)
Schedule	On schedule	On schedule	Overdue (6 days)
Cost	Within budget	Within budget	Within budget
Satisfaction	I	II	III

A successful project is recognized as successful when it meets the customer's requirements and completes on time. At the end of the project, initially, we should evaluate the project success in terms of time, cost, and output, however, for discriminant validity, project success is measured by whether the organization has achieved its higher-level customer satisfaction.

Compared to the theoretical basis, the project meeting the deadline is a prerequisite before considering the quality and customer satisfaction factors, while the product quality and customer satisfaction are positively correlated if the project is achieved. Realized, SHOULD, COULD do not give equal satisfaction, so the proposed ratio of 60/20/20 is not reasonable. Table 2- Company A has the highest rate of satisfaction when the MUST requirements are set at 20%, and the satisfaction level decreases as we gradually increase the time spent on the MUST.

3. Conclusion

The discussed method is frameworks that put the most emphasis on the delivery model, and requirement prioritization ratio result. Some reports suggest that while using MoSCoW technique, MUST requirements should be kept within 60%, our research results based on Kano model (Proposed MoSCoW-integrated Kano model) disagree with the result. At this point, we recommend 20-30% of the total high-level requirement for MUST, the rest of the time focus on solving requirements that can achieve performance attributes to increase satisfaction. We acknowledge limitations to our study however. We point out that, to lessen bias, future research could have been tested with a larger sample size to verify our research results.

Acknowledgment

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FACTORS AFFECTING THE QUALITY OF AUDIT SERVICES OF FINANCIAL STATEMENTS IN VIETNAM, RESEARCH FROM THE PERSONAL PERSONALITY OF AUDIT CUSTOMERS

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Abstract

This study was conducted to evaluate the influence of these factors on the quality of the audit of financial statements from the perspective of audit clients in Vietnam. The article uses qualitative and quantitative research methods. The results of analyzing 160 survey samples from audit clients, performing regression analysis, show that there are 3 factors affecting the quality of financial statement audit services arranged in descending order, including: Adaptation; Social Exchange and Service Exchange. Based on the research results, a number of recommendations are made to stakeholders to improve the quality of audits of financial statements for independent auditing firms in Vietnam.

Keywords: *Audit clients, audit quality, financial statements, service quality.*

1. Introduction

The quality of financial reporting audit services in recent years has received a lot of attention from stakeholders, especially the audited units themselves. Because, the audited entity or the audit client (KHKiT) is the party that directly covers the audit costs, so they want to balance the costs and benefits. In particular, the increase in the position, credibility and quality of information on the financial statements or in other words, they expect the audit to be conducted with high quality. However, CLDVKT financial reporting is a multidimensional concept, difficult to observe and measure because it depends on the impact of many factors and more importantly, CLDVKT financial reporting depends on the perception of each object of interest (DeFond & Zhang, 2014). Therefore, in order to be able to measure and evaluate the accounting records from the perspective of each stakeholder, it is necessary to understand and master the factors affecting the accounting records in the financial statements.

Many researches on accounting management in both the world and Vietnam in the past years have been carried out to identify the factors that determine accounting management and financial reporting so that there are specific solutions to improve accounting management. Along with the studies of academia such as: Carcello et al., (1992); Francis (2011); Knechel et al., (2013); Phan Van Dung (2015)... planning organizations such as FRC, IAASB have also issued a template on CLDVKT to identify important factors and attributes of CLDVKT.

In Vietnam, in the context of economic transformation, international integration in the field of accounting and auditing is deepening, audit quality has become a topic that has received the attention of many scholars. However, research on the factors that affect the audit quality of financial statements from the perception and evaluation of audit clients seems to be very limited. Most of the previous studies focused on the attributes of auditors, audit firms, or external factors to measure the quality of audit services from the perspective of auditors.

Therefore, this study was carried out as an attempt to fill the previous research gap, while providing empirical evidence in Vietnam on this issue. The research results contribute to increasing the understanding of the factors and the level of influence of each factor on the accounting policy of financial reporting in the perspective of science and technology. Since then, helping enterprises have suitable solutions to increase the level of satisfaction and satisfaction of customers, a very important party participates directly and actively in the process of implementing audit services.

2. Literature Review

2.1. Audit service quality and satisfaction from the customer's perspective

Quality of Service (CLDV): CLDV differs from product quality because of its unique feature (Parasuraman et al., 1985). Also because of the unique feature of the service when compared to the product, the concept of CLDV is very different. Research by Zeithaml (1987) has shown that CLDV is the assessment of customers about the outstanding characteristics and general excellence of an entity. In addition, Lehtinen & Lehtinen (1982) argue that CLDV must be evaluated on two aspects (1) the process of providing services and (2) the results of services. Also, in Gronroos' (1984), the definition of CLDV consists of two elements: (1) technical quality and (2) functional quality, in which CLDV relates to what is served and functional quality indicates how they are served. CLDV is the factor that most impacts customer satisfaction (Cronin & Taylor, 1992; Yavas et al., 1997). Within the scope of this study, from a customer-centric point of view, CLDV means the satisfaction of the expectations and needs of customers. Therefore, CLDV is decided by customers when the service provided by the business meets the satisfaction of customers.

Satisfaction: Customer satisfaction is the overall attitude of the customer to the service provider or an emotion that responds to the difference with what the customer anticipates and what they receive, to the fulfilment of some needs, goals or desires. It is the customer's assessment of whether a product or a service has met their needs and desires (Zeithaml & Bitner, 2000). Thus, it can be understood that customer satisfaction is based on their understanding of the product or service that forms subjective judgments or judgments. It is formed on the basis of the experience gained in purchasing and using products or services. After purchasing and using the product, customers can compare between reality and expectations, thereby assessing satisfaction or dissatisfaction.

The relationship between CLDV and satisfaction: Although these are two different concepts, they are closely related in the research on services (Parasuraman et al., 1988).

Customer satisfaction is a general concept, expressed their satisfaction when using a service. Meanwhile, CLDV focuses only on service-specific components (Zeithaml & Bitner, 2000). Although CLDV and satisfaction are interrelated, there are few studies focusing on testing the level of interpretation of CLDV components for satisfaction, especially for each specific service sector (Lassar et al., 2000). Cronin & Taylor (1992) examined this relationship and came to a conclusion, sensing that CLDV leads to customer satisfaction. Some studies argue that CLDV is a precursor to satisfaction (Spereng, 1996) and a major factor affecting satisfaction (De Ruyter et al., 1997).

In the field of auditing, Carcello et al., (1992); Behn et al., (1997); Boon. et al., (2008) define CLDVKT based on the level of satisfaction on objectivity, truthfulness and reliability of audit reports of users of information, audit results. Research by Duff (2004) has shown that accounting records should be considered on both technical, professional and service aspects. In terms of service, accounting records are assessed through the level of satisfaction of users of information on financial reporting. Thus, from a customer-oriented point of view, CLDV is synonymous with meeting customer expectations. Therefore, when looking at independent auditing as a professional service business, it is *necessary to assess it based on the level of satisfaction or satisfaction of customers.*

2.2. Factors affecting the quality of audit services

In recent studies, the factors to measure basic CLDV are based on the factors in the SERVQUAL model of Parasuraman et al., (1988). Although widely used, many authors suggest that the five SERVQUAL factors (assurance; trust; interaction; tangibility and empathy) can be very general when evaluated in specific service contexts (Carman, 1990).

To solve the problem of how to best generalize CLDV factors in the context of professional services with enterprises. Woo & Ennew (2005) proposed to re-examine the interaction and relationship in CLDV perception by Industrial Marketing and Purchasing Group – IPM interaction model (Hakansson, 1982). This model identifies four factors of short-term exchange (Service/ Product Exchange; Financial Exchange; Information Exchange; Social Exchange) in a relationship and two longer-term aspects of that relationship (Collaboration and Adaptation). Using this model, the main characteristics of the interaction between enterprises and enterprises have been clarified from systematic empirical studies across different enterprise and business contexts and can be directly incorporated into the concept of CLDV.

Short-term exchange

- *The exchange of products/services:* Demonstrates the core of the interaction process and thus has an important influence on CLDV perception. It includes a range of salient features such as product complexity, specification, frequency of implementation, drop uncertainty (Hakansson, 1982), technical support, and product necessity (Metcalf et al., 1992).

- *Information exchange:* In IMP documents, information exchange consists of two main components: communication method and content. In particular, the method of communication, including: the number of people involved, the frequency of the exchange,

the scope and depth, the extent of the form transferred between the parties, the type of information offered and provided (Hakansson, 1982). According to Gummesson (1978), one of the unique features of professional services is its focus on counseling and problem solving. Therefore, the exchange of information between customers and professional service providers is said to be regular and formal.

- *The financial exchange:* From the point of view of CLDV, it is the elements of the relevant financial exchange process. Prices are explicitly excluded as part of the measure of value rather than as a direct indicator of quality. The financial exchange process includes factors such as the payment on time, the retention of appropriate payment documents. The process of financial exchange like other processes is one of the direct relational functions that make up the quality assessment platform.

- *Social exchange:* The role of exchange is to bridge the space and cultural gap between stakeholders and build mutual trust. Therefore, social exchange includes variables such as openness, mutual trust and trust, reduction of cultural differences in social contact in business (Hakansson, 1982), understanding of issues and ease of making friends (Metcalf et al., 1992). The empathy factor that focuses on ease of access, communication, and understanding in the SERVQUAL scale may only be part of the social exchange factor. To create a stable relationship later, two additional (indirect) factors are required and named “collaboration” and “adaptation.”

Long term relationship

- *Collaboration:* According to Halinen (1996), collaboration refers to the emergence of "different rules, customs and operating procedures, standards in a relationship. Building collaboration will include elements such as solving common technical problems, mutual concessions, continuity (Hakansson, 1982), relevance to benefits, and willingness to make collaborative changes.

- *Adaptation:* Adaptation is defined as the adjustment that one or more parties make to the elements to be exchanged or the process of the exchange. (Hakansson, 1982). Hallen et al., (1991) note that the adaptation between companies is very important because they link companies together through the investment of specific relationships.

Auditing is a special activity, the audit process shows the professional interaction between enterprises and enterprises. From the above analysis, it can be seen that, from the perspective of CLDV, CLDVKT financial reporting is measured through 6 influencing factors, including: Service exchange; Information exchange; Financial exchange; Social exchange; Collaboration and adaptation based on factors in the professional CLDV model of enterprises with enterprises of Woo & Ennew (2005).

3. Method

3.1. Research model and hypothesis

Based on the above theoretical basis and analysis, the theoretical model and research hypotheses are proposed as follows:

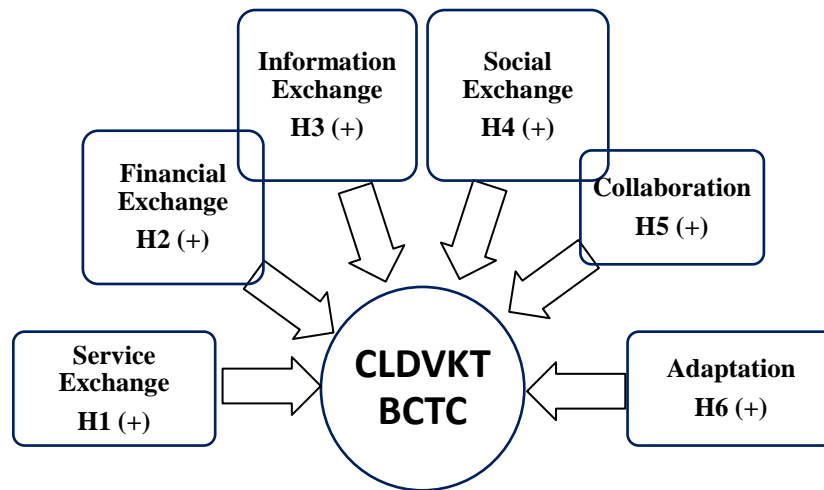


Figure 1. Research model of financial statement audit service quality from the perspective of KHKiT

Source: Recommended by the author

3.2. Data collection and processing

The author collects data through the questionnaire to collect the opinions of directors and accountants of audit clients on the impact of factors on the quality of financial reporting audit services.

The questionnaire was checked and calibrated by sending to 02 experts (one was CPA, senior lecturer of the Institute of Accounting - Auditing, National Economics University; the other was the director of MBbank branch) to assess the relevance to the research objectives. To evaluate audit quality (dependent variable), the author uses the Likert scale of 5 levels of agreement, from: (1) Strongly disagree to (5) Strongly agree. Evaluating independent variable factors, the author uses the Likert scale with 5 levels of influence, from: (1). Very low to high (5). Very high. The number of scales that measure variables is summarized in Table 1 below.

In addition, to ensure the study sample size, based on the minimum sample size requirements for EFA analysis and regression. According to Bollen (1989), the sample size is calculated according to the formula $n = 5 \cdot i$ (i is the number of variables observed in the model), corresponding to this study, the sample size will be $32 \text{ variables} \cdot 5 = 160$. According to Tabachnick & Fidell (2007), the sample size in multiple linear regression analysis is calculated according to the formula $n = 50 + 8 \cdot q$ (q is the number of independent variables in the model), whereby the sample size of the study will be $50 + 8 \cdot 6 = 98$. To improve the reliability of survey information, the study selects the largest sampling for the model according to one of the above principles.

The author uses a convenient sampling method and 160 valid samples obtained through the issuance of direct questionnaires, sending and receiving questionnaires through the Google form tool and email to the directors and accountants of 573 audit clients in 2020 (audit client information is taken from the websites of auditing enterprises and from the website: vietstock.vn). Based on the collected data, the author uses quantitative techniques such as testing the reliability of the scale, exploratory factor analysis... with the use of SPSS software.22 to summarize and present the basic results of the study.

Table 1. Coding attributes of factors affecting the quality of audit services

Factor	Encode	Number of scales	Source
Independent variables			
Service exchange	DV1	Auditing services that meet the specific requirements of the audit	Woo & Ennew (2005)
	DV2	Auditing services are performed by qualified personnel	
	DV3	Auditing services achieve cost-effectiveness	
	DV4	The audit service meets the established schedule for the audit	
	DV5	The audit service meets the budget established for the audit	
	DV6	The audit report is provided on time to the client	
Information exchange	TT1	The audit report includes necessary information and is easy to understand for readers	
	TT2	Adjusting entries are communicated to the client early in the audit	
	TT3	The adjusting entries are reasonably substantiated	
	TT4	Customer inquiries are answered quickly by KTV	
	TT5	Customer's questions are properly answered by KTV	
Financial Exchange	TC1	The audit contract is presented scientifically with full scope of work	
	TC2	DNKT sends payment requests to customers on time	
	TC3	The payment requirements are consistent with the progress of the work performed	
	TC4	Errors in payment requests, invoices are corrected quickly	
Social exchange	XH1	Auditors and audit firms create trust in working relationships with customers	
	XH2	The KTV has a good understanding of the client's operations	
	XH3	Auditors demonstrate independence and compliance with industry standards	
	XH4	KTVs show enthusiasm in dealing with customers	
	XH5	KTVs maintain regular contact with customers	
Collaboration	CT1	The auditors cooperate closely with the client in performing the audit	
	CT2	Auditors and audit firms have the ability to resolve customer complaints	
	CT3	Auditors and audit firms demonstrate cooperation in resolving conflicts arising with customers	
Adaption	TU1	Audit reports are always changed to meet relevant regulations	
	TU2	KTVs always update customers with new regulations of the State	
	TU3	The auditors can adjust the work schedule and schedule due to unexpected problems arising from the client's side	
	TU4	Other departments (such as tax, consulting) are coordinated when required by customers	
	TU5	Management letter provided to the client after the audit	
	TU6	Management letter helps customers improve operational efficiency and management performance	
Dependent variable			
CLDVKT	HL1	Customers are satisfied with the quality of audit services of independent auditors	Carcello et al., (1992); Behn et al., (1997); Woo & Ennew (2005); Boon et al., (2008)
	HL2	Customers continue to use audit services of financial statements performed by independent auditing firms in Vietnam	
	HL3	Customers will introduce audit services of financial statements performed by independent auditing firms to other companies.	

Source: Author collects

4. Results

Among 160 valid answer sheets, 37 came from domestic enterprises, accounting for 23.1%; 52 votes came from enterprises with foreign elements, accounting for 32.5%; 48 votes came from joint stock companies, accounting for 30%; 15 votes came from limited companies, accounting for 9.4% and 8 votes came from joint venture companies, accounting for 5%.

Number of lines of business and business fields: Finance, banking, insurance, securities 13 enterprises (8.1%); footwear, textiles, packaging, printing 16 enterprises (10%); information technology, software 17 enterprises (10.6%); real estate, construction, architecture, building materials 28 enterprises (17.5%); pharmaceutical, food, consumer goods 20 enterprises (12.5%); animal feed, cultivation 12 enterprises (7.5%); fertilizers and chemicals 8 enterprise (5%); petroleum, gas 10 enterprises (6.25%); services, tourism, hotels, restaurants 14 enterprises (8.75%); transportation, warehousing 9 enterprises (5.6%) and the rest are 13 other enterprises accounting for (8%).

The surveyed sample belongs to many types of enterprises, has a diverse structure of business lines and is fairly evenly distributed, and has mainly used audit services for 3-5 years. Thus, the answers can be guaranteed to be reliable and of good quality. The results of descriptive statistics of the scale show that most of the observed variables have the average value around the expected mean value (3.0) and there is no significant difference between the observed variables in the sample same group. That proves that the survey subjects have quite similar opinions and agree with the scale of variables.

4.1. The results of the quality inspection of the scale

This method allows to eliminate inappropriate variables and limit garbage processing in the research model. Accordingly, only variables with the total correlation coefficient (Corrected Item - Total Correlation) greater than 0.3 and the Cronbachs Alpha coefficient of 0.6 or higher are considered acceptable and suitable for inclusion in the analysis the next steps (Nunnally & Burnstein, 1994). The results of Cronbachs Alpha test for the audit quality scale (7 scales with 32 observed variables) are shown in Table 2

Table 2. Results of testing the reliability of the scale of the factors in the model

No.	Factor	Sig	Cronbachs Alpha	N
1	Service Exchange	DV	0.875	6
2	Information Exchange	TT	0.916	5
3	Financial Exchange	TC	0.920	4
4	Social Exchange	XH	0.855	5
5	Collaboration	CT	0.917	3
6	Adaption	TU	0.911	6
7	Auditing service quality	HL	0.856	3

Source: Analytical results from SPSS 22.0

Thus, the model retains 7 factors to ensure good quality, with 32 characteristic variables (the Cronbachs Alpha coefficient of the population is greater than 0.6; the Corrected Item - Total Corelation coefficient of the population). All observed variables are greater than 0.3.

4.2. Exploratory factor analysis (EFA)

After analyzing the reliability of the scale, the next step to determine the necessary set of variables for the research problem, the author uses the EFA exploratory factor analysis method to consider the degree of convergence of the scales observed variable for each component and discriminant value between factors. The process of exploratory factor analysis EFA was performed separately for 02 groups of independent variables and dependent variables by the method of rotation of the whole angle (Varimax). The results obtained after the rotations are as follows.

EFA analysis results for the independent variable (1st time)

Looking at the results of the EFA analysis for the independent variables, it can be seen that the results divide into 6 groups. The criteria to be assessed are as follows.

- KMO = 0.811, so EFA analysis is appropriate with research data.
- Sig. (Bartlett's Test) = 0.000 < 0.05 shows that the observed variables in the population are related to each other and the data used in the EFA analysis are appropriate.
- There are 6 factors extracted at Eigenvalues = 1.152 > 1 representing the variation explained by each factor, only factors with Eigenvalues greater than 1 are kept in the analytical model.
- Total variance explained (total variance explained) of factor analysis is 81.642 % > 50% satisfactory. This means that these six factors explain 81.642% of the variation in the data.
- Variables DV6 and TU1 have factor loadings less than 0.3, so this type of observed variable is used for EFA analysis (2nd time).

EFA analysis results for the independent variable (2nd time):

Looking at the results of the EFA analysis for the independent variables, it can be seen that the results divide into 6 groups. The criteria to be assessed are as follows:

- KMO = 0.808, so EFA analysis is appropriate with research data.
- Sig. (Bartlett's Test) = 0.000 < 0.05 shows that the observed variables in the population are related to each other and the data used in the EFA analysis are appropriate.
- There are 6 factors extracted at Eigenvalues = 1.149 > 1 representing the variation explained by each factor, only factors with Eigenvalues greater than 1 are kept in the analytical model.
- Total variance explained (total variance explained) of factor analysis is 82.316% > 50% satisfactory. This means that these six factors explain 82.316% of the variation in the data.

Table 3. Rotation matrix of factors (the 2nd time)

Rotated Component Matrix^a

	Component					
	1	2	3	4	5	6
DV1	.294	.842	.073	.173	.107	.160
DV2	.222	.847	.199	.165	.065	-.105
DV3	.044	.825	.165	.290	-.006	-.052
DV4	.144	.838	.094	.242	.081	.136
DV5	-.271	.762	.096	.056	.121	.284

	Component					
	1	2	3	4	5	6
TT1	.318	.173	.817	.005	.141	.082
TT2	.274	.298	.548	.229	.370	.332
TT3	.119	.075	.753	.312	.424	.142
TT4	.135	.216	.710	.061	.311	.410
TT5	.210	.143	.746	.124	.222	.216
TC1	.177	.171	.218	.834	-.087	-.267
TC2	.083	.249	.116	.818	.140	.328
TC3	.015	.226	.069	.916	.092	.067
TC4	.044	.211	.011	.906	.141	.073
XH1	.200	.071	.487	.121	.639	.295
XH2	.377	.246	.436	.015	.548	-.072
XH3	.160	-.016	.316	.199	.768	-.003
XH4	.267	.218	.252	-.029	.774	.307
XH5	.740	.114	.082	.034	.420	.055
CT1	.419	.019	.256	.026	.212	.736
CT2	.399	.223	.429	-.031	.020	.664
CT3	.379	.205	.340	.196	.170	.697
TU2	.776	.181	.059	.068	.263	.120
TU3	.641	-.026	.033	.142	.443	.423
TU4	.774	.056	.303	.229	.167	.300
TU5	.850	.071	.259	.043	.014	.285
TU6	.859	.088	.387	.019	-.006	.099

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 8 iterations.

Source: Analytical results from SPSS 22.0

The factor matrix table after rotation will be considered to see which observed variables these 6 groups of factors include, and whether the order of the observed variables is disturbed compared to the scale built at the beginning. The analysis results show that the observed variables have been grouped into 06 groups of variables with the order of the observed variables being kept the same compared to the independent variables that were initially built. Except for the variable XH5, which has been converted to measure the factor "adaptation", the factor loading coefficients are all greater than 0.5, so these 6 groups of independent variables have practical significance.

The fact that the factor TU (Adaptation) converges the observations TU_2,3,4,5,6 and XH5 (Social exchange), we find that XH5 "The auditors maintain regular contact with customers", the main purpose of maintaining a relationship with KHKiT is to develop a relationship to retain clients, which is completely appropriate in the context of the increasingly

competitive audit market and that also is the explanation for the situation that observed variable XH5 of the factor "Social exchange" converges on the factor "Adaptation".

The results of EFA analysis for the dependent variable show that the coefficient $KMO = 0.774$ satisfies the condition $0.5 < KMO < 1$, so the exploratory factor analysis is appropriate for the actual data. Sig quantity. = 0.000 satisfying the Sig condition. ≤ 0.05 , so this test has statistical significance and the observed variables are correlated with each other in the population, proving that the data used in the analysis is appropriate. Analysis of total variance extracted for the dependent variable shows that the percentage of total variance Percentage of variance = 81.793% > 50%, Eigenvalue = 2,364 > 1, so the model is eligible for factor analysis. The discovery and loading coefficients of the observed variables are both greater than 0.5, so the observed variables have practical significance. So, the dependent variable can be kept intact according to the original independent variable and has 3 observed variables.

4.3. Regression analysis results

Pearson's correlation analysis

This step is performed before regression analysis to check the correlation between the independent variable and the dependent variable, when the independent variables are not correlated with the dependent variable, they will be removed from the model (if Sig. > 0.05).

The results of Pearson correlation analysis show that there is a close correlation between the dependent variable and the independent variable in the model due to the Sig value. are all less than 0.05. Meanwhile, between the independent variables, there is a low correlation between the independent variables due to Sig.<0.05 and $r < 0.6$.

In addition, the Pearson correlation coefficients of the independent variables with the dependent variable of audit quality are all positive, so these independent variables are positively correlated with the dependent variable, that is, the factors under consideration are considered more important increased, the higher the financial statement audit service quality.

On the other hand, Pearson coefficient analysis is really just a necessary condition before running the regression to check whether there is a strong linear correlation between the pairs of variables and early identification of the problem of multicollinearity. However, with a specific sample size, it is unlikely that Pearson has reflected correctly, so it is necessary to test through regression analysis to give accurate results.

Regression analysis

Based on the results of EFA analysis, we have the following multiple regression model:

$$CLDVKT = \beta_0 + \beta_1 * DICHVU + \beta_2 * THONGTIN + \beta_3 * TAICHINH + \beta_4 * XAHOI + \beta_5 * CONGTAC + \beta_6 * THICHUNG + \epsilon_i$$

In which: $\beta_0, \beta_1 \dots$ is the regression coefficient β_0 is the intercept, ϵ_i is the residual

Table 4. Model Summary^b

Model	R	R Square	Adjusted R Square	Durbin-Watson
1	.775 ^a	.659	.633	1.874

a. Predictors: (Constant), THICHUNG, TAICHINH, DICHVU, XAHOI, CONGTAC, THONGTIN

b. Dependent Variable: CLDVKT

Source: Data analysis results on SPSS 22

Table 5. Model ANOVAa Analysis Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	44,101	6	7,350	35,591	0,000 ^b
	Residual	29,532	143	0,207		
	Total	73,633	149			

a. Dependent Variable: CLDVKT

b. Predictors: (Constant), THICHUNG, TAICHINH, DICHVU, XAHOI, CONGTAC, THONGTIN

Source: Data analysis results on SPSS 22

Table 6. Linear regression results**Coefficients^a**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1		-.728	.369		-1.972	.051		
	SERVICE	.181	.080	.143	2.256	.026	.701	1.426
	INFORMATION	.166	.115	.131	1.443	.151	.339	2.950
	FINANCIAL	.144	.082	.107	1.757	.081	.751	1.332
	SOCIAL	.361	.101	.297	3.587	.000	.409	2.442
	COLLABORATION	.025	.081	.025	.312	.755	.437	2.291
	THICHUNG	.267	.067	.307	4.007	.000	.478	2.094

a. Dependent Variable: CLDVKT

Source: Data analysis results on SPSS 22

Check the goodness of fit of the model

Test for multicollinearity: The variance exaggeration factor (VIF) of all independent variables is less than 10, so multicollinearity in the model is assessed as not serious.

The Durbin - Watson coefficient used to test the correlation of the residuals shows that the model does not violate when using the multiple regression method, because the Durbin - Watson value achieved is 1.874 (ranged from 1 to 3). In other words, the model has no correlation of residuals.

The fit of the model was assessed according to the analysis of variance (ANOVA) table. Results of ANOVA test with Sig significance level. = 0.000 shows that the built multiple linear regression model is suitable for the data set and usable, in other words, this model is meaningful to generalize to the whole.

Evaluate the level of explanation by the independent variables in the model

The adjusted coefficient $R^2 = 0.633 > 0.5$ means that the independent variables explain 63.3% of the change in the dependent variable "Audit service quality", and 36.7% are due to error randomness or other factors outside the model.

The independent variables DICHVU, XAHOI, THICHUNG all have a statistically significant impact (due to Sig.<0.05) on the quality of service. Meanwhile, with the data set obtained, the author has not found a statistically significant impact of variables THONGTIN, TAICHINH, CONGTAC on audit quality (due to Sig. > 0.05), thus rejecting the original hypothesis. (H2, H3 and H5).

The independent variables DICHVU, XAHOI, THICHUNG have coefficients of $\beta > 0$, proving that there is a positive influence with the dependent variable "quality of service". Therefore, accept the initial hypothesis (H1, H4, H6), which are the independent variables that have a linear relationship with the dependent variable and completely fit the model. From there, we have the regression equation with normalized beta coefficients as follows:

$$\text{CLDVKT} = 0,143 * \text{DICHVU} + 0,297 * \text{XAHOI} + 0,307 * \text{THICHUNG}$$

From the results of testing the research model, it shows that the level of impact of the independent variables on the quality of audit services in descending order is: THICHUNG (0.307); XAHOI (0.297); DICHVU (0.143).

5. Discussion and Conclusion

5.1. Policy implications

Adaptation

Research shows that, the higher the "adaptation", the higher the service quality. This implies that improving the factor "Adaptation" will help improve the quality of audit services of financial statements of audit firms. Therefore, managers need to take the following measures:

First, because the components in the adaptation play a role in increasing customer satisfaction and retention. Therefore, audit firms need to constantly update the system of communication channels, especially the email system of customers, so that they can notify them of changes in regulations and policies related to KHKiT, especially especially legal documents related to finance, accounting, tax... *Secondly*, accounting firms need to have reasonable communication between departments to be able to help and advice customers. *Third*, the management letter is a component of adaptation that creates great added value for KHKiT and helps the audit firm build long-term relationships with customers. Therefore, the managers of audit firms need to complete the framework of a sample management letter suitable for different types of enterprises. It also requires all audits to issue Management Letters.

Social exchange

Social exchange, including aspects: enthusiasm, building trust, understanding about KHKiT and maintaining regular contact with customers of the auditors. Research shows that, the higher the "social exchange", the higher the quality of financial reporting services. This shows that the audit firms need to take the following specific measures:

Firstly, before each audit, the staff should carefully study the previous years' audit records to understand the client's business performance. The staff also need to update the customer's activities via the Internet, call before talking to the managers of the client company to get more new information. *Second*, during the audit, the auditors need to clearly demonstrate independence from the emergent interests. This will be appreciated by KHKiT as lack of independence is the cause of audit failure. *The third* is the issue of maintaining contact with KHKiT, the audit firm needs to support the communication costs for the auditors so that they can be proactive in transactional contacts and integrate email in the phones of the auditors.

Service exchange

Research results also show that the increased "service exchange" is the basis for increasing the quality of audit services. Therefore, the implication here is that the services that the audit firm provides and commits to provide in the audit contract must be performed

by skilled, professional and qualified auditors who meet specific requirements of each audit... in order to increase the added value for the client commensurate with the proposed fee. To do that, businesses need to do:

Firstly, regularly organize meetings to update changes of policies and regimes, integrate and exchange professional issues, auditors can bring up situations encountered in KHKiT to discuss and evaluate together price. *Secondly*, after each audit, it is necessary to send an assessment of the spirit and attitude of the auditors to KHKiT soon after each audit. If there is an unsatisfactory appearance from the customer, it is necessary to check, evaluate the cause and propose solutions to handle immediately.

5.2. Conclusion

Through the analysis of 160 survey samples from independent audit firms, it was found that 3 factors that affect the quality of financial statements audit services are "Adaptation"; "Social exchange" and "Service exchange". However, in this study the factor "Information exchange"; "Financial exchange" and "Collaboration" did not have a statistically significant impact on the quality of financial statements audit services. This can be explained because the KHKiT group surveyed in this study are mostly enterprises with foreign elements, the managers are quite qualified, and have good access to information. Future research needs further testing to further clarify this relationship.

5.3. Limitations of the study and directions for future research

The article contributes to expanding research knowledge on the influence of factors on the quality of audit services of financial statements from the perspective of audit clients. However, the study still has some limitations, such as: First, the new model only explains 63.3% of the financial statement audit service quality. Thus, there are still other unresearched factors affecting 36.7% that further studies may explore. Second, the new research only stops at EFA analysis techniques. Therefore, further studies should aim to discover new factors and perform more in-depth analysis techniques. At the same time, it is necessary to increase the sample size and expand the survey scope to have a more comprehensive view of the factors affecting the quality of financial statement audit services.

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FACTORS AFFECTING THE APPLICATION OF BSC TO IMPROVE THE OPERATIONAL EFFICIENCY OF LISTED COMPANIES IN VIETNAM

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Abstract

The Balanced Scorecard (BSC) is an important strategic management tool that aligns business goals. BSC aids managers in evaluating and measuring operational efficiency in enterprises based on 4 perspectives: Finance; Customer; Internal process; Learning and growth. To increase the applicability of the BSC, this study was conducted to investigate the factors affecting the application of the BSC in listed companies in Vietnam. The factors included in the study consist of Organizational size, Organizational culture, Manager's awareness, Accountant's capability, Cost of using BSC, Benefits of using BSC. In addition, the study examines the impact of BSC application on the operational efficiency of listed companies in Vietnam. The authors used a mixed research method which included qualitative methods and quantitative methods in the study. Data was collected from June to December 2021 from 274 listed companies in Vietnam (including publicly listed enterprises on HNX and HOSE), which was then used with the Structural Equation Modeling (SEM) to perform the analysis. The research results show that all factors have a positive influence on the application of BSC, and the study also shows that the higher the level of BSC application, the higher the operational efficiency of enterprises. Thereby, the authors give some management implications to support enterprises to implement BSC effectively.

Keywords: Balanced ScoreCard, Listed Company, Operational Efficiency, Vietnam.

1. Introduction

As Vietnam's economy is being integrated and developed due to globalization, the competition between businesses in the Vietnamese market in particular and the world, in

general, is becoming fiercer. Lee (2007) argued that the methods of evaluating business performance using traditional financial indicators had become outdated, only meeting short-term goals and incapable of measuring them in the long-term, when profitable activities are increasingly shifting from being dependent on tangible assets to intangibles, so they cannot fully reflect the enterprise's operational efficiency. To evaluate the business's performance, the enterprise needs a system of indicators associated with its development strategy and accessible to both financial and non-financial aspects. The Balanced Scorecard (BSC) was built with 4 perspectives of Finance, Customer, Internal Process, Learning and growth; all of which along with the development strategy of the business are related causally to measure, evaluate comprehensively all aspects of an organization's performance (Kaplan & Norton, 1992). Martinsons et al (1999) stated that the BSC is a foundation for strategic management of information systems. The success of an organization depends on its ability to turn resources into products and services customers desire. Thanks to mentioned advantages, BSC has emerged as a decision-making support tool at strategic management levels, many enterprises currently evaluate their operational performance by supplementing financial accounting data with other objectives-related measures to the following factors: customers, internal process, learning and growth. As a result, many enterprises in Vietnam as well as in the world have applied the Balanced Scorecard to evaluate their performance.

Around the world, theoretically, many authors have studied the Balanced Scorecard and previous studies have shown that the application of the Balanced Scorecard in enterprises of different organizational sizes differ. In a survey by Silk (1998), up to 60% of companies in the US have applied BSC and considered BSC as an effective management tool. Various studies in Europe and Asia showed that in large-scale enterprises and listed companies, BSC is viewed as an useful strategic management tool and fully implemented with 4 perspectives, non-financial measures also helped businesses benefit and increase financial indicators, such as Blundell et al. (2003), Evan (2005), Jusoh (2008), Anand et al. (2005), Halabi et al. (2009). In addition, BSC is not only applied in large-scale enterprises but also significant in implementing development strategies for small and medium-sized enterprises. However, the application of BSC in small and medium-sized enterprises is not complete, Chimwani et al. (2013), Sofian et al. (2015), Giannopoulos et al (2013) pointed out the indicators used in the Balanced Scorecard are still mainly financial indicators, either due to financial constraints (Sofian et al., 2015) or due to the lack of awareness and understanding of BSC in these firms (Giannopoulos et al., 2015). associates, 2013). Therefore, through research around the world, it can be seen that large-scale enterprises and listed companies will have more favorable conditions to successfully apply the BSC model.

In Vietnam, BSC was initially introduced and mentioned in the early 2000s through seminars on implementing and applying BSC in business management and several articles. Large enterprises such as FPT, Phu Thai, Kinh Do have pioneered in implementing the model; however, the initial implementation has not brought about the expected success. In terms of research, the authors found that there are two main research directions which are qualitative research and quantitative research. Regarding the qualitative research, the authors studied the application of BSC on a small scale and these studies were mainly qualitative,

for instance, the application of BSC to evaluate the organizational performance such as Phong (2013), Hong (2012), Trinh (2020). With the direction of quantitative research, the studies pointed out the factors that have an impact on the application of BSC in enterprises. Van (2009) figured out three factors: perceived benefits to the company, perceived ease of use, and attitudes that can positively affect the intention to use BSC. While database factors, participants' support, and individual perceptions had no significant impact. According to Ngan Ha (2019), factors including Ease of use, organizational size, managers' awareness, cost of using BSC, business strategy, benefits of use have a positive impact on the application of BSC in small and medium enterprises in Ho Chi Minh City. The study by Yen (2019) on Vietnamese hotel service businesses indicated four management factors that positively affect the application of BSC, including the control system that hotel managers used, the hotel manager's ability to receive new knowledge, the hotel manager's perception of the usefulness of the BSC, the hotel manager's perception of ease of use of the BSC, in which the perceived usefulness had the greatest influence on the use of BSC. The study of Giang (2017) provided a model with 6 factors affecting the application of BSC in listed companies on the Ho Chi Minh Stock Exchange, including accountant's capabilities, company scale, managers' perception of BSC, organizational culture, business strategy, cost of using BSC. Research results showed that all factors in the model have positive effects on the application of BSC. These studies initially set the premise for future research directions on BSC in Vietnam.

From practice, the authors found that businesses in Vietnam are increasingly interested in applying management accounting in general, and BSC in particular to improve management efficiency. Thereby, the research group understood that the application of BSC for businesses in Vietnam is essential, contributing to the success of enterprises in Vietnam. For large-scale enterprises with many departments (especially listed companies), it will be more challenging to implement BSC to these companies as it requires higher accuracy due to the large scale and complexity of management accounting. Therefore, the authors realized that it is necessary to do more in-depth research on the factors affecting the application of BSC in listed companies in Vietnam to serve as a basis to support these enterprises in effectively applying BSC. In addition, the authors' use of analytical methods through structural equation modeling (SEM) is also a new approach, when studies in Vietnam on this issue still use traditional analytical methods to perform the analysis.

Understanding the obstacles listed companies are facing, the research team reviewed and compiled factors affecting the application of BSC.

Organizational size (QM)

According to Burns & Stalker (1961) as well as some other similar studies, the scale of the enterprise is closely related to the decentralization and structure of activities because when the size increases, it will place constraints on information processing for senior managers. Moreover, the need to create effective communication methods is emphasized in large firms. Therefore, in large enterprises, many problems of information and measurement will arise, so it is necessary to have a solution to cover information sources and strengthen management (the best solution is the application of complex management systems).

Hoque & James (2000) researched the relationship between the application of BSC, firm size, product cycle, market share of the business, and their impact on performance. Through the research process, the authors concluded that the application of BSC is affected positively by the size of the enterprise.

Koske & Muturi (2015) also investigated the impact of firm size on the application of BSC in non-governmental organizations. The survey results showed that 82% agreed that the larger the business, the higher the need to use complex tools like BSC, 76% believed that businesses providing good products and services have the need to use BSC and 70% thought that businesses with opportunities and potential growth are more likely to apply BSC.

Organizational culture (VH)

Research conducted by Rababah & Bataineh (2016) was based on the organizational culture profile model (OCP) proposed by O'Reilly (1991) to examine the influence of 5 factors of corporate culture on the application of BSC through a survey at businesses in Jordan. However, the research results published by the author showed that only 3 out of 5 factors have a positive impact on the application of BSC, which are team orientation, innovation, and mission. Outcome orientation and attention to detail have little or no effect on the application of BSC. This study had pointed out the significant influence of organizational culture factors on the application of BSC in companies that are rarely mentioned in written research.

In Vietnam, Nhi & Toan (2018) also included the culture factor in their research. According to the authors, a good corporate culture will help businesses attract talents and retain employees' loyalty and enthusiasm. The research results showed organizational culture has a positive effect on the application of BSC in enterprises, and at the same time, when applying new tools such as BSC, it is necessary to have consensus and cooperation for employees to be motivated to overcome obstacles.

Manager's awareness (NT)

Northcott & Taulapapa (2010) studied the use of BSC to manage the operations of local public organizations in New Zealand. Research showed that managers' understanding of BSC is very high (91,67%) but only 8 units use BSC. Through survey and consultation, the authors showed that the application of BSC is more suitable for businesses with strategic orientation and competition in the market, while public entities operate without competitors and long-term strategies are often specified by law, regulations rather than by managers. Therefore, managers believe that applying BSC in public units does not bring many benefits.

Nhi & Toan (2018) explained that a manager's perception of BSC is a manager's understanding of the potential, benefits, and how to use and implement BSC. Since Vietnam's economy is transitioning to a market economy and is still learning a lot from abroad, as well as the new and still researched BSC method, the application of BSC in enterprises is trivial. Therefore, the application of BSC is difficult to succeed if managers do not have a clear understanding of this method and the benefits it brings.

Accountant's capabilities (TD)

According to Hung (2012), accountants are the key human resources in implementing and applying managerial accounting, specifically BSC. If the accountant's professional capabilities do not meet the requirements, the application of BSC in the enterprise is impossible or it can be applied but not fully efficient.

Research by Giang (2017) in listed companies in Ho Chi Minh City considered accounting's capabilities as a factor affecting the application of BSC. Research results showed that the capability of accounting staff has the strongest and most positive impact on the application of BSC.

Nhi & Toan (2018) believed that the BSC method is quite new in Vietnam and not all accountants know how to operate BSC. However, staff with good qualifications and an understanding of managerial accounting including BSC will increase the possibilities to apply BSC in enterprises. The author's research results also showed that accountants' capabilities have a positive influence on the application of BSC of enterprises.

Cost of using BSC (CP)

Hewlett (1999) argued that most business strategies, when implemented, face financial obstacles. Businesses, especially non-governmental organizations, need to use non-financial measures such as market share or market growth to increase their competitiveness. At the same time, businesses need to analyze costs and benefits when implementing the BSC application. Porter (1985) stated that if an organization only looks at costs and financial benefits without considering strategic risks, it will be more likely to pursue less favorable projects.

Giang (2017) examined the influence of the cost of implementing BSC on the application of BSC of listed companies. Through survey and regression analysis, the author concluded that the factor has a positive influence on the application of enterprises; however, application cost has the lowest influence among the surveyed factors. Through the research, the author also proposed that listed companies invest reasonable costs to build and operate the BSC system for businesses, in which it is necessary to apply information technology to the corporate accounting system.

Benefits of using BSC (LI)

In 2014, Islam et al. studied the impact of four behavioral factors on the application of BSC, including the benefit of BSC. Research showed that this factor has a positive impact on the application of BSC and there is a correlation between the factors. According to the authors, awareness of the potential of BSC is a key factor affecting other factors, including the benefits of BSC. Employees' awareness of the benefits and ease of use of BSC makes them more willing to use the tool, thereby improving the enterprise's applicability to use BSC.

Study of Koske & Muturi (2015) also considered the BSC benefits in non-governmental organizations. Through seeking opinions from survey subjects, the author collected the following data: 62% agree that BSC is useful for internal communication and decision making in the enterprise, 60% think that BSC increases the business's competition

and 54% believe that BSC supports service delivery through the customer perspective. At the end of the study, the authors accepted the importance of BSC benefits to the application of BSC, and at the same time, the authors recommended that managers need to be concerned about the benefits of BSC before deciding to apply this tool.

2. Method

2.1. Research model

By reviewing previous studies as well as getting opinions from experts regarding the topic, the authors build a formal research model with 6 factors affecting the application of BSC. At the same time, the authors also put the impact of the Application of BSC on Operational Efficiency into the research model. The research hypotheses are as follows:

H₁: Organizational size has a positive impact on BSC application.

H₂: Organizational culture has a positive impact on BSC application.

H₃: Manager's awareness has a positive impact on BSC application.

H₄: Accountant's capabilities have a positive impact on BSC application.

H₅: Cost of BSC has a positive impact on BSC application.

H₆: Benefits of using BSC have a positive impact on BSC application.

H₇: BSC application has a positive impact on Operational efficiency.

The authors built the official research model as follows:

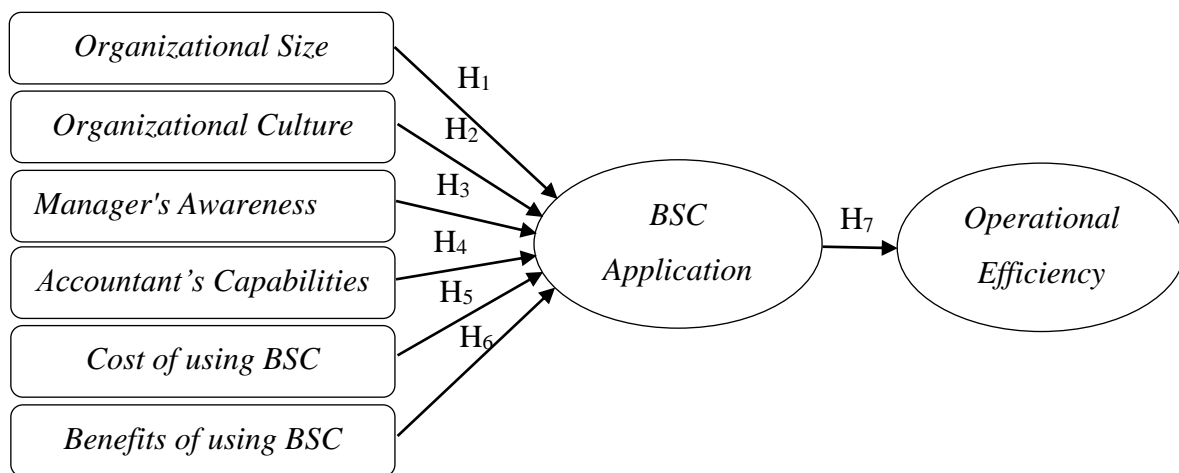


Figure 1. Official research model

2.2. Research Process

The team of authors built a research process consisting of 4 main stages as follows:

Stage 1: The authors determined the research problem, the research objective of the article. This is the basis for defining research questions. The main purpose of this research is to answer these questions. By inheriting the literature reviews of previous studies, the authors identified the factors that significantly affect the application of BSC. At this stage,

the authors also gave an overview of BSC, its performance, and the background theories used in the research.

Stage 2: The authors conducted qualitative research by collecting opinions of experts on BSC. This provided the authors with an expert perspective on the research problem so that they can build the official model and scale for the research.

Stage 3: At this stage, the authors conducted quantitative research steps. The survey was built using the Google Forms tool based on the official model and scale and then sent to the survey subjects. After collecting enough data, the authors conducted the analysis using AMOS & SPSS tools.

Stage 4: From the results of data analysis, the authors concluded the research problem and provided solutions to increase the level of application of BSC in listed companies in Vietnam.

2.3. Sampling Method

In this study, the authors used the convenient sampling method. The sample size needs to be larger than the minimum sample requirement. Some of the minimum sample requirements in the article are as follows:

- Determine sample size according to population estimate: According to the formula for determining the sample size of Yamate Taro (1967), the minimum sample size for the study was 261.
- Determine sample size for EFA analysis: According to Hair et al (2014), the minimum sample size to use EFA is 50, preferably 100 or more. The ratio of observations to a variable is 5:1 or 10:1. For this study, the number of analyzed variables was 34, with a ratio of 5:1 the minimum number of samples to be determined was 170.
- Determining sample size for SEM model analysis: According to Bollen (1989) for effective SEM model analysis, the sample size must have at least 5 observations per estimated parameter. Accordingly, the minimum sample of the study was 170.

➤ Thus, the authors determined the expected sample size to be 312 and the actual sample size to be 274, both of which met the sample size requirements. Therefore, the sample can be included in the analysis.

3. Results

3.1. Reliability test using Cronbach's Alpha

Table 1 shows the results of reliability testing by Cronbach's Alpha coefficient. All 34/34 observed variables of 8 factors in the research model meet the standard. All factors have a variable correlation with a total variable greater than 0,3. Additionally, the coefficients of Cronbach's alpha of all factors are greater than 0,6, so it can be concluded that the reliability of the scales used in the model ensures the allowed reliability.

For each factor with Cronbach's Alpha coefficient greater than 0,6; If any observed variables in this factor are removed, the Alpha coefficient will decrease, and the total correlation coefficient is greater than 0,3, so all observed variables in the study are kept.

Table 1. Results of Cronbach's Alpha test

Factors	Number of observations	Number of valid observations	Cronbach's Alpha	Corrected Item-Total Correlation (Min)
Organizational Size (QM)	5	5	0,892	0,677
Organizational Culture (VH)	3	3	0,829	0,641
Manager's Awareness (NT)	4	4	0,900	0,763
Accountant's Capabilities (TD)	5	5	0,857	0,646
Cost of using BSC (CP)	5	5	0,866	0,628
Benefits of using BSC (LI)	3	3	0,861	0,721
BSC Application (VD)	4	4	0,861	0,681
Operational Efficiency (HQ)	5	5	0,898	0,715

3.2. Exploratory Factor Analysis (EFA)

The research team conducted the EFA method to analyze separately for each variable in order to check the multidimensionality of the factor and evaluate the scale for the factors.

When analyzing EFA for the scales in the research model, the research team used the Principal Component Analysis method with Promax rotation and the breakpoint to extract factors with Eigenvalue > 1 . According to table 2, Kaiser-Meyer-Olkin (KMO) coefficient = 0,890 $> 0,5$ and the Bartlett test with Sig. = 0,000 ($< 0,05$), which indicates that EFA analysis is appropriate. Factor loading coefficients of all observed variables are greater than 0,5 and only uploaded for 1 factor.

Also, at Eigenvalue = 1,195 > 1 , 8 factors were extracted from 34 observed variables with a total extracted variance of 63,555% ($> 50\%$). It was concluded that no new factors were formed compared to the originally proposed research model. Thus, after analyzing EFA, these 34 observed variables met EFA analysis criteria, no variables were excluded at this stage.

Table 2. Rotated Component Matrix

	Factors							
	1	2	3	4	5	6	7	8
QM3	0,892							
QM2	0,850							
QM1	0,820							
QM4	0,770							
QM5	0,720							
HQ5		0,892						
HQ4		0,847						
HQ1		0,785						

	Factors							
	1	2	3	4	5	6	7	8
HQ3		0,721						
HQ2		0,702						
CP2			0,856					
CP1			0,789					
CP5			0,744					
CP4			0,710					
CP3			0,689					
TD5				0,799				
TD3				0,744				
TD2				0,718				
TD1				0,709				
TD4				0,701				
NT4					0,872			
NT3					0,839			
NT1					0,821			
NT2					0,772			
LI3						0,844		
LI1						0,835		
LI2						0,794		
VH1							0,839	
VH2							0,834	
VH3							0,696	
VD4								0,903
VD2								0,716
VD1								0,692
VD3								0,632
Total Variance Explained (%)	27,365	35,320	42,368	47,946	53,148	57,777	61,115	63,555
Eigenvalues	9,659	3,055	2,792	2,225	2,116	1,930	1,483	1,195
KMO coefficient: 0,890	Bartlett's Test sig: 0,000							

3.3. Confirmatory Factor Analysis (CFA)

The model fit indexes illustrated in table 3 are as follows: CMIN/df = 1,159 (between 1 and 3), RMSEA = 0,024 (<0,06), PCLOSE = 1 (>0,05), CFI = 0,985 (>0,95) met the standard and are very good. This result indicated that the measurement model fits the data well. The combined reliability of CR and extracted variance AVE are both greater than 0,5, the scale is considered reliable. The normalized weights of the scales are all high and greater than 0,5, the sig value of each pair of concepts is less than 0,05. On the other hand, the correlation coefficients with standard deviation showed that they are all different from 1. Therefore, the adjusted research model achieved convergent and discriminant values. The model did not correlate the measurement errors of the groups of factors together, so the model achieved unidimensionality.

Table 3. Composite Reliability and Average Variance Extracted

Factor	CR	AVE
Organizational size (QM)	0,903	0,654
Organizational culture (VH)	0,831	0,623
Manager's awareness (NT)	0,900	0,691
Accountant's capabilities (TD)	0,857	0,546
Cost of using BSC (CP)	0,870	0,574
Benefits of using BSC (LI)	0,863	0,677
BSC application (VD)	0,861	0,608
Operational Efficiency (HQ)	0,898	0,639

3.4. Structural Equation Modeling (SEM)

The results in table 4 showed that the model has a good suitability with the data, the indexes are at an excellent level: CMIN/df = 1,177 (between 1 and 3), CFI = 0,983 (>0,95); RMSEA = 0,025 (<0,06) and PCLOSE = 1,000 (>0,05). All regression coefficients have sig values less than 0,05, the coefficients are statistically significant. In conclusion, the theoretical model is consistent with the survey data.

The results of the standardized regression coefficient of the model show that all factors have a positive impact on the application of the BSC method in listed companies in Vietnam, in the order of Organizational size, Manager's awareness, Accountant's capabilities, Organizational culture, Cost of using BSC, Benefits of using BSC. At the same time, the statistics also show that with other factors remaining constant, successful application of BSC will have a positive impact on operational efficiency.

Table 4. Results from SEM model

Relationship			Estimate	S.E.	C.R.	Sig.	Standardized Estimate
VD	←	QM	0,327	0,068	4,814	***	0,270
VD	←	VH	0,176	0,064	2,741	0,006	0,169
VD	←	NT	0,215	0,052	4,174	***	0,268
VD	←	TD	0,259	0,059	4,405	***	0,260
VD	←	CP	0,133	0,061	2,185	0,029	0,126
VD	←	LI	0,110	0,051	2,157	0,031	0,118
HQ	←	VD	0,605	0,083	7,256	***	0,513

*** Correlation is significant at the 0,01 level (2-tailed)

4. Discussion and Conclusion

4.1. Discussion

The authors summarize the results below:

Table 5. Summary of research results

Factor	Impact level	Correlation	Impact order
<i>Impact on the BSC Application</i>			
Organizational size (QM)	0,270	+	1
Organizational culture (VH)	0,169	+	4
Manager's awareness (NT)	0,268	+	2
Accountant's capabilities (TD)	0,260	+	3
Cost of using BSC (CP)	0,126	+	5
Benefits of using BSC (LI)	0,118	+	6
<i>Impact on the Operational Efficiency</i>			
BSC Application (VD)	0.513	+	

From the table above, the specific study results are as follows:

Organizational size has the strongest influence on the application of BSC in listed companies in Vietnam. The larger the enterprise, the larger the assets and the number of employees, the higher the level of BSC usage. Previous studies have also shared this meaning, such as Hoque & James (2000), Koske & Muturi (2015), Giang (2017) and Ngan Ha (2019).

Manager's awareness has the second level of impact on the application of BSC. Thus, it can be seen that the application of BSC is difficult to succeed if managers do not have a clear

understanding of this method and what it brings. This is also consistent with some previous studies by Islam et al (2014), Northcott & Taulapapa (2012), Tanyi (2011), Nhi & Toan (2018).

The accountant's capabilities have the third level of impact on the application of BSC. However, the level of impact is still quite large because accountants are the key human resources in implementing and applying management accounting, specifically BSC. If the professional qualifications of accountants do not meet the requirements, the application of BSC in the enterprise is impossible or it can be applied but not efficiently. This result is consistent with the expectation of the research team as well as other studies including McCleary et al (2004), Ismail & King (2007), Tri (2015), Hung (2012), Giang (2017), Nhi & Toan (2018).

Organizational culture has the fourth level of impact on the application of BSC, in addition, when applying a new tool like BSC, it is necessary to have consensus and cooperation for employees to be motivated to overcome obstacles. Previous studies also have the same result such as Rababah & Bataineh (2016), Alper Erserim (2012), Nhi & Toan (2018), Hung (2012).

The cost of using BSC has a relatively low level of impact and ranks fifth among the factors affecting the application of BSC in this study. However, it can be seen that the cost factor significantly affects the application of anything in the business. The majority believed that if enterprises realize that when the cost of building and operating the BSC system is higher than the benefits achieved, they will choose to apply other tools. This is also consistent with previous studies such as Koske & Muturi (2015), Giang (2017).

The benefits of using BSC have the lowest impact on BSC usage in this study. However, it still has a significant impact, so this factor cannot be ignored. It can be seen that the awareness of the benefits, as well as the ease of use of BSC, will make businesses more willing to use the tool, thereby helping to improve their applicability to use BSC. This result is also consistent with previous studies such as Islam et al (2014), Koske & Muturi (2015).

Furthermore, the impact of BSC Application on Operational efficiency is also determined to have a positive effect and is consistent with previous studies such as Gupta & Govindarajan (1984); Murphy et al (1996); Hoque & James (2000); Keh et al (2007); Tung & Thao (2020).

4.2. Conclusion

From the research results, the authors deduced that improving the influencing factors will increase the level of BSC application, thereby improving operational efficiency. Therefore, the authors suggested that business managers should pay attention to the following issues:

Firstly, the implementing process of BSC starts with an overall analysis and assessment of the current situation and size of the business... As there appear more and more competitive companies on the market with the same product, enterprises need to improve and develop new products, managers should consider applying BSC to control this matter.

Secondly, with the constant change in the market, businesses need to educate and cultivate the latest knowledge to managers' awareness of each department. Successful BSC communication to each department and division will bring a crucial awareness for each individual. It makes both the Board of Directors and all employees understand and commit to implementation.

Thirdly, a good leader is not only someone with qualifications and skills but also someone who knows how to utilize and promote human resources in the enterprise to help the business survive and thrive. In addition, managers need to pay attention to and listen to the opinions of accountants and at the same time promote potential accountants to learn more about monitoring and applying BSC. Therefore, the awareness and qualifications of accountants valued and invested at the right time will support businesses competing in an increasingly changing market.

Fourthly, an organization with a strong culture means a high level of consensus and mutual support among employees. Therefore, managers need to build a highly connected organizational culture environment, which not only promotes mutual help but also idea communications, grasps situations as well as motivates each other to boost business growth.

Fifthly, managers need to be aware of the necessity and usefulness of applying the BSC method in measuring performance across the enterprise, in each department, and each individual. Managers must have a direction to build a BSC method system for the unit they are operating.

Sixthly, managers also need to accept investment in technology and reasonable costs to deploy the application of BSC. Therefore, managers need to plan, use non-financial measures to assess the feasibility as well as allocate appropriate costs for this application.

In addition, the authors suggested policy implications from the government to enhance the application of BSC as follows:

(1) *The Government needs to enforce specific policy actions to encourage pursuing knowledge and understanding of managerial accounting in general and the BSC model in particular.*

(2) *The Government needs to come up with appropriate policies to support and help listed companies to deploy BSC.*

(3) *The Government should promote and develop plans to introduce the BSC model into state organizations and agencies to serve as a premise to increase the application of this model in Vietnamese enterprises.*

From the research results, the authors have answered the research questions and met the research objectives initially set. Hence, this contributed to the theoretical basis of studies on this issue to support enterprises successfully applying BSC. However, due to limited resources and research time, the study still has certain limitations. Specifically, the number of surveyed enterprises is not large enough, so the representativeness is not high. The convenient sampling method also does not guarantee representativeness, causing the research results to deviate from reality. In addition, the study using the inherited scale may not be suitable for the characteristics of Vietnamese enterprises.

From those limitations, the research team suggested further studies can build more on the survey sample size factor with a larger scale and number of enterprises, and at the same time use the probabilistic sampling method to increase the representativeness and reliability of the study. In addition, in the future, researchers can also study the application of BSC to each field, industry, or in a certain enterprise or department, as well as adjust and build new scales and factors plausible with the characteristics of Vietnamese enterprises.

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IMPACTS OF CORPORATE SOCIAL RESPONSIBILITY ON BRAND AWARENESS IN VIETNAM

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Abstract

The study examined the impacts of corporate social responsibility (CSR) factors on the customer's brand awareness in a developing country, Vietnam, in the case study at McDonald's in Ho Chi Minh. Following that, the influence level of CSR factors, including ethical, economic, legal responsibility, and customer protection, on customers' brand awareness was also evaluated in the research. The questionnaires were distributed to respondents who were McDonald's customers in Ho Chi Minh City, and the study had a sample size of 385. The findings revealed that aspects of CSR had a positive relationship with customers' brand awareness. The order of influence of CSR aspects was as follows: customer protection, ethical responsibility, economic responsibility, and legal responsibility. In addition, the aspect of CSR that had the highest influence level on customer brand awareness was customer protection. Therefore, the company should develop strategies to enhance customer experience and services.

Keywords: *Corporate social responsibility (CSR), Customer's brand awareness, fast food industry, McDonald's*

1. Introduction

The fast-food industry is growing significantly worldwide and faces stiff competition from other fast-food brands. Due to increased customer brand awareness, they tend to use favourite and familiar brands. Brand plays a crucial role in the success of commercial products in the market. Creating a positive brand image and ensuring brand awareness are two essential aspects of a brand's success (Seturi, 2017). A product's brand name is immediately identified when a customer considers buying a product, reflecting brand awareness significantly affects customer decision-making (Hommerová et al., 2020; Macdonald & Sharp, 2000). Following that, Corporate Social Responsibility (CSR) matters

have received widespread attention in the hospitality industry in general fast food in particular (Martínez et al., 2014; Raub & Blunschi, 2014). A company exercises Social Responsibility, which enhances the corporate image (Boonpattarakon, 2012; Porter & Kramer, 2006)) and helps customers to differentiate a brand from its competitors (Swimberghe & Wooldridge, 2014). Since then, CSR's activities have positively impacted customers' brand awareness, created a competitive advantage, and captured a high market share (Chi et al., 2009). Vietnam is a developing country and a potential market for McDonald's to have the opportunity to expand its market in Vietnam in general and Ho Chi Minh City in particular. According to Vietnam Demographics, in 2020, 37% of Vietnam's population will be urban, and the middle-class accounts for 13% of the population and has a complete education and the integration of the world economy. Therefore, Vietnamese customers have high brand awareness and pay more attention to purchasing social responsibility activities. According to Bui's research on Vietnamese consumer perceptions of CSR and their intention for sustainable consumption, respondents pay attention to three main elements of CSR social responsibility (32%), economic responsibility (59%), and environmental responsibility (54%) (Bui, 2010). Evidence reveals that CSR is the key to enhancing customers' brand awareness and building a competitive position for McDonald's in the Vietnamese market. Therefore, the research paper will present and discuss CSR factors influencing customers' brand awareness in the case study of McDonald's in Ho Chi Minh City.

Customer brand awareness is the probability that a customer is accustomed to the accessibility and availability of a business's products and services (Ehsan Malik et al., 2013). On the other hand, brand awareness can identify or recall a brand within a specific product category (Aaker, 1991). Brand awareness is a continuum, from feeling brand unconsciousness to the belief that it is just one of the products (Aaker, 1991). A significant association in consumer memory of a particular brand is generated by brand awareness (Stokes, 1985). An organization has a high brand awareness, which demonstrates that a company's product or service is of good quality and reputable in the market (Gustafson & Chabot, 2007).

Evidence reveals that Corporate Social Responsibility (CSR) is an initiative that helps organizations improve brand awareness and competitive advantage. According to Davis (1960), corporate social responsibility is 'the businessman's decisions and actions taken for reasons at least partially beyond the firm's direct economic or technical interest... which need to be commensurate with the company's social power'. The definition of CSR is more widespread as there is increasing awareness of the rights of stakeholders (e.g. workforce and customers) and government regulations (Gheribi, 2017). Corporate social responsibility not only contributes to enhancing the life quality of society (Mahmood & Bashir, 2020) but also becomes an effective tool for businesses to build a positive image and enhance customers' brand awareness (Aaker, 1991). In addition, CSR encompasses three main dimensions of ethical, legal, and economic responsibility (Carroll, 1979; Meehan et al., 2006). Therefore, companies need to make an effort to satisfy the needs of their shareholders and customers and their stakeholders.

Ethics is the rules of principles and values that control the actions of a person and a group of people regarding the right and wrong of something (Sexty, 2011). Ethical CSR practices reflect customer fairness, respect, and human rights (Carroll, 1991). In particular, business ethics is a form of professional ethics used to examine ethical principles and issues occurring in the business setting (Stanwick & Stanwick, 2009). Ethical responsibility encompasses a wide range of norms and standards that demonstrate concern for consumers' fairness, the workforce, shareholders, and the community, which contributes to the protection of moral rights. In addition, changes in ethics are also the driving force behind the enactment of new laws and regulations.

On the other hand, ethical responsibility reflects the desire for new values and standards of societies that businesses need to meet (Singh & Singh, 2013). Ethical responsibility refers to activities that are permitted or prohibited in an organization without being bound by law (Mahmood & Bashir, 2020). Ethical issues become the primary concern of most customers. Therefore, organizations are aware of the factors that affect their brand and consider CSR a crucial part of corporate reputation management, especially customers' brand awareness. Some researchers have suggested that ethical responsibility is an appropriate indicator of corporate brand evaluation (Alsop, 2004; Ma, 1999; Tang et al., 2012; Yang & Crowther, 2012). In addition, according to the previous research on the relationship between leadership capacity and CSR in hospitals in Vietnam, leadership has interacted with the relationship between the legal and economic responsibilities of the company. Then, leaders strengthen the company's ethical responsibility, thereby positively affecting brand equity and increasing customers' brand awareness. Ethical branding enhances the company's reputation and credibility, reinforcing the customer's brand awareness (Trong Tuan, 2012). Furthermore, CSR positively impacts brand awareness (Esmailpour, 2016; HOANG et al., 2020). Thus, the following hypothesis can be proposed:

Hypothesis 1 (H1): Ethical responsibility positively affects customer brand awareness.

Society wants businesses to obey the laws and regulations of local nations (Carroll, 1991). Companies conduct business activities within the framework of local laws to ensure the safety of the working class, labour laws, and tax problems (Abdul & Ibrahim, 2002), which have a positive influence on communities and consumers. Following that, the local and central governments will be responsible for issuing and applying legal issues related to all company's operations from production to distribution (Carroll, 1991). An organization complies with the law and participates in the fair and legal business, reflecting the company's respect for the law. Furthermore, it is clear that voluntary compliance with the law has a positive effect on society and its customers and contributes to promoting the corporate image and raising customer brand awareness.

Legal CSR activities positively affect the customer's brand awareness. Many studies of consumer CSR perceptions show that consumers understand CSR in many different ways, and they believe that CSR is a corporate commitment to social responsibility (Nguyen et al., 2019). Therefore, it can be seen clearly that legitimate corporate activities are correlated with the customer's brand awareness. Previous research suggested that legal responsibility may

positively influence customers' brand awareness (Esmailpour, 2016; Hoang et al., 2020). When a company is publicly announced for legal actions, which will significantly develop the company's image and increase brand awareness as customers are always more inclined to be interested in what the company is doing, such as corporate achievements or scandals.

On the other hand, once customers see irresponsible actions of the company, they will have negative behaviours such as contempt boycott the company's products and services, which adversely affects the company's revenue and brand name (Folkes & Kamins, 1999). Therefore, businesses always put legal responsibility first in their business strategies. The hypothesis below describes the relationship between legal responsibility and customer brand awareness.

Hypothesis 2 (H2): Legal Responsibility has a positive effect on customer brand awareness.

Economic organizations are the essential components of any society (Carroll, 1979). The company is responsible for supplying goods and services that suit the needs and desires of the community and making a profit at reasonable prices. In addition, businesses need to create job opportunities, share profits fairly and reasonably between employees and shareholders, and create and develop new products and services for society (Jamali, 2008). Moreover, Consumers' awareness is increasing; they have become increasingly interested in corporate social responsibility activities. This reflects that companies engaged in responsible economic activities to protect resources, communities, and the environment.

Moreover, voluntarily participating in economic responsibility in CSR has a beneficial influence on social members and brand awareness of customers. Economic organizations are responsible for understanding consumer needs such as the quality and price of products, meeting their needs, and making profits. Companies will provide employment and economic activity opportunities to individuals in society, and when businesses make high profits, the workforce will get more benefits and incentives.

Economic responsibility done voluntarily by companies affects customers' brand awareness. Corporate brand awareness and reputation are measured through product quality, customer care, financial profiles, and ethical behaviours (Alsop, 2004; Barnett et al., 2006; Bruwer & Johnson, 2010; Walsh et al., 2009). Moreover, many studies suggest that customers will buy products or use services from companies with practical CSR activities (Brown & Dacin, 1997; Folkes & Kamins, 1999). Companies are therefore forced to engage in responsible social activities to increase profit and brand awareness of customers. Furthermore, the previous research proposed that economic responsibility may positively impact customers' brand awareness (Esmailpour, 2016; Hoang et al., 2020). Therefore, the author hypothesizes that:

Hypothesis 3 (H3): Economic Responsibility has a positive effect on customer brand awareness.

Consumerism is also referred to as customer protection, activism, or the consumerist movement (Makanyeza et al., 2021). As defined by (Kotler 2000), the consumerist movement is an organized social movement of citizens and governments aimed at promoting

the rights and powers of consumers in the relationship between sellers and buyers. Customer protection is being given wide attention, and society has strict action against consumer rights violations (Saeed Althiabi, 2016). As a result, organizations tend to have business operations related to customer protection, accept and comply with their requirements and proposals, and consider consumer rights a critical aspect of their business strategy. Customer Protection is enacted to protect individual rights in the treatment of considerate and dignity. Simply, consumer protection protects buyers from unfair trade practices, contributing to ensuring that the supply and demand sides of the economic market are operated optimally. The government enacted consumer protection laws, including fair trade, information, problem-solving mechanisms, and access to goods.

Customer protection, or consumer law, is part of government legislation protecting consumers from unfair business sales such as poor-quality products or business behaviour. Conducting legal business behaviour by protecting customers' interests is an effective way to avoid legal troubles and build trust with customers about the quality of products or services that the company provides. The research mentioned that customer protection might positively affect brand awareness (Chung et al., 2015). Socially, this also contributes to building a good reputation and improving customers' brand awareness. In addition, the law protects consumers as a commitment that the government makes to customers about the guarantee of their interests when buying. Governments are forcing companies to comply with consumer protection laws. Consumers are increasingly concerned with companies' customer protection practices; therefore, companies are forced to comply with legal regulations, which create a brand impression on potential customers and increase the brand awareness of old customers. This research proposes

Hypothesis 4 (H4): Customer protection positively impacts customer brand awareness.

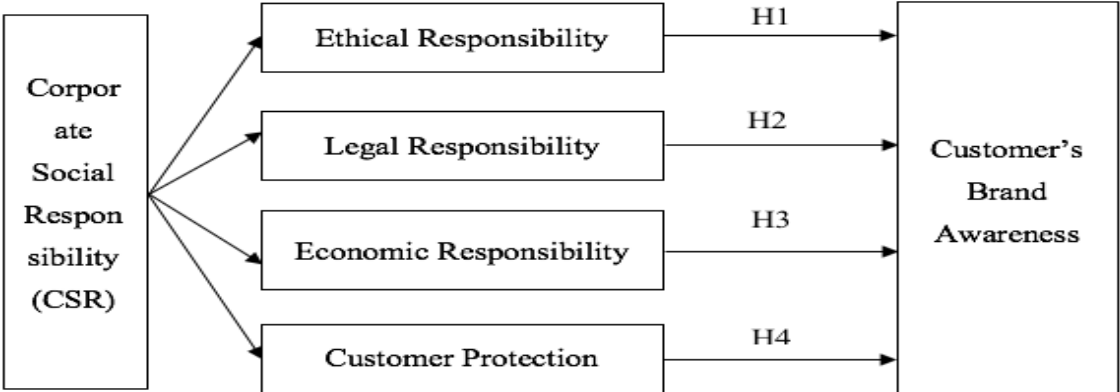


Figure 1. Conceptual framework

Source: Author

2. Method

The questionnaire has two main sections: the respondents' demographic characteristics and a dependent variable (customer's brand awareness), and four independent

variables (ethical responsibility, legal responsibility, economic responsibility, and customer protection). Demographic characteristics include gender, age, education, occupation, income, frequency of using McDonald's and how to know McDonald's.

The items in the research paper measure the customer's brand awareness questionnaire by Switala et al. (2018) and the literature of Gustafson and Chabot (2007). Next, the five ethical responsibility items are modified from a study by Yusof et al. (2015) and Wu et al. (2014). Legal responsibility was assessed using three items developed by Carroll and Shabana (2010). When it comes to economic responsibility, four items are used to measure and draw from the contributions of Yusof et al. (2015), Wu et al. (2014), and Phillips et al. (2014). Finally, customer protection was measured using five questionnaires from Yusof et al. (2015), Wu et al. (2014) and Chung et al. (2015) (Carroll & Shabana, 2010; Chung et al., 2015; Gustafson & Chabot, 2007; Phillips et al., 2019; Świtala et al., 2018; Wu & Wang, 2014; Yusof et al., 2015).

The research samples have been collected from McDonald's customers in Ho Chi Minh City, Vietnam. Simple random sampling is applied to distribute surveys and collect data in the study. After that, the convenience sampling technique is used to select the representative sample of the population. In addition, the exclusion question is created to choose reliable data. In particular, the online survey is created on Google Form with a five-point Likert scale to measure the level of the responses. The questionnaire was used in the research and distributed to 444 respondents. There are 385 valid samples, which gives a valid rate of 86.7%. In addition, 59 responses were eliminated because respondents have never used McDonald's services or products or the concept of corporate social responsibility. The collected data were analyzed in SPSS. The exploratory factor analysis (EFA) was used to test the relationship between independent and dependent variables.

3. Results

Cronbach's alpha is used to measure reliability in research. Cronbach's alpha values in the sound and excellent range should be greater than .70 and less than .95 (Bonett & Wright, 2015). Besides, the Corrected item-total Correlation shows the correlation between each specific item and other items on the scale, and the index should be greater than .04 (Bartlett, 1950). Otherwise, if the Corrected item-total Correlation is less than .30, the Alpha if Item Deleted will highlight Cronbach's alpha if the item is deleted (Bartlett, 1950). The Cronbach's alpha value of customer's brand awareness is .871, ethical responsibility is .859, legal responsibility is .830, economic responsibility is .825, and customer protection is .851. All Cronbach's alpha values are at a good reliability level (between 0.8 and 0.9) and accepted.

Exploratory factor analysis (EFA) has two techniques for testing data, including Bartlett's test of sphericity (Bartlett, 1950) and the Kaiser-Meyer-Olkin (KMO). These techniques test the strength of relationships between variables to perform EFA (Howard, 2016). The KMO of the independent variable is 0.915, and the dependent variable is .870, which is greater than 0.7 and less than 1 and. The Bartlett test has a significant value of 0.000 is less than .05 (Barrett et al., 2005). In addition, eigenvalues represent the variance in the measured variables calculated for each common factor (Fabrigar & Wegener, 2011). All

factors with eigenvalues greater than 1 should be kept (Kaiser, 1960). Finally, the Rotated Factor Matrix has loadings of $|\geq 0.40|$ or greater (Barrett et al., 2005) and factor loadings in the range of .30 to .40 being minimally acceptable (Hair et al., 2006). The study's sample size is 385, so the factor loading is set to 0.3. The results are that all the independent variables' items converge to the exact position of their independent variable because the loading factor of all items is higher than 0.3, and no items are discarded.

When it comes to Pearson correlation, this method values evaluate the strength, significance, and direction of the relationship between CBA and ET, CBA and LR, CBA and EC, and CBA and CP. These values correspond to these pairs of variables as 0.626, 0.569, 0.581, and 0.642, respectively. Pearson correlations are all greater than 0 and towards 1, which illustrates a good relationship between CBA and ET, LR, EC, and CP. In addition, the Correlation table results highlight that the effect is significant at the 99% probability level and allow for 1% error.

The Model Summary has two important values: adjusted R square and Durbin – Watson. The Adjusted R square explains how much the observed variation in the dependent variable is (Sarstedt & Mooi, 2014). The adjusted R square is lower than the unadjusted R square and partly depends on the number of variables (Barrett et al., 2005). The adjusted R square is 0.587, which is greater than 0.5 and less than the value of R Square (0.591), so this value is agreed. Durbin – Watson's value is 1.973, which is close to 2, so there is no residual autocorrelation of the linear regression model (Sarstedt & Mooi, 2014). Following that, the ANOVA table mentions an extraordinary value level (sig.). The value sig. is 0.000 (less than .05) in the research. Hence, null hypothesis $H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ is rejected and H_1 is accepted (Sarstedt & Mooi, 2014). Assumption $H_1: \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq 0$ is correct.

Moreover, the Coefficient highlights that the VIF is used to diagnose multicollinearity. The VIF of ethical responsibility is 1.727, legal responsibility is 1.608, economic responsibility is 1.549, and customer protection is 1.572, all less than 2 (Akinwande et al., 2015; Daoud, 2017). Therefore, there is no multicollinearity between these four variables. Furthermore, the Sig values of four independent variables in the Coefficients table are 0.000 less than 0.05, so ethical responsibility, legal responsibility, economic responsibility, and customer protection have good relationships with customer brand awareness.

4. Discussion and Conclusion

The findings indicate that customer protection significantly influences customers' brand awareness. This is consistent with the findings of Hoang et al. (2020) and Esmaeilpour (2016), who reported that customer protection positively affects customer brand awareness. Besides, this paper corroborates Chung, Yu, Choi, and Shin (2015) that customer protection contributes to Carroll's CSR structure (1999). Vietnamese customers have been interested in protecting the interests of fast-food chains recently, especially McDonald's. The improvement and development of products, service quality and good support that the company gives to customers help improve customers' brand image and brand awareness.

Ethical responsibility positively impacts customers' brand awareness. This conforms to the findings of Mahmood and Bashir (2020), Hoang et al. (2020), and Esmailpour (2016). According to previous studies, ethical responsibility is an appropriate indicator to measure and evaluate a company's brand (Tang, Hull, and Rothenberg, 2012; Yang and Crowther, 2012; Alsop, 2004; Ma, 1999). The findings of this research paper have proven that the ethical activities of the company have a significant influence on the brand identity of the company in general, McDonald's in particular. Surveyed customers support that McDonald's respects its customers and provides high-quality products, demonstrating a positive customer view of the brand. In addition, creating favourable conditions for employees to work and having charitable activities that contribute to the community and society attract public attention and positively influence brand awareness.

Economic responsibility has a positive effect on customers' brand awareness. This finding is consistent with the previous findings of Mahmood and Bashir (2020), Hoang et al. (2020), and Esmailpour (2016), who observed that economic responsibility and customer brand awareness have a significantly positive relationship with each other. Next, the study shows that customers constantly monitor the economic and production activities and the profit contribution of the company to society (Mahmood and Bashir, 2020). McDonald's customers are on the lookout for new product innovations, environmentally friendly packaging, and social contributions.

The legal responsibility of CSR positively affects customers' brand awareness, and this conforms to the findings of Mahmood and Bashir (2020), Hoang et al. (2020), and Esmailpour (2016). It can be seen that Vietnamese customers are not concerned about legal aspects as they believe that compliance with regulations, standards and food laws is something that the companies must do, and this is mandatory, not optional.

The research presented the results by collecting and analysing data on the influence of CSR on customers' brand awareness. With the findings of this research, McDonald's can enhance its brand image through communication activities related to aspects of CSR. It is without a doubt that according to research results, net-working sites and word of mouth are the two most effective advertising mediums for McDonald's because social network accounts for 35.3% and word of mouth accounts for 31.2% of all advertising mediums. As a result, the marketing department has an essential role in promoting the brand. The affective aspects of CSR affecting customer brand awareness are customer protection, ethical, economic, and legal responsibility, respectively. The company needs to continue to develop strategies related to customer protection ethical and economic factors. In addition, McDonald's managers need to improve the activities of the legal aspect and publicize these activities on social networks and in-store message boards. Thus, these activities will be effective word of mouth and increase customers' brand awareness. It appears clear that customers tend to go to high-reputed fast-food restaurants combined with CSR aspects added to the in-store experience, which will increase brand awareness in customers' minds. The results of this research paper will help the company come up with an effective CSR strategy to achieve the set goals. In addition, the company needs to attract employees to participate

in CSR activities, which helps create consistency in goals between the company and employees. They will then share these activities with customers so that customers have a positive perception of the brand and the company's products and services.

There are several limitations in this study outlined below to help the research avoid and improve these limitations. In the questionnaire, there were a total of 30 items, and the content of the items related to respondents' knowledge and the company's CSR policies, which showed that the number of questions was high and the content was difficult for respondents. Therefore, it is difficult to collect data. Next, time and finance are the two limitations of this study. The time spent collecting the data is only one week, so the number of samples is small. In addition, the author does not have enough funds to encourage respondents that all samples collected are free. As a result, many people are not motivated and patient enough to complete the questionnaire table.

The paper has several recommendations for future research. First of all, the adjusted R square value is 0.587, which indicates that many other variables should be added to the study to further investigate and develop predictability about other aspects of CSR affecting customers' brand contribution awareness. Besides, the study's sample size is relatively small, the survey does not diversify in terms of subjects and locations, and the survey only focused on students and young people in Ho Chi Minh City, Vietnam. Therefore, future research papers should have a larger sample size across many cities in the country and survey a variety of subjects and industries to have a more holistic view of CSR aspects. Following that, this study uses a questionnaire that shows the perception of customers' understanding of its CSR policies, making it difficult for survey respondents. Thus, the surveys need to establish items that have a relationship between CSR activities and aspects of survey respondents' attitudes.

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RESEARCH THE FACTORS THAT IMPACT TO SUCCESSFUL EKYC'S IMPLEMENTATION IN VIETNAMESE BANKS

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Abstract

The study analyzes the factors affecting the success of the eKYC system in the banking system, including factors that are six independent variables: Environment, eKYC implementation strategy, Organization, System quality, Information quality, supplier/consultant quality and dependent variable Satisfaction. Research and collect data from employees, managers, senior leaders in banks in Vietnam. The research results demonstrate the impact of the factors on Satisfaction in descending order: Supplier quality, System quality, Information quality. The factors affecting Success are arranged in descending order: Satisfaction, Organization, Environment, Quality. The factor of eKYC implementation strategy has no impact on the success of eKYC in the banking system. The study also gives scientific and practical significance and offers solutions to deploy the eKYC system in line with reality in Vietnam.

Keywords: *system; eKYC; success; factor; Bank; Vietnam.*

1. Introduction

Along with the strong trend of digital information in many fields around the world, the banking industry itself is also making significant changes on the road to successful digital banking. The first step of this transformation is the application of e-KYC system. With its own pervasive power, this technology quickly entered our country, bringing the winds of change to the customers' experience. Although it is undeniable that the benefits e-KYC brings, however, this system is only at the first phase of implementation in Vietnam banks and still faces many difficulties. Moreover, the system is not fully optimized. So how can we resolve these barriers, therefore improve the efficiency of banks' e-KYC systems?

To answer this question, we must first understand the definition of e-KYC (electronic Know Your Customer). It is the process of collecting and verifying a customer's identity through personal document in the form of electronic data. This process can be partially or fully automated, based on one's individual biological characteristics and other identification technologies, for the purpose of verifying customers in the shortest time as possible, therefore simplifying paperwork.

Facts shown that up to 94% of Vietnam banks have started researching and developing implementation strategies, of which 59% of banks has started to launch this system in practice (Austrade, 2020).⁸⁷Banks such as TPBank, VPBank, MBBank are the leading flags of this new verification system with huge investments in technology and high-quality human resources. However, the implementation of this system in Vietnam banks has not been uniform, not to mention the National Database on Population Management of Vietnam is still incomplete, therefore can't optimize the collection of data on banks' customers information.

2. Literature Review and Research Hypotheses

2.1. System quality, Information Quality, Vendor/Consultant Quality, User Satisfaction impact on the eKYC system success

Realizing the similarities of the successful information system model (proposed by DeLone & McLean, 2003) due to the same system of data collection and management, the team consulted and selected several suitable factors, based on the criteria of the conceptual relevance and affection's ability of the factor.

Compare the objectives of the study (identify the main factors affecting the successful implementation of the e-KYC system in Vietnamese banks along with the impact level of each factor and the relationship between the factors) with the characteristics of each study are often used in the study of the updated information system model of DeLone & McLean as the basis for building the research model. Accordingly, there are four factors that can affect (directly or indirectly) the success of the e-KYC system. These are: "system quality", "information quality", "service quality", "user satisfaction" with the system. "Systems quality" measures technical success; "Information quality" measures semantic success; "Service quality" refers to the level of user support from the IT department, usually measured by response readiness, reliability, and empathy; "User satisfaction" with the system is the degree of acceptance of the system and its outputs.

As for the factor "service quality", the research team found that the concept of this factor is quite broad, misunderstand, and has not fully expressed the proposed meaning and content. Specifically, the "quality of service" element of an information system (IS) only refers to the level of user support and training, while this element of the e-KYC system represents the quality of the product (technology, equipment, machinery), security

⁸⁷ Austrade, 2020

capabilities, operational qualifications, and system adaptation provided by manufacturers and distributors. Therefore, the research team has proposed to temporarily use the name of the factor "quality of supplier" instead of "quality of service" to clearly express the content to be expressed, and then consult experts.

Thus, the three factors "system quality", "supplier quality", "information quality" have a direct, one-way impact on "user satisfaction" and "user satisfaction" has a direct, one-way impact to "The success of the e-KYC system". Therefore, the author proposes the following:

Hypothesis 1a (H1a). *"System Quality" affects directly and positively to "User Satisfaction" for e-KYC system.*

Hypothesis 1b (H1b). *"Information Quality" affects directly and positively to "User Satisfaction" for e-KYC system.*

Hypothesis 1c (H1c). *"Vendor/Consultant Quality" affects directly and positively to "User Satisfaction" for e-KYC system.*

Hypothesis 3 (H3). *"User Satisfaction" affects directly and positively to "e-KYC System Success".*

Next, to consider the relationship between quality factors (system quality, information quality, vendor/consultant quality) and the factor "Success of the e-KYC system", the research team also used the extended ERP systems success measurement model of Ifinedo (2006) to collect information, which is quite similar to how the e-KYC system works.

In this model, Ifinedo also proposes that "System Quality", "Information Quality", "Vendor/Consultant Quality" directly affect the success of the ERP system. This is indeed reasonable because the success of a system, especially a system related to equipment and technology, is strongly and directly affected by technological quality factors, not necessarily only indirectly affected through "Satisfaction". Thus, it can be said that the three technological factors mentioned above both directly affect the "success of the e-KYC system" and indirectly through the factor "Satisfaction". Therefore, the authors also expect that:

Hypothesis 2a (H2a). *"System Quality" affects directly and positively to "e-KYC System Success".*

Hypothesis 2b (H2b). *"Information Quality" affects directly and positively to "e-KYC System Success".*

Hypothesis 2c (H2c). *"Vendor/Consultant Quality" affects directly and positively to "e-KYC System Success".*

To confirm and strengthen the correctness of their point of view, the team consulted experts and the results are summarized in Section 4. Particularly for the proposal to change the variable name, the results show that both 6/6 Experts say that change is appropriate and necessary.

2.2. Strategy affects the “e-KYC Systems Success”

In addition to technology factors, other human and planning factors also have a significant impact on the implementation of the system. Recognizing this, the research team considered the McKinsey 7S model of McKinsey et al (1970). From there, the research team concluded that the factor “Strategy” has a certain relevance to the implementation of the e-KYC systems in the 7 McKinsey’s factors.

Specifically, McKinsey explained: “Strategy” also known as the business’s plans was proposed to make competitive advantages for business, have huge impact on “system”. It is similar to the process of implementing the e-KYC systems, there must be a clear implementation plan, setting each step of the goal and ensuring that the stages are completed on schedule. And clearly, the bank that completes the work on schedule, ensures efficiency and quickly puts the e-KYC systems into use, that bank has a huge competitive advantage. Therefore, deployment "strategy" is also an important factor affecting the success of the e-KYC systems. Of course, to increase the reliability of this factor, the research team also consulted experts (the results are summarized in Section 4 of the study). And to express it most accurately, in the proposed e-KYC system model, the authors used the variable name "e-KYC strategy" to separate it from other strategies of the bank. In conclusion, the authors expect that:

Hypothesis 5 (H5). *“eKYC Strategy” affects directly and positively to “e-KYC System Success”*

2.3. Organization and environmental factors impact on the eKYC system success

Although we have consulted a number of system deployment models that indicate human and environmental factors. However, in order to find a model containing the most suitable factors for e-KYC, the research team chose the model of applying e-commerce technology by M.A. Rasid (2001) from Massey University, New Zealand as a reference.

M.A. Rasid's application model shows four main factors affecting the adoption of e-commerce technology, including factors: "technological (innovation) factors", "organizational factors", "environmental factors", "individual factors". In which, organization and environmental factors are shown that: “Organization” includes size of departments, specialization, and Top Management support; “Environmental factors” includes competitive pressure, Suppliers/ Buyers pressure, Public Policy, Government’s role.

Hypothesis 4 (H4). *“Organization” affects directly and positively to “e-KYC System Success”.*

Hypothesis 6 (H6). *“Environmental Factors” affects directly and positively to “e-KYC System Success”.*

Based on the proposed factors and the relationship between them, the authors have completed the research model "Factors affecting the successful implementation of e-KYC system in banking operations" specifically as follows:

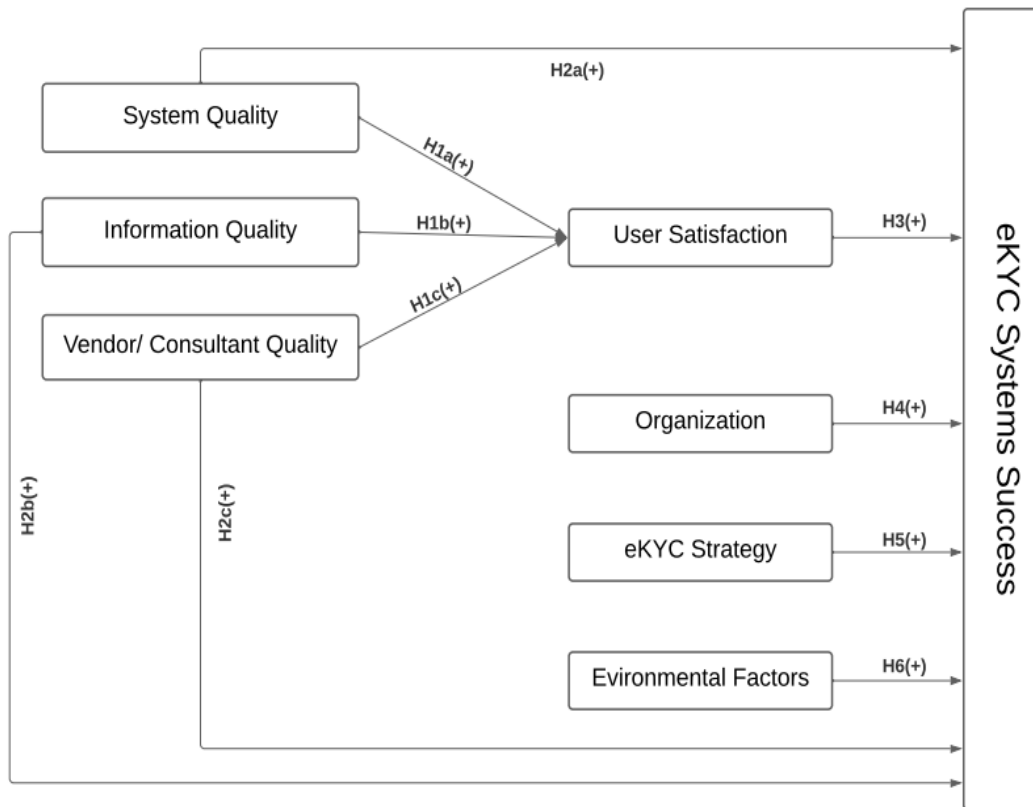


Figure 1. Proposed research model

Source: Authors

2.4. Research Sample and Data Collection

This research was conducted from 15/02/2022 to 28/02/2022 and the questionnaire was completed by sending forms and emails online to the staff of commercial banks in Vietnam which already deployed eKYC system. Stratified sampling had been used in order to satisfy samples' overall characteristics. Overall, we collected a total of 211 tables. After filtering, the number of satisfied tables is 211.

Table 1. Summary of Respondents' Profile (n=211)

<i>Demographic</i>	<i>No.</i>	<i>(%)</i>	<i>Demographic</i>	<i>No.</i>	<i>(%)</i>
Age			Position		
< 30 years old	79	37.44	Consultants	34	16.11
30 – 40 years old	112	53.09	Specialists	69	32.70
41 – 50 years old	20	9.47	Tellers	15	7.11
> 60 years old	0	0	Staffs	60	28.44
Gender			Managers	33	15.64
Male	86	40.75	Time used		
Female	125	59.25	< 6 months	29	16.00

<i>Demographic</i>	<i>No.</i>	<i>(%)</i>	<i>Demographic</i>	<i>No.</i>	<i>(%)</i>
BIDV	38	18.00	6 – 12 months	42	20.00
MBBank	37	17.54	1-2 years	106	50.00
TechcomBank	39	18.48	> 2 years	30	14.00
TPBank	56	26.54	Technology used		
VietcomBank	37	17.54	OCR	106	57.60
Khác	4	1.90	Liveness detection	124	67.40
Department/ Division			Face Matching	155	84.20
Service	46	21.8	E-Signature	128	69.60
Operation Division	27	12.8	Fraud detection	3	1.00
Support	12	5.69	Others	31	16.80
IT	70	33.17	Efficiency		
Business Development	21	9.95	< 60%	23	11.00
Treasury Department	12	5.69	60-70%	21	10.00
Risk Management	23	10.90	71-80%	54	26.00
			81-90%	74	35.00
			> 91%	39	18.00

Source: Survey data

The results showed that the total number of surveyed subjects was 211 subjects, of which female was 59.25%, male was 40.75%. The subjects ages was from under 30 to over 60, of which from 30-40 accounted for 53.09%. In terms of occupation, most of the subjects are from large banks that have implemented eKYC, namely TPBank, TechcomBank, BIDV, VietcomBank and MBBank, therein the majority are from the IT department with 33.17%, followed by Services 21.8%, Operation Division 12.8%, Business Development 9.95%, and the lowest, the Support Department and the Treasury Department both accounted for 5.69% and the main are Experts with 32.7%.

Considering the implementation time of eKYC, the majority of respondents agreed that the bank's eKYC system has been implemented in 1-2 years with statistics accounting for 50%. Next, the number of choosing the time to deploy and put eKYC into use within 6-12 months accounted for 20%, followed by 16% using less than 6 months. Finally, the lowest is the usage time of over 2 years with 14% selected. The main reason is that the eKYC system has just been implemented, has undergone testing at a number of banks and has just been officially put into use for less than 2 years. As a result, in addition to the leading banks in implementing eKYC, most of the remaining banks have less than 2 years of implementation and running time.

Regarding the technology, out of 211 people who filled out the survey, 155 people confirmed that the bank had applied the Face- matching solution in the e-KYC application (accounting for 84.2%), followed by E-Signature accounts for 69.6%, corresponding to 128 people agreeing to choose. Other technologies is also used as the basis for e-KYC implementation, but they are still not popular enough (only 16.8%). Lastly, the most underused technology at banks is fraud detection, chosen by only 1% of survey respondents.

Assessing the efficiency of the system, up to 35% of bank staff confirmed that e-KYC brings almost maximum efficiency for the bank (81-90%). Next, at a lower level, 26% of the respondents chose the high level, showing that e-KYC brings good efficiency in the process of use (71-80%). Over 91% efficiency of the e-KYC system accounts for 18%, followed by less than 60% with 11% selection. Finally, only 10% of the people surveyed found that the implementation and usage of the e-KYC system at work achieved good results from 60-70%.

3. Result

3.1. Reliability and Validaty

According to the data, the research team applied some corresponding technical analysis as following:

- Data descriptive statistics to determine a number of descriptive related to the characteristic variables in the research sample, including demographics and evaluation of e-KYC deployment process of members participated in the questionnaire.
- Partial Least Square (PLS) to test the overall fit of the research model, as well as to test the research hypotheses about the factors affecting the success of e-KYC system in the banking sector.

The techniques above are performed by using data analyzer software SPSS 20 and Smart PLS. The process includes steps such as:

(1) Testing the quantitative model by Cronbach's Alpha and EFA analysis method to assess the suitability of the scale, eliminate variables that have a weak relationship or have no relationship with factor groups, discover which variables are closely related to which group of factors.

(2) Testing the convergence and the difference through CFA confirmatory factor analysis, also using AMOS software to validate SEM structural model and research hypotheses.

(3) Regression analysis by using divisor-based variable selection to conduct univariate regression analysis, analysis of variance (ANOVA), conduct multivariable regression of 2 dependent variables, therefore determining the multiple regression equation.

The reliability analysis table of the scales (Table 2) showed that all values: Cronbach's Alpha sum > 0.8, Corrected Item-Total Correlation is greater than 0.5 and all Cronbach's Alpha components are > 0.5, which shows a high level of internal consistency. The reliability of the concepts included in the analysis are guaranteed.

Table 2. Reliability Statistics

Variable	Variable definition	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cr_ Alpha
MT1	The regulatory environment in Vietnam is mature enough to facilitate the development of eKYC model.	.762	.862	.884
MT2	The government cares and is well aware of the importance of eKYC system.	.524	.881	
MT3	The government facilitates the development of eKYC system by supporting resources: legal policies, budget, human resources, technology,618	.874	
MT4	Technological innovations from other banks are the driving force behind our decision to innovate.	.600	.876	
MT5	Customer services and advertising from other banks have an impact on our bank's policies.	.632	.873	
MT6	The National Database System is complete enough to facilitate the development of eKYC model.	.820	.852	
MT7	The infrastructure of Vietnam banks meets the condition to deploy the eKYC system.	.778	.856	
MT8	Factors such as: technology ability, digital transformation trend, modernization trend, advertising, pandemic have an impact on the deployment of eKYC system.	.619	.875	
CL1	Our bank has a reasonable eKYC deployment strategy.	.776	.879	.899
CL2	The assignment of tasks is clearly defined during the implementation of eKYC system.	.823	.837	
CL3	The project progress is always guaranteed to be maintained continuously and achieved results are recorded throughout the eKYC project implementation.	.811	.850	
TC1	Departments respondedr positively to the policy of improving the working process of bank leaders at all levels	.768	.709	.816
TC2	Các phòng ban luôn tìm ra những hạn chế, khuyết điểm trong quá trình làm việc và đề xuất cải tiến	.600	.802	
TC3	The leaders are determined to carry out the renovation of systems and services, turning the bank into a digital bank	.626	.777	

Variable	Variable definition	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cr_ Alpha
TC4	Leaders at all levels are determined to carry out bank restructuring to make banking operations better.	.596	.788	
CLHT1	The eKYC system is flexible, allowing high customization.	.836	.908	.927
CLHT2	The eKYC system is easy to use.	.815	.911	
CLHT3	The eKYC system improves workrate.	.688	.926	
CLHT4	The eKYC system allows integration with other information systems.	.770	.917	
CLHT5	The eKYC system protects the system well.	.787	.914	
CLHT6	The eKYC system ensures good system quality.	.843	.907	
CLTT1	The eKYC system is always updated.	.759	.890	.906
CLTT2	The eKYC system authenticates and stores customer information accurately.	.810	.872	
CLTT3	The eKYC system is secure and encrypts information well.	.806	.873	
CLTT4	The eKYC system provides complete, accurate and useful data for bank employees.	.783	.881	
CLNCC1	The eKYC system setup service provider/consultant for my bank has good qualifications and capabilities.	.880	.932	.949
CLNCC2	The eKYC system setup service provider/consultant for my bank is trustworthy.	.882	.932	
CLNCC3	The eKYC system setup service provider/consultant for my bank has a good relationship with us.	.855	.941	
CLNCC4	The eKYC system setup service provider/consultant for my bank provides complete services and high-quality training program.	.894	.928	
STM1	I'm satisfied and confident with the bank's new policy.	.814	.837	.889
STM2	I feel happy and satisfied when new technology is applied	.750	.860	
STM3	The experience of eKYC service is as good as we expected.	.848	.820	
STM4	The needed information is provided instantly.	.626	.903	

Source: Survey data

3.2. Evaluate the validity of the scale

Based on the results of Cronbach's Alpha, Exploratory factor analysis (EFA) was performed using principal component analysis with varimax rotation. The EFA results are presented in Table 3.

Table 3. Rotated Component Matrix

	Component					Structure
	1	2	3	4	5	
CLHT2	.735					Quality
CLHT1	.714					
CLHT6	.704					
CLHT4	.676					
CLHT5	.668					
CLHT3	.652					
CLTT3	.635					
CLTT2	.601					
CLNCC1	.570					
CLTT1	.561					
CLTT4	.552					
CLNCC2	.551					
CLNCC4	.541					
MT1		.843				
MT6		.808				
MT7		.789				
TC2		.643				
CL2		.613				
CL1		.579				
STM2		.577				
CLNCC3		.577				
TC1		.576				
CL3		.576				
STM1		.521				
STC4			.784			Success
STC5			.782			
STC7			.728			

	Component					Structure
	1	2	3	4	5	
STC6			.711			Structure
STC3			.687			
STC1			.660			
STC2			.614			
TC4				.807		
TC3				.764		
MT2				.700		
MT3				.630		
MT5					.782	Environment
MT4					.605	
Eigenvalue	21.582	2.025	1.512	1.253	1.103	
% of Variance	58.330	5.473	4.087	3.388	2.982	
Cumulative %	58.330	63.803	67.890	71.277	74.260	
KMO = 0,957						
Bartlett's Test: Sig. = 0.000						

Source: Survey data

In general, all observed variables have factor loading > 0.5 . KMO and Bartlett's Test in factor analysis show that $\text{sig.} = 0.000 < 0.005$; high KMO coefficient ($= 0.957 > 0.5$). The final results when analyzing EFA factors from 40 observed variables were reduced to 37 observed variables, which were aggregated into 5 groups of factors. With total variance (conserved variance or extracted variance) = 74.260% ($> 50\%$), it means that 5 factors are able to explain 74.260% (Table 3) the variation of observed variables. The breakpoint when extracting the 5th factor with eigenvalue = 1.013 met the requirements. Therefore, the derived scales are accepted. The independent and dependent variables have gained reliability and validity to use for subsequent analyses.

3.3. Confirmatory factor analysis and linear structural modeling

After exploring factor analysis EFA identified 4 main factors, the authors conducted confirmatory factor analysis CFA, using AMOS software to run SEM model. The results show that the Standardized Regression Weights are all positive, showing that the Quality variable positively affects Satisfaction. The variables Organization, Environment, Satisfaction, Quality positively affect Success. The Standardized Regression Weights (Estimate) of the observed variables are all > 0.5 ; therefore, the scale can achieve Convergent validity. The results of the theoretical model are as shown in Figure 2.

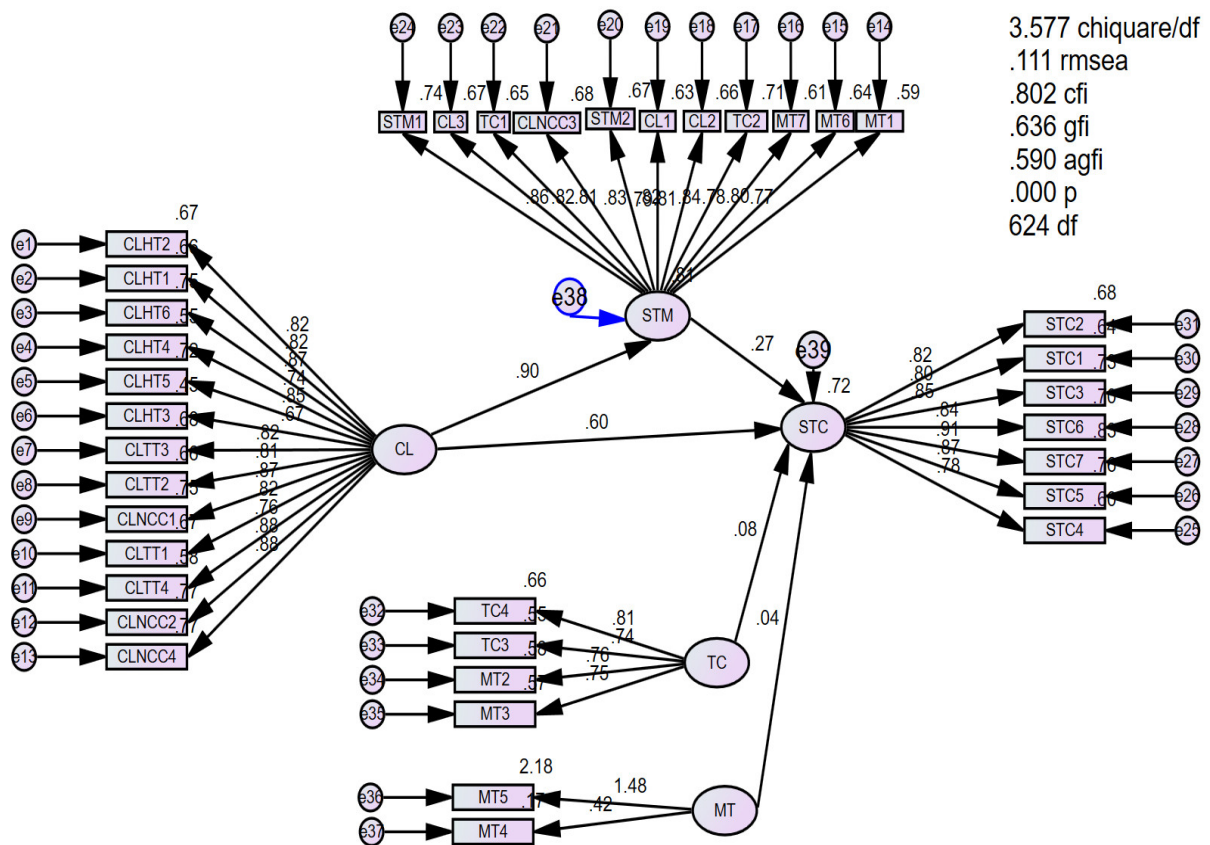


Figure 2: SEM structural model

Note: CL (Quality); STM (Satisfaction); TC (Organization); MT (Environment); STC (Success)

Source: Survey data

4. Discussion and Conclusion

4.1. Discussion

The survey results collected are mostly employees aged 30-40 and mainly working in the IT department at some large banks that have implemented and used e-KYC. Through surveyed opinions, in general, most of the surveyed subjects agree that the time of using the e-KDYC system at banks is not too long, mainly 1-2 years, there are even banks that only have new products put into use for less than 6 months, and very few banks have used e-KYC for more than 2 years. The main reason is due to the late implementation of e-KYC in Vietnam (it was officially put into use at the end of 2020 according to Circular 16/2020/TT-NHNN issued by the State Bank of Vietnam). However, even though it has only been implemented for less than 2 years, e-KYC still brings positive impacts in banks operation. Most of the individuals participating in the survey affirmed that e-KYC brings about the maximum efficiency for the bank (81-90%), the rest also respond to the positive effects that the bank has received when using e-KYC during operation (60-70%). In particular, based on Hong Kong's e-KYC implementation model, allowing banks to choose and decide their own e-KYC technology, banks that have been implementing e-KYC in Vietnam also choose and use a variety of technologies, of which the most popular is Face-Matching, followed by E-Signature, Liveness detection, and finally, the least popular is Fraud detection.

On the basis of collected data, the study has deeply analyzed 3 aspects: Information quality, Supplier quality, System quality impact on e-KYC user satisfaction and 4 aspects: Quality, Environment, Organization, Satisfaction affecting the success of e-KYC solution implementation at Vietnamese commercial banks. The results show the different effects of each aspect on the Satisfaction and Success of e-KYC. Specifically:

- The satisfaction of the e-KYC system's users is most influenced by the Supplier Quality factor, followed by the System Quality and the least affected by the Information Quality factor.

- The success of implementing the e-KYC system in the operations of banks is mainly influenced by the Satisfaction factor, followed by the Organization, the Environment, and less affected by the Quality.

By the fact of the results of the main factors affecting the success of e-KYC implementation in Vietnamese commercial banks, the research team conducts a practical assessment of the advantages and disadvantages of each aspect, thereby proposing solutions to overcome the problem to improve the efficiency of using e-KYC at banks. First, the team evaluates the advantages and disadvantages of each aspect, specifically:

About quality:

The survey results indicate that the majority of participants agree that the system is fully capable of allowing the bank to integrate with other information systems, the service always meets the needs of updating information timely, completely and accurately. However, in fact, the e-KYC implementation process still has certain limitations that need to be overcome:

- The arising of unnecessary costs due to the application process taking place while the quality of systems and services is not guaranteed, such as the training process of personnel in the bank from the supplier side. not really methodical has caused delays, unplanned and prolonged time, especially for organizations providing traditional financial - banking services.

- Up to now, many commercial banks have only implemented the promotion of e-KYC solutions in payment services, but have not applied this solution intensively in other areas, result in not being able to fully exploit the advantages of an e-KYC solution. strong and long-standing system in countries around the world like e-KYC.

- Regarding customer information security, solving the risk from using deepfake technology to bypass liveness detection - a worrying problem not only for a new market applied using e-KYC like Vietnam but also those of countries that have implemented this system for a long time, typically India.

About the organization:

In fact, although e-KYC has only been implemented for less than 2 years, many Vietnamese commercial banks under the organization, strategic proposals and sensitive technology application of the managers in combination with the employees having high qualifications and skills has created the driving force to promote the success of the e-

KYC system, taking the lead in the digital banking transformation. Besides, although the rate of research and technology application of banks is quite high, the speed of e-KYC implementation is still uneven, there are still many banks that have only begun to research or partially apply it, causing disparities in customer service experience and stagnation in information processing. At the same time, due to the low percentage of time using e-KYC, which leads to some obstacles in adapting to the technology, and the shortage of highly qualified and experienced human resources is also a challenge that the Commercial banks must solve.

About Environment:


In fact, in recent years, the Government has always shown a very timely attention, along with the issued policies that are highly supportive in the digital transformation of banks. At the same time, the development of technology and the influence of the Covid-19 pandemic have led to a sharp increase in the trend of work from home, and the policy of limiting the use of cash has also contributed to promoting the development of e-KYC. However, besides those positive aspects, the implementation of e-KYC also faces obstacles due to:

- The national database system (National Database) is not yet completed, the implementation of e-KYC in Vietnamese commercial banks is inconsistent, the information stored in the system between banks and the national database is not closely connected, leading to difficulties in managing user information data in the banking industry in particular and population management in general.
- Limitations in the process of accessing customer files in rural and remote areas - places where the bank's headquarters is not yet available. While, this is a necessary object for the promotion of the national financial inclusion goal.

On the basis of actual existing limitations, the research team proposes a number of solutions and recommendations, thereby contributing to overcoming the current difficulties and improving the efficiency of e-KYC use of Vietnamese commercial banks. Specifically:

On the State side:

The State needs to implement the following solutions: (1) Building a complete national database; (2) Allow banks to use the same database of e-KYC according to Thailand's digital banking implementation experience; (3) Actively promote international cooperation in the field of e-KYC, creating a premise for allowing foreigners to participate in e-KYC applications of domestic banks.

 **For banks:** in the plan and process of implementing e-KYC, banks need to overcome limitations by:

▪ *Quality solutions:*

First and foremost, banks need to evaluate and come up with a method in the plan to implement e-KYC to overcome unnecessary waste, thereby optimizing features, efficiency and shortening costs. transaction time.

Second, banks also need to flexibly and skillfully deploy e-KYC in accordance with the current socio-cultural situation, thereby improving customer satisfaction and contentment, thus enhancing competitiveness for bank.

Third, Commercial banks need to prioritize finding and choosing a reputable and experienced technology supplier, especially in the matter of ensuring the safety of personal information.

Last, Commercial banks need to equip and regularly upgrade modern biometric systems to meet the needs of perfect security but still bring a friendly experience to customers.

▪ *Organizational solutions:*

Managers need to determine the right and specific strategy and direction: clearly plan the plan, research and select the appropriate technology, promote and ensure the operation activities take place on schedule, ensuring output quality.

Control human resource policies through methods such as: (1) Clearly defining the direction and strategy of developing the e-KYC system; (2) Develop a process and conduct training and employee training activities in a methodical and professional manner; (3) Creating a working environment and culture in the company; (4) Make a clear policy on training and using human resources; (5) Develop a plan for human resource development; (6) Having policies to attract talents, treat and respect employees.

▪ *Environmental solution*

Proposing to amend and supplement policies and complete the legal framework in a timely manner, suitable to information management and network security, and to take measures to deter and sanction impersonation acts; intervene, edit customer information at all times before, during and after the process of opening a payment account.

Completing the National Database by: (1) Proposing the Government to further improve in terms of technology, legal framework, and security to optimize the ability to share and contribute information of the e-KYC system in banks goods into the National Database; (2) Allowing the common use of e-KYC database between banks; (3) Research to establish an online customer identification confirmation center to connect Vietnamese banks with banks in the world.

Promote the implementation of the e-KYC system nationwide: (1) Carefully study the socio-economic situation in some localities; (2) Propagating and mobilizing people to change the method of cash payment to payment by credit card; (3) Actively promote preferential policies and financial services to local people and businesses through various forms of advertising; (4) Coordinate research on mobile banking and internet banking technologies to suit each locality; Regular maintenance of ATMs and good service attitude of bank staff to enhance customer experience.

4.2. Conclusion

Based on the collected data, the research has deeply analyzed 3 aspects: Information Quality, Supplier Quality, System Quality which impact on e-KYC user satisfaction and 4 aspects: Quality, Environment, Organization, Satisfaction affecting the success of implementing e-KYC solution to Vietnamese commercial banks, thereby confirming the influence of factors on the deployment of e-KYC in banking.

This study agrees with many studies - which share the same topic “research on factors affecting the success of the system/solution” - about the importance of the following variables: Satisfaction, Quality, Organization. On the other hand, the study results are significantly different from previous studies on the same topic about the impact of “Environment” variable to the success of e-KYC. However, due to limited resources, the study only surveyed a few well-known banks in Vietnam, mostly in Hanoi and the study did not consider the influence of demographics to the successful implementation of e-KYC. This opens the door for further studies to test and conduct this connotation in other areas and fields of research.

Reference

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FINANCIAL INCLUSION DEVELOPMENT IN SOME COUNTRIES AND VIETNAM

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Abstract

Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance – delivered in a responsible and sustainable way. There are many indicators used to assess the level of financial inclusion development in theoretical and empirical studies. This study introduces the models that measure the level of financial inclusion development including comprehensive financial inclusion index, traditional financial inclusion index and fintech-driven financial inclusion index. Additionally, based on the data on the above indicators, the study analyzes the state of financial inclusion development in Vietnam and of 51 developed countries and emerging economies in the world.

Keywords: *financial inclusion, financial service, Fintech.*

1. Introduction

In the group of developing countries, Vietnam has been considered as a country with a large and young population and the increase in the demand for financial services of individuals and businesses as well. However, according to Merchant Machine's statistics introduced in 2021, Vietnam ranked second in the list of countries with the lowest percentage of individuals accessing banking and financial services worldwide with 69% of the population inaccessible to financial services and unbanked, and 26% of cash transactions. The Government of Vietnam has set up many regulations to promote financial inclusion such as the project project on boosting noncash payments from 2006; the project on building up and developing a microfinance system in Vietnam by the year 2020 approved in 2011; the project on enhance the public's accessible capacity to banking services by the year 2020 in order to improve ability to reach basic banking services in to meet the needs of adult population and businesses in terms of quality and cost, especially consumers in rural and remote areas, small and medium-sized enterprises. Those banking services will be provided by sound and reputable credit institutions. On February 20, 2020, the Prime Minister signed Decision No. 149/QD-TTg approving the National financial inclusion Strategy to 2025 with orientation to 2030. Besides, the Government has implemented a number of initiatives to enhance the availability of financial services including national target programs on poverty alleviation, policy credit programs for target groups and priority areas.

Based on data on the comprehensive financial inclusion index, traditional finance inclusion index and fintech-driven financial inclusion index of Vietnam and 51 developing countries and emerging markets calculated by Khera et al. and Sahay et al. (Khera et al., 2021; Sahay et al., 2020), the study analyzed and evaluated the state of financial inclusion development in these countries. Fintech results in the change in the way financial services delivered to small businesses and low-income households. Traditionally, financial services have been provided by banks, microfinance institutions, and informal channels (e.g., relatives, friends, micro-lending clubs or loan sharks) carrying complex procedures or expensive costs. They are mainly built on cash transactions and face-to-face interactions with the financial service provider. Those interactions are the basis for monitoring creditworthiness; they are also often the way customers become financially educated. Fintech has been changing traditional financial markets with the development of digital financial instruments that allow individuals to access services from a mobile phone or a computer, lead to reducing the need for face-to-face meetings to conduct transactions. The development of digital platforms also enables the offering of a variety of financial products that maximize value for customers by allow users to compare price and procedures associated with products and services offered by different providers.

Thereby, this study provides empirical evidence of financial inclusion status quo driven by tradition and Fintech in Vietnam and also compared to other countries.

2. Method

2.1. Data

The study was conducted on data from 52 developing countries and emerging markets including Vietnam. The original data on comprehensive, traditional and Fintech driven (digital) financial inclusion indices spanning across two years 2014 and 2017 were calculated by Sahay et al. (2021) based on up-to-date the World Bank's Global Findex database.

2.2. Measuring financial inclusion indexes

Sahay et al. (2020) and Khera et al. (2021) built up and calculated financial inclusion indicators for 52 developing countries and emerging markets (including Vietnam) in 2014 and 2017 based on the three-stage principal component analysis (PCA) methodology. Specifically, they calculated traditional and Fintech driven financial inclusion indicators from related indicators. In particular, the traditional index reflects financial inclusion through traditional financial institutions such as banks, microfinance institutions. The Fintech-led index reflects financial services provided through digital channels including "mobile money" providers, Fintech companies, online or mobile banking services provided by traditional banks. According these two indicators, the authors calculated the comprehensive financial inclusion index for each country. The process takes three steps as follows:

- **Step 1:** the sub-indices for "access" and "usage" categories in both traditional (FI_T^a, FI_T^u) and Fintech driven component (FI_F^a, FI_F^u) are constructed based on selected variables and the weights assigned to each variable listed in Table 1.

Table 1. Selected variables for financial inclusion indices

Traditional financial inclusion index			Fintech-driven financial inclusion index		
Access	Source	Weight	Access	Source	Weight
<i>Access to the bank infrastructure</i>		<i>0.25</i>	<i>Access to Fintech infrastructure</i>		<i>0.125</i>
Number of ATMs per 100,000 adults	IMF FAS		Number of mobile subscription per 100 people	ITU	
Number of branches per 100,000 adults	IMF FAS		% of the population access to the internet	ITU	
			Number of registered mobile money agents/accounts per 100,000 adults	GSMA, IMF, FAS	0.25
<i>Usage</i>		<i>0.25</i>	<i>Usage</i>		<i>0.125</i>
% of adults with financial institution account	WB Findex		% of adults have a mobile account	WB Findex	
% of adults with savings at financial institutions	WB Findex		% of adults who use the internet to pay	WB Findex	
% of adults with debit cards	WB Findex		% of adults who use mobile phones to receive salary or wages	WB Findex	
% of adults who receive salaries through financial institution account	WB Findex		% of adults who use mobile phones to make utility payments	WB Findex	
% of adults who use financial institution accounts for utility (electricity and water bills)	WB Findex				

Source: Sahay et al (2020) and Khera et al. (2021)

- **Step 2:** The second step in PCA is to combine indicators of access and usage to calculate the traditional financial inclusion index (FI_T) and Fintech-driven financial inclusion index (FI_F). α and β are weights associated with each index, i is the country and t is the year.

$$(FI_T)_{it} = \beta_1 FI_{T_{it}}^a + \beta_2 FI_{T_{it}}^u + e_{it}$$

$$(FI_F)_{it} = \alpha_1 FI_{F_{it}}^a + \alpha_2 FI_{F_{it}}^u + u_{it}$$

- **Step 3:** The comprehensive financial inclusion index (FI) is calculated by applying PCA on the two indices, traditional financial inclusion index (FI_T) and the Fintech-driven financial inclusion index (FI_F), where θ is the weight attached to these two components.

$$FI_{it} = \theta_1 FI_{T_{it}}^a + \theta_2 FI_{F_{it}}^u + \theta_{it}$$

All indices will then be standardized to receive values between 0 and 1 for all countries and years. In particular, the value of 1 means that the country in that year had the highest level of financial inclusion among countries and across all years.

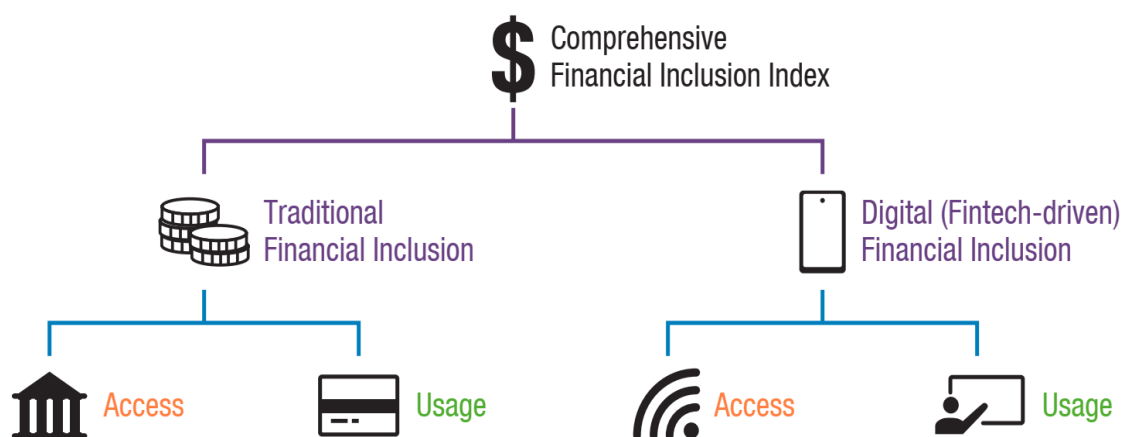


Figure 1. Comprehensive Financial Index

Source: Sahay et al. (2020)

3. Results

Table 2. Comprehensive financial inclusion index of Vietnam and regions in 2017

Area	Number of countries	Comprehensive financial inclusion index		Traditional financial inclusion index		Fintech-driven financial inclusion index	
		Average	Standard deviation	Average	Standard deviation	Average	Standard deviation
East Asia and the Pacific	9	0.588	0.302	0.476	0.324	0.441	0.165
Europe and Central Asia	3	0.68	0.104	0.647	0.12	0.42	0.075
Latin America and the Caribbean	13	0.512	0.126	0.457	0.141	0.343	0.104
Middle East and North Africa	2	0.4	0.028	0.35	0.042	0.28	0
South Asia	5	0.384	0.216	0.254	0.193	0.338	0.225
Sub-Saharan Africa	20	0.486	0.237	0.201	0.169	0.538	0.286
Vietnam		0.35		0.21		0.33	
Sum	52	0.508	0.219	0.349	0.236	0.437	0.223

Source: Author.

Table 2 summarizes comprehensive, traditional and Fintech driven financial inclusion indices of 52 developing countries and emerging markets located in 06 regions in 2017. Compared among regions, Europe and Central Asia were the leaders in comprehensive and traditional financial inclusion with the average of these two indices of 0.68 and 0.647 respectively. East Asia and the Pacific were followed with the average of 0.588 and 0.476 respectively. Despite being in second place, the region carried the highest level of volatility in these two indicators around the average compared to the rest with a standard deviation of 0.302 and 0.324 respectively. This numbers indicated that there are significant differences in level of development of comprehensive financial inclusion in general and traditional

financial inclusion in particular among countries in the region. For instance, Vietnam is located in East Asia and the Pacific but the country's two indices (0.35 and 0.21) were much lower than the regional average and of other countries. South Asia carried the lowest level of comprehensive financial inclusion.

Although Europe and Central Asia, East Asia and the Pacific are the two leading regions in comprehensive and traditional financial inclusion, they ranks behind Sub-Saharan Africa in terms of Fintech-driven financial inclusion. Surprisingly, Sub-Saharan Africa carried the lowest traditional index. Seven of the 20 countries located in Sub-Saharan Africa (including Kenya, Ghana, Senegal, Uganda, Rwanda, Zimbabwe, Cote d'Ivoire) are also the top seven countries of Fintech-driven financial inclusion in 2017 among 52 countries. However, the majority of the countries in Sub-Saharan Africa stood at the bottom place in terms of traditional financial inclusion. Obviously, traditional financial channels prevailed over Fintech in Europe, Central Asia, East Asia and the Pacific. Vice versa, in sub-Saharan Africa, traditional finance was gradually declined by Fintech to drive financial inclusion.

Figure 2.a, 2.b, and 2.c illustrates the relationship among comprehensive, traditional and Fintech-driven financial inclusion indices of 52 countries located in 06 regions. There was significant differentiation among regions. Figure 2.a shows comprehensive and traditional indices across the countries in 2017. Sub-Saharan Africa was mainly placed on the left side of the graph, indicating the its very low level of traditional financial inclusion while others reached to the relatively high level in comprehensive inclusion thanks to positive impact of Fintech. Regions such as Europe, Central Asia, East Asia and the Pacific, Latin America and the Caribbean are placed in the middle and upper parts of the graph, indicating the moderate and high levels in traditional and comprehensive inclusion.

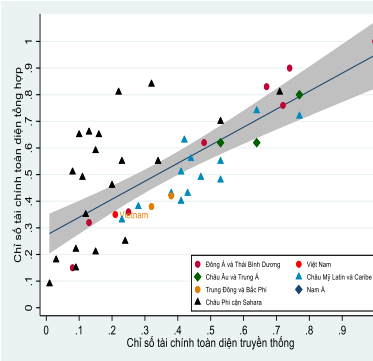


Figure 2.a: The relationship between the traditional and comprehensive financial inclusion indices

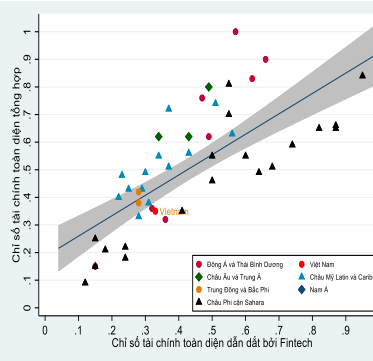


Figure 2.b: The relationship between Fintech-driven and comprehensive financial inclusion indices

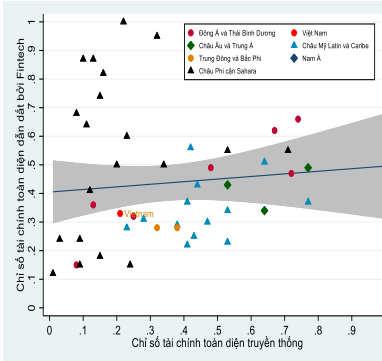


Figure 2.c: The relationship between the traditional and Fintech-driven financial inclusion indices

Figure 2. The relationship among comprehensive, traditional and Fintech driven financial inclusion in 52 countries in 2017

Source: Author.

Figure 2.b shows the correlation between Fintech-driven and comprehensive inclusion. There was close relation between Fintech and financial inclusion in Sub-Saharan African countries compared to other regions. Meanwhile, although comprehensive financial inclusion was generally better than in Sub-Saharan Africa, the rest was placed mainly in the middle of the graph indicating the moderate level in development of digital inclusion. Figure 2.c illustrates the correlation between the traditional and Fintech-driven financial inclusion. There was a obvious differentiation among regions. Sub-Saharan Africa had underdeveloped in traditional finances, but Fintech had strongly developed in many countries while in other regions traditional inclusion dominated and Fintech playing a modest role.

Vietnam is located in East Asia and the Pacific, but Vietnam's financial inclusion was quite limited compared to the regional average. Vietnam ranked 41st out of 52 countries in terms of comprehensive inclusion in 2017. Vietnam's comprehensive financial index in 2017 was 0.35 compared to the regional average of 0.588, significant lower than other countries in the region such as Malaysia (4th), Thailand (8th), Indonesia (16th). Vietnam had dropped 10 places compared to 2014. Vietnam's traditional and digital financial inclusion indices were also grouped in the low index group with traditional inclusion ranked 34th out of 52, down 2 places compared to 2014 and fintech-driven inclusion ranked 33rd out of 52, down 12 places from 2014. Fintech began to emerge in Vietnam in the 2000s, but Fintech market has rapidly grown since 2015. According to the Vietnam Fintech Report 2020 (Fintech Singapore, 2020), the number of Fintech companies has increased from 44 companies in 2017 to about 120 in 2020. Fintech companies in Vietnam operate across a variety of services including digital payments, alternative finance, financial management and blockchain. Payment sector dominates, accounting for 30% of Fintech in Vietnam. Besides, Fintech technology has been also widely applied in the field of banking and finance, helping financial institutions to implement the digital transformation, boosting the access of customers as well. As Figures 2.a, 2.b and 2.c show, Vietnam's current position equaled to the low-level group of financial inclusion of sub-Saharan Africa and has not yet reached to the level of other regions in financial inclusion. Thus, compared to other countries, Vietnam was behind most of other countries in promoting financial inclusion in terms of both traditional and Fintech-driven inclusion. Although these indices were only the up-to-date until 2017, Vietnam has not yet gained any significant steps in expansion of financial inclusion.

4. Conclusion

Designing and developing an effective national financial inclusion strategy is key for a country to be able to successfully implement envisioned reforms, as it essentially provides a roadmap for the authorities to follow to achieve their financial inclusion objectives. Comprehensive financial inclusion index including its components of traditional and Fintech-driven index are an effective measure for countries to assess the results of their strategies and efforts of financial inclusion.

Vietnam like other countries ranked low in financial inclusion continuously develop its infrastructure for delivering financial services combined with increasing the number and value of financial services used by individuals and businesses. Not only taking advantage of

traditional financial providers such as banks, microfinance institutions..., the country also need to pay special attention to Fintech companies. Digital financial services are faster, more efficient, and typically cheaper than traditional financial services and, therefore, increasingly reaching lower-income households and small- and medium-sized enterprises.

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THE IMPACT OF BELIEF, ATTITUDE AND SUBJECTIVE NORM ON OCOP PRODUCTS PURCHASE INTENTION OF VIETNAMESE CONSUMERS

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Abstract

This study aims to determine the impact of belief, attitude and subjective norm on OCOP (one community one product) products purchase intention of Vietnamese consumers. OCOP is abbreviated in English as One commune one product. In Vietnamese sense, each commune (ward) has a product. More specifically, the goal of the program is to develop the form of organization of production and trading of traditional and advantageous products in rural areas. Having tested with the fixed effects model (FEM) and random effects model (REM), we discovered that belief, attitude and social influence impact positively on the products purchase intention. Specifically, belief has the greatest impact on OCOP purchase intention of Vietnamese consumers.

Key word: *OCOP, belief, attitude, social influence, purchase intention.*

1. Introduction

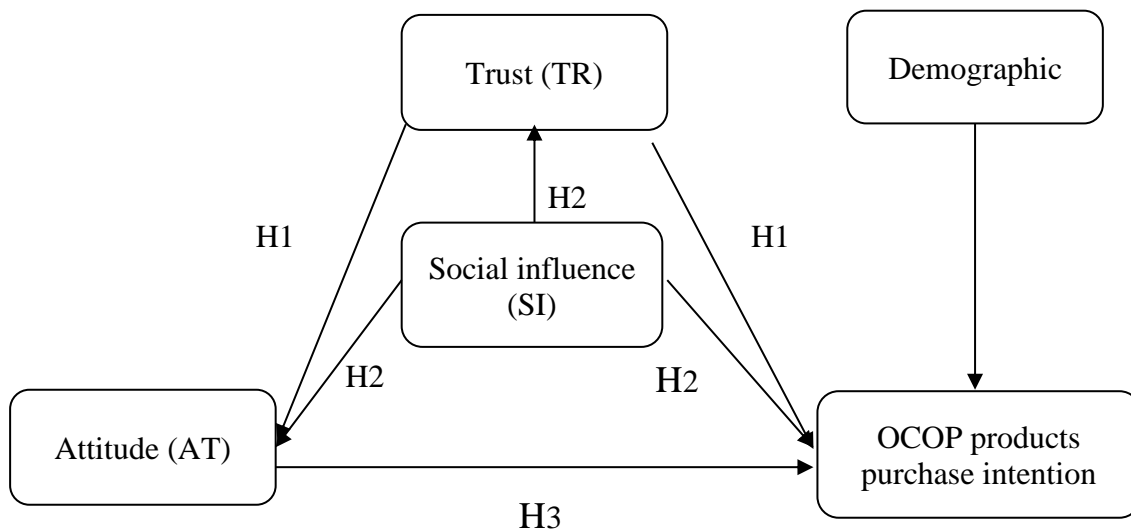
The OCOP program is an economic development program in rural areas aiming for developing internal resources and adding value. The program is the solution and task in implementing the national target program on building new rural areas. The focus of the OCOP program is to develop agricultural, non-agricultural products and services that have advantages in each locality along the value chain, driven by private economic sectors (enterprises, producers).

The State plays a constructive role, promulgates the legal framework and policies for implementation; plans orientations for production areas of goods and services; manages and supervises product quality standards; supports the following stages: Training, coaching,

technical guidance, application of science and technology, branding, trade promotion, product promotion, credit.

To have a better view of OCOP products purchase intention of Vietnamese consumers, we base on Theory of Reasoned Action TRA (Ajzen and Fishbein, 1975) and The Theory of Intentional Behavior TPB (Ajzen, 1991). Theory of Intended Behavior TPB is the development and improvement of the Theory of Rational Action TRA.

Research model is below:



The main objective of the study is to study and test the impact of trust and social influence on the intention to buy OCOP products of Vietnamese consumers. Before this research, trust, social influence and attitude have been studied in many works.

According to Böcker and Hanf (2000), trust has been identified as a necessary way to reduce uncertainty to an acceptable level and to simplify decisions. Research results of Lobb et al (2007) show that trust in the source of information affects the intention to buy chicken meat in the UK. A recent study by Muringai and Goddard (2018) in Canada, USA and Japan also found that beliefs influence beef and pork consumption. The research results of Stefani et al. (2008) show that general trust positively affects trust in the food supply chain, trust in policy makers and trust in government in schools. Consumption of chicken in Italy. People with high beliefs have more positive attitudes. Research results of Donthu (2001), Elliott and Speck (2005) show that trust positively affects attitude. Research results of Limbu et al (2012) also provide a proof for a positive relationship between beliefs and attitudes.

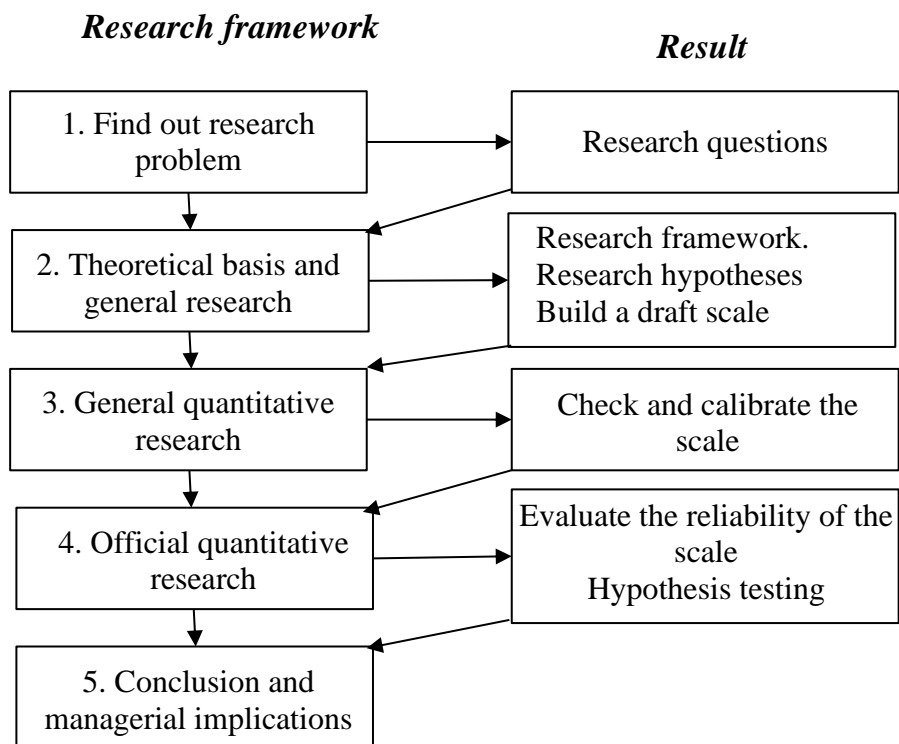
Ajzen (1991) states that the subjective norm for behavior is the social influence of stakeholders (friends, family, co-workers) of an individual on the performance of a particular behavior. According to TPB theory, subjective norm has a strong and positive influence on action intention (Ajzen, 1991). In a 2012 study, Ha & Janda showed that subjective norm has positive and moderate effects on green product purchasing behavior. Saleem & Gopinath (2013) studied the impact of subjective norm on behavioral intention to buy green products. The results show that subjective norm has a positive effect on behavioral intention to

purchase green products (Saleem & Gopinath, 2013). Thus, most of the studies suggest that subjective norm has a positive impact on behavioral intention to purchase green products. However, in a very elaborate study, Kumar (2012) argues that subjective norms do not affect the behavioral intention to buy green products. This is contrary to the TPB theory, but the author does not give specific reasons. From the above analysis, it is shown that the subjective norm for green industrial product purchasing behavior (SNP) has a positive impact on the behavioral intention to purchase green industrial products. According to Truong Dinh Chien (2015), the subjective norm expressing the level of consumer desire for domestic products depending on the structure of the community or society is collectivism or individualism. In Asian countries, including Vietnam, collectivism plays a key role, individuals influence each other strongly and the tendency is often concentrated and easily spreads from person to person. The stronger the degree of intimacy of the stakeholders with the consumer, the greater the influence on their purchasing decision. The greater the consumer's trust in the relevant people, the more their purchasing propensity will be affected.

According to Philip Kotler, the attitude describes good or bad evaluations based on persistent perception, these feelings and the tendency of a man's actions to a single person or an idea. The attitude led them to decide whether or not to like someone. According to Ajzen's research (1991), the attitude is the desired process or wish, but from which man gives specific behavior. The attitude is defined as measuring the perception and assessment of the consumer's product, the trades and the properties. According to Schiffman and Kanul (2000), attitude consists of three basic components: (1) cognitive component, (2) emotional component, (3) behavioral tendency component. The cognitive component in the model represents consumers' awareness and knowledge of a certain product, and this awareness comes from their own experiences, collects information from different sources, and thereby forming beliefs about the product and believing that the product will bring some benefits. The emotional component refers to the degree of satisfaction or dissatisfaction, like or dislike, expressed in evaluation. Consumers will rate that product as good or bad, friendly, aversion, etc. And the component of behavioral trends shows the consumer's tendency, intention to act towards the product in the direction that has been perceived and felt. Another study by author Lobb et al (2007) introduced the SPARTA model, which is an acronym for the following factors: subjective norm (S), perceived behavioral control (P), attitude (A), perceived risk (R), trust (T), and others (A) or other variables such as socio-demographic factors. The proposed model presents the interaction between these factors for purchase intention. Research results have demonstrated that purchase intention is mainly influenced by attitude. Therefore, the results of this study support quite positively that attitude serves as an important determinant of purchase intention. Some other research results also show that when the consumer's attitude towards environmentally friendly products or green products is positive, the consumer's purchase intention will be more likely to be positive. (Mostafa, 2006 and Mostafa, 2007) and in previous case studies, attitude was found to be the most influential factor in predicting intention (Bagozzi et al., 2000). The relationship between attitude and intention to buy is also studied by many Vietnamese authors. Research by Nguyen Phong Tuan (2011) also shows that there is a high correlation between attitude

towards organic food and purchase intention. This study was conducted in two cities, Hanoi and Ho Chi Minh City, and showed the influence of factors such as attitude towards the environment, perceived value, interest in health, and knowledge about safe food and subjective norms have a clear relationship with the intention to buy safe food of consumers in the South and the North. According to Le Thuy Huong (2014), Attitude is an individual's positive or negative feelings about performing a certain behavior. Attitude describes the degree to which an individual views the outcome of an action as positive or negative.

The framework of the study is presented below:



Source: Author's own compilation

2. Method

The main research method used in the model is econometric regression with the general model as follows:

$$YDTD = 0.514 + 0.351NT + 0.218TD + 0.306AHXH + e$$

In which:

YDTD: Dependent variable “OCOP consumption intention”

NT: Independent variable “Belief”

TD: Independent variable “Attitude”

AHXH: Independent variable “Social Influence”

Formal research is a quantitative study. The process of preliminary theoretical research determines the content of issues to be researched, forms research questions and research objectives. From research objectives, research theoretical basis, identify research concepts, develop research hypotheses and research models, then design scales

based on research concepts; Research hypotheses and research models are carried out through two preliminary and formal research steps. Preliminary research includes a qualitative study to adjust the scale and a preliminary quantitative study to preliminarily evaluate the scale and adjust the scale accordingly. Formal quantitative research to test the scale and theoretical models.

The overall research is all Vietnamese consumers living and working in cities. They can be students or those who do many different jobs. Due to limited resources, the author chose 3 big cities representing 3 regions of the country to survey including: Hanoi, Da Nang and Ho Chi Minh City, in which Hanoi and Ho Chi Minh City are the two largest cities and have the highest per capita income in the country.

OCOP businesses always choose Hanoi and Ho Chi Minh City as the place to consume their latest products because these are the two largest consumer markets in Vietnam. In addition, these are also two localities with a large number of immigrants from provinces and cities across the country to live and work, the agility and ability to receive new products are always appreciated.

Due to the large scale of the study, the diversity of classification criteria is limited, in terms of resources (financial, time, accessibility...). the group cannot use random sampling method but use random sampling method but use convenience method. Although the sample was selected by a convenient method, in order to ensure representativeness, the team tried to evenly distribute the expected number of questionnaires according to 3 localities representing 3 regions of the country, namely Hanoi, Ho Chi Minh City and Hanoi. Ho Chi Minh City and Da Nang. In addition, the group also surveyed consumers by occupation, age, and income level to be able to indicate consumers' intention to use OCOP products.

Having collected data, the authors conducted screening, statistics, coding and processing through SPSS 24.0 and AMOS 24.0 software, and analyzed Cronbach's Alpha coefficients to assess the reliability of the scales., thereby removing the variables that do not match. Steps of factor analysis to explore EFA and confirmatory factor analysis of CFA are applied to draw conclusions about the quality of the scale, to prepare for testing the research hypothesis. Using the linear structural model SEM to test the research hypotheses. Reaffirm the model's reliability by Bootstrap method and finally analyze ANOVA and T - Test ...

3. Results

The research results show that “Trust” is the factor with the greatest influence (standardized Beta coefficient is 0.32) on “OCOP purchase intention” in the group of 3 extracted factors within the scope of the study.

The program "One Commune One Product - OCOP" is currently one of the levers to promote economic development in rural areas, contributing to speeding up the process of building new rural areas in many provinces and cities. Currently, consumers are more careful in choosing consumer products, in addition to design and durability, they are also especially interested in safety for health, especially in the time of widespread epidemic.

Trust in a product is one of the important factors that determine whether consumers buy and use that product or not. It is not by chance that any business today, whether newly

established or has existed for many years, must build and keep consumers' trust in that product or brand. If there is any scandal related to product quality, this will quickly reduce consumer confidence in that product. If product quality always meets the requirements of consumers, customers will trust, create brand loyalty and long-term use for the products.

In order to build trust with consumers, the OCOP product evaluation criteria are increasingly strict. OCOP products are evaluated carefully and professionally in many aspects. The evaluation board consists of experts in related fields such as health, environment, ... Not only that, the assessment also goes through many different levels, from district to provincial level, then from province to center OCOP products that meet 4-star standards have important certificates such as VietGap, ISO, ... Consumers are still unfamiliar with the term "OCOP certification", but certifications such as VietGap, ISO, or GlobalGap have been trusted by consumers. Certified products like these help consumers feel secure when shopping.

Currently, the government, ministries and businesses are propagating more about OCOP so that consumers are more familiar with OCOP products, OCOP certified, and trust in the quality of OCOP products. Once consumers put their trust, they are willing to spend money to buy products. From here, it can be seen that the positive impact of trust on OCOP product consumption behavior.

Research results show that "Social influence" is the factor with the second level of influence (Standardized Beta coefficient is 0.227) on "Intent to consume OCOP program" in the group of 3 influencing factors cited within the scope of the study. OCOP products are products that "require" consumers to also have a certain level of knowledge. Therefore, the "participation", "consultation", "sharing" of family or important people will affect consumers' intention to buy OCOP products.

Social influence has a positive effect on the intention to purchase OCOP products. A typical example is in Thanh Hoa province. Along with the implementation of mechanisms and policies to encourage agricultural and rural development and new rural construction, in recent years, Thanh Hoa province has implemented the Program OCOP submission. Accordingly, departments, branches and localities have flexibly used funding sources to support producers to wake up traditional occupations and develop more new ones, and at the same time strengthen promotion and support for products that are born from the village to reach customers in many difficult markets. Phu Quang lam tea products have appeared and existed on Vinh Loc land for hundreds of years, associated with the life and spirit of the people of Cao Mat village, old Vinh Thanh commune, now Vinh Loc town. Lam tea in Phu Quang land of Vinh Loc also has a brand name on the market, but the annual consumption is quite modest. Since 2018, when provinces and districts have propagated and supported producers under the OCOP Program, families have realized that this is an opportunity to give wings to traditional products to "reach out". Consumption volume reached 25 tons/year, revenue was about 1.5 billion dong, profit was 400 million dong/year, an increase of 20% compared to before participating in the program. However, the highlight that marks the transcendence of space of Phu Quang blue tea products is that Co.opMart Thanh Hoa Supermarket has selected and put the product "on the shelves" for consumers. Mr. Bui Cong

Anh, Deputy Chief of the Office of Coordination of the New Rural Program in the province, said: In order to bring OCOP products to the market, especially into the retail channel system, The office has coordinated with localities, the subject launched 14 points of display, introduction and sale of OCOP products and typical goods from regions and regions. At the same time, fairs have been organized to promote, connect and trade OCOP products, attracting the participation of many cooperatives, businesses, craft villages and farms in the province. Through promotional fairs, dozens of OCOP products that meet the requirements and criteria have been selected and sold at reputable supermarkets and e-commerce platforms. This is the initial success in expanding the consumption market for the province's OCOP products... From the example in Thanh Hoa province, it shows that, after the OCOP program was implemented, with the attention and encouragement of the leadership of the province local leadership, sales and propaganda programs are widely deployed and product quality is improved,

From the above analysis, it is shown that the subjective norm for OCOP product purchasing behavior has a positive impact on behavioral intention to purchase OCOP products.

Research results show that “attitude” is the factor with the lowest influence (standardized Beta coefficient is 0.203) on “Intent to use OCOP program” in the group of 3 extracted factors within the scope of the study. People's attitudes always have many changes over time, at the time of the study, the team analyzed the data and found that this is the least influential factor.

4. Discussion and Conclusion

Theoretically, the topic identifies the factors affecting the "OCOP consumption intention" of Vietnamese consumers. Those factors include: “Trust”, “Attitude”, “Social influence”. At the same time, the study also determined the intensity and direction of impact of these factors on consumers' intention to use OCOP products. The topic has built and supplemented the basic theory on consumer behavior and OCOP consumption intention of Vietnamese people such as: "Concepts of beliefs, attitudes, social influence". The concept of intention, intention to use OCOP of Vietnamese people. In Conclusion, the factor that has the strongest influence on “OCOP consumption intention” is “Trust”. In addition, it also supplements and develops methodology for future studies as well as proposes practical solutions.

In practice, the research results of the topic also suggest to state management agencies, localities and businesses new directions in applying measures to increase trust and popularization to the people to have a more positive and in-depth view of the OCOP program. Specifically, the state management agency has strengthened the implementation of the campaign "Vietnamese people give priority to using Vietnamese goods", and at the same time introduced policies and plans to increase consumers' confidence in OCOP, thereby increasing the intention to purchase OCOP products. Enterprises will have positive changes, transformations and self-improvement from organization, activities to products, thereby actively participating in and contributing to disseminating the image and characteristics of OCOP to friends and partners. For people who intend to use OCOP or who intend to establish businesses participating in OCOP) they will have confidence in the quality and value that OCOP brings.

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STUDY ON THE EFFECTS OF CORPORATE GOVERNANCE ON ENTERPRISE EFFICIENCY: EXPERTIVE EVIDENCE FROM NON-FINANCIAL ENTERPRISES LISTED ON THE VIETNAM STOCK MARKET

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Abstract

The study provides empirical evidences on the effects of the elements that comprise the corporate governance mechanism on the performance efficiency of non-financial enterprises listed in Vietnam between the period from 2016 and 2020. To overcome the defects in the regression model, the author uses a panel data regression model with a data sample of 200 non-financial enterprises and the FGLS method. The size of the board of directors (BOD), the size of the supervisory board, and the CEO all have a positive influence, according to the regression results; opposite, ownership concentration and independent board of directors have a negative impact on enterprise performance. Based on the study's findings, the author proposes a number of solutions for effective enterprise governance in order to optimize enterprise operations.

Keywords: *Corporate governance, Performance efficiency, Enterprise, Vietnam, FGLS method.*

1. Introduction

Vietnam is one of Southeast Asia's emerging markets. It is also known as one of the most appealing markets for investment capital in the region, with numerous investment opportunities with attractive returns. However, because it is an emerging market, information transparency on the Vietnamese stock market is still quite poor, partly due to potential risks in the governance of enterprises. This has had an impact on the enterprise performance as well as the investment capital of investors who have participated, are participating, or are about to participate in the Vietnamese stock market. As a result, international investors recognize that improving the quality of corporate governance is one of the important factors that comprise the triangle of sustainable development (environment, society, and corporate governance) and this is also of particular interest to international investors.

Corporate governance is a system of monitoring and management that has a direct impact on the identification and achievement of enterprise goals. It is a method of assessing and controlling the enterprise's risk and ensuring that its implementation is successful. A good governance structure encourages an enterprise to generate more profits through business, research, and innovative development. The Asian financial crisis of 1997 swept many countries, including Vietnam, into a spiral of crisis, sounding the alarm for domestic enterprises in maintaining and building a better corporate governance system. Enterprises must first create a conscious, transparent, and accountable corporate culture, which will lead

to long-term value creation and generate profits for both the enterprise and its shareholders. Since the financial crisis, Vietnamese enterprises have become more conscious of absorbing economic shocks while also using them as a driving force to improve corporate governance practices and create value through sustainable treatment. Connelly et al. (2012) and Mak and Kusnadi (2005) conduct studies to determine whether corporate governance has an effect on enterprise performance efficiency. The goal of this study was to find empirical evidence on the influence of corporate governance on the efficiency of enterprises listed on the Vietnam Stock Exchange, thereby contributing to improving the quality of operations and increasing the market reputation of enterprises, improving the overall creditworthiness of the Vietnamese stock market in the eyes of international investors.

2. Literature Review

Many studies on the impact of corporate governance on enterprise performance efficiency have been conducted both globally and in Vietnam. These studies, however, reach disparate conclusions. This section of the study will review the directions of impact of corporate governance components on enterprise performance efficiency.

Size of Board of Directors

When studying a sample of 452 large industrial corporations in the United States from 1984 to 1991, Yermack (1996) discovers a negative relationship between board size and performance efficiency. Similarly, Eisenberg et al. (1998) and Mak and Kusnadi (2005) find a negative relationship between board size and performance efficiency in a sample of Finnish enterprises. In contrast, Coles et al. (2008) discover that board size increases enterprise performance efficiency. Jackling and Johl (2009) discover that the size of the board of directors has a positive effect on the performance efficiency of Indian market enterprises. This is due to the Board of Directors with a large scale will better support and advise the Board of Directors when the complexity of the business environment and organizational culture is increasingly diverse (Klein, 1998).

Independent Board of Directors

According to Agrawal and Knoeber (1996), board independence has a negative effect on enterprise value as measured by Tobin's Q. In contrast, Jackling and Johl (2009) discover that board independence has a positive impact on the value of Indian enterprises, which is similar to Muniandy and Hillier (2015), who believe that board independence has a positive effect on the performance efficiency of enterprises in South Africa. Haniffa and Hudaib (2006) find that the independence of the Board of Directors has no effect on the enterprise performance in Malaysia.

Size of supervisory board

According to Aldamen et al. (2012), the size of the supervisory board has a negative relationship with performance efficiency. In particular, enterprises with smaller-scale supervisory boards and more financial experience and expertise, tend to be more active and productive during global financial crises. However, in theory, joint-stock companies with competent supervisory boards are less likely to encounter scandals, thereby limiting the possibility of business performance reduction.

Female member of the Board of Directors

Many studies have been conducted to investigate the relationship between female board members and enterprise performance efficiency. Erhardt et al. (2003) investigate the impact of board gender diversity on enterprise performance efficiency and discovered that gender diversity is positively related to performance efficiency. Carter et al. (2003) also demonstrate that board gender diversity is associated with higher financial value in a sample of US enterprises. Garca-Meca et al. (2015) find that the presence of female directors improves enterprise performance efficiency in a sample of banks in nine countries (Canada, France, Germany, Italy, Netherlands, Spain, Sweden, the United Kingdom, and the United States). Furthermore, Hutchinson et al. (2015) demonstrate that gender diversity on the board of directors is related to enterprise performance efficiency.

Dual CEO

Previous studies on this topic has yielded conflicting results. For example, Boyd (1995) shows that the impact of the dual CEO and the enterprise performance efficiency is dependent on the environment. Haniffa and Hudaib (2006) discover a negative relationship between dual CEO and Malaysian enterprise performance efficiency. Chen et al. (2005) also demonstrate a negative relationship between dual CEO existence and enterprise performance efficiency in a sample of Hong Kong enterprises from 1995 to 1998. When studying a sample of enterprises in the US market, Bhagat and Bolton (2008) argue similarly.

Ownership concentration

Previous study has found two opposing views on the impact of ownership concentration on enterprise performance efficiency. For starters, corporate performance suffers as a result of ownership concentration. The existence of agency costs associated with major shareholders explains this. Managers will not be flexible and proactive, resulting in less initiative in their decisions and, ultimately, lower enterprise performance efficiency (Myers, 2000).

Agrawal and Knoeber (1996), on the other hand, suggest that ownership concentration can help strengthen management supervision and thus improve enterprise performance efficiency. According to Nguyen (2011), ownership concentration increases both unsystematic risk and enterprise performance efficiency. When studying the Thailand market, Wiwattanakantang (2001) discover that ownership concentration is positively related to enterprise performance efficiency. Despite differing viewpoints, many researchers recognize the importance of major shareholders. They are particularly important in the corporate governance system because they have a wealth of skills, knowledge, time, and attention to management quality.

Auditing enterprise's reputation

An enterprise whose financial statements are audited by well-known auditors will be able to reduce information asymmetry and signal the enterprise's prospects to financial markets. According to a study conducted by Defond and Lennox (2011), many small auditors (those with fewer than 100 clients) left the market following the implementation of the Sarbanes-Oxley Act in 2002. Many people believe that one of the main reasons for hiring a large audit enterprise is that the enterprises are of international stature and thus require international auditors (Big4

auditors) to audit them. Furthermore, improved audit quality is expected to improve enterprise decision-making (operating and investment decisions). This study anticipates a positive relationship between audit reputation and enterprise performance efficiency.

3. Methods

3.1. Data

The study uses secondary data for listed enterprises in Vietnam from 2015 to 2020. After excluding enterprises with insufficient observation data for 6 years and those with unreasonable information, the number of remaining enterprises is 186, corresponding to 930 observations. Furthermore, the data is derived from a collection of annual reports of enterprises that are widely distributed in the media, such as financial statements, summary reports, operational directions, and other relevant accounting figures and operating data.

3.2. Research model

Based on the theoretical foundation and empirical research mentioned above, the study proposes to construct the following model based on Umawadee et al. (2017) study as the following:

$$ROE_{i,t} = \alpha + \beta CG_{i,t} + \gamma Z_{i,t} + \eta_i + v_t + \varepsilon_{i,t} \quad (1)$$

In there:

- $ROE_{i,t}$ is the rate of return on equity, measuring the efficiency of enterprise I at time t;
- The independent variable representing corporate governance (CG) includes the size of the Board of Directors, the independent Board of Directors, the size of the control committee, the number of female members in the Board of Directors, the dual CEO, the concentration of ownership and the reputation of the auditing enterprise;
- Z is a vector of enterprise control variables including enterprise size, enterprise age, capital expenditure, current solvency, market value to book ratio, cash flow ratio operations to total assets, fixed assets ratio.

Table 1. Description of variables in the model

Sign	Variable name	Definition
<i>Corporate governance</i>		
BD_SIZE	Size of Board of Directors	Number of members in the Board of Directors, including the chairman of the Board of Directors and independent members of the Board of Directors
BD_IND	Independent Board of Directors	Percentage of independent members in the Board of Directors
BD_AUDIT	Size of supervisory board	Number of members in the supervisory board
BD_WOMEN	Female member of the Board of Directors	Percentage of female members in the Board of Directors
CEO_DUAL	Dual CEO	Dual CEO is a dummy variable with a value of 1 if the CEO is also the chairman of the board and if not equal to 0
OWN_TOP3	Ownership concentration	Percentage of common shares held by the three largest shareholders

Sign	Variable name	Definition
BIG4	Reputation of the auditing enterprise	A binary variable, equal to 1 if the audit enterprise is in BIG4 including KPMG, Deloitte, PwC and EY, and if not equal to 0
Capital Structure		
LEV	Financial leverage	Total debt/Total assets
Enterprise efficiency		
ROE	Return on equity	After-tax return on equity
Control variable		
LNTA	Quy mô doanh nghiệp	Natural logarithm of total assets
LNFACE	Enterprise age	Natural logarithm of the number of years since the enterprise was listed
CAPEXTA	Capital expenditure	Ratio of investment spending to total assets
CACL	Current Ratio	Short-term assets/short-term liabilities
MBV	Market-to-book ratio	Ratio of market value of common stock to book value of common stock
NCFOTA	Cash flow to total assets ratio	Ratio of net cash flow from operating activities to total assets
PPETA	Fixed Asset Ratio	Ratio of fixed assets to total assets
ROA	Return on total assets	Ratio of profit after tax to total assets

Source: Author compilation

The author uses Stata 14.2 software to perform descriptive statistics on fully collected variable data from 2016 to 2020. Table 1 provides an overview of the variables' number of observations, maximum and minimum values, mean, standard deviation, deviation, and kurtosis.

Table 2. Descriptive statistics of variables

Name	Obs	Smallest	Largest	Mean	Std. Dev	Variance	Skewness	Kurtosis
BD_SIZE	930	3	11	5.9742	1.4508	2.1048	0.8512	3.1993
BD_IND	930	0	0.8	0.2437	0.1408	0.0198	0.2967	3.8269
BD_AUDIT	930	0	8	3.0088	0.5913	0.3496	2.5711	23.3723
BD_WOMEN	930	0	1	0.1705	0.1728	0.0298	0.9703	3.9379
CEO_DUAL	930	0	1	0.1731	0.3786	0.1433	1.7279	3.9858
OWN_TOP3	930	0	0.9976	0.2468	0.2458	0.0604	0.8449	2.8117
BIG4	930	0	1	0.5043	0.5002	0.2503	-0.0172	1.0003
LEV	930	0.0153	1.2945	0.4779	0.1928	0.0372	-0.1982	2.8106
ROE	930	-40.8206	1.5868	0.1058	1.3554	1.8372	-29.6647	895.7203
LNTA	930	9.9243	19.8617	14.9869	1.2371	1.5305	0.4180	3.6325
LNFACE	930	0	2.9957	2.0899	0.5269	0.2776	-1.7741	6.9238
CAPEXTA	930	-0.0965	0.7583	0.0476	0.0645	0.0042	3.1262	23.1482
CACL	930	0.2526	34.8501	2.3249	2.6654	7.1044	5.3891	44.9323
MBV	930	-3.2724	35.3813	1.6423	1.6588	2.7516	10.1177	189.278
NCFOTA	930	-0.3607	0.7345	0.0803	0.1149	0.0132	0.5526	5.3897
PPETA	930	0.0002	0.9280	0.2509	0.2097	0.0440	1.1033	3.7697

Source: Author calculations

3.3. Research methods

Panel data regression can be used to estimate the impact of working capital management on the performance of publicly traded enterprises. Panel data have the advantage of making regression models more efficient, informative, and variable by combining cross-sectional and time-series data.

The following estimation methods are used in the study for the panel data regression model: The least squares estimation method – Pooled OLS; fixed effects model – FEM; random effects model – REM. Following the selection of a suitable model, the study employs the FGLS method to overcome the defects in the regression model.

4. Results

4.1. Result of Tests

The F test used to compare the Pool OLS and FE estimation models reveals that the FE model is superior. The Hauman test results between FE and RE show that FE is a suitable model. The FE model is found to be the most appropriate through testing.

The Chi-square test is used in the study to test endogenous variables in the model with the hypothesis: H0: The model has no endogenous factors, obtained p-value = 0.1023 < 0.05. As a result, rejecting hypothesis H0 implies that the models lack endogenous factors.

4.2. Model Regression Result

Table 3. Model estimation results (1) for models and using the FGLS method

	POLS	REM	FEM	FGLS
BD_SIZE	0.00267	0.00098	-0.000968	0.00312***
BD_IND	-0.0616***	-0.0497**	-0.0237	-0.0389***
BD_AUDIT	0.0170*	0.0135	0.0104	0.0134***
BD_WOMEN	-0.0172	-0.0188	-0.0145	-0.0234**
CEO_DUAL	0.0211***	0.0195***	0.0185**	0.0118**
OWN_TOP3	-0.00746	-0.00907	0.00919	-0.0136*
BIG4	-0.00370	-0.000256	0.00270	-0.00333
LNTA	-0.00919***	-0.0102**	0.00633	-0.0145***
LNFAE	-0.0122*	-0.0200**	-0.0475***	-0.0168***
CAPEXTA	0.196***	0.162***	0.112*	0.120***
CACL	-0.00512**	-0.00332	-0.00355	-0.00444***
MBV	0.0478***	0.0469***	0.0405***	0.0490***
NCFOTA	0.317***	0.172***	0.102***	0.170***
PPETA	-0.0816***	-0.0507***	-0.0400	-0.0594***
c	0.189***	0.241***	0.0754	0.291***
Hausman test	0.0000			
F-test	0.0000			
R ²	0.4401	0.4268	0.3284	

*, **, *** represent estimated coefficients with statistical significance at 10%, 5% and 1%, respectively.

Source: Author calculations

The model regression results show that the Board size variable (BD SIZE) has a positive relationship with performance efficiency, which is consistent with the findings of Coles et al. (2008), Jackling and Johl (2009), Klein (1998), and Dalton et al. (1999) who advocate for larger board sizes to improve performance efficiency. The fact also shows that an enterprise with a large board of directors will better support and advise the board of directors as the complexity of the business environment and organizational culture grows. Furthermore, the large size of the board of directors will support a multi-dimensional and more informative data system, resulting in the Board's autonomy in decisions.

The percentage of independent members on the BOD, or the independent BOD variable (BD IND), has a negative relationship with performance efficiency. Many previous studies support this viewpoint, such as Agrawal and Knoeber (1996), who demonstrate that board independence has a negative impact on enterprise value in the United States, Scott and Kleidon (1994) also argue that enterprises with a high percentage of independent directors perform worse than enterprises with a low percentage of independent members.

At the 1% significance level, the control board size variable (BD AUDIT) also has a positive relationship with performance efficiency. As a result, an increase of one member on the supervisory board will result in an increase of 1.34 percent in ROE, supporting the view that joint stock companies with a competent supervisory board are less likely to face scandals, thereby the possibility of a drop in business performance is reduced.

In contrast, an increase in female board members will result in a drop in enterprise performance efficiency. Studies that support this opposing viewpoint include Rose (2007), who stated that female members of the Board of Directors positively affect performance efficiency, or Erhardt et al. (2003), Carter et al. (2003), Hutchinson et al (2015). Gender diversity has brought harmony to the way the Board of Directors views issues, allowing for more comprehensive decisions and increasing enterprise efficiency. Fairlie and Robb (2009) argue that enterprises run by women will be less successful than those run by men because female founders or executives are scarce, as is experience, women's experience is frequently restricted to family businesses. The findings also reveal a link between dual CEO (CEO DUAL) and performance efficiency. Peng et al. (2015) conduct a study based on data from 403 Chinese listed enterprises that strongly supports management theory and argue that the presence of a dual CEO has a positive effect on enterprise performance efficiency.

Ownership concentration (OWN TOP3) also has a negative relationship with performance efficiency. The existence of agency costs associated with major shareholders can explain this. Minority shareholders will bear the consequences of large shareholders misusing corporate assets for personal gain. Furthermore, strict control of business activities by major shareholders will reduce the effectiveness of the board's operations. Managers will be rigid and proactive, reducing initiative in their decisions and, as a result, business performance (Burkart et al., 1997; Myers, 2000).

The variable BIG4 has no statistical significance, which is similar to the findings of Detthamrong et al. (2017) when studying the DNNY sample in Thailand (The results show that all corporate governance variables have no impact on performance efficiency).

Control variables included in the model include LNTA, LNFAGE, CAPEXTA, CACL, MBV, NCFOTA, PPETA, all of which have very high statistical significance (significant level 1 percent), with LNTA, LNFAGE, CACL, PPETA variables having a negative impact on performance efficiency, while CAPEXTA, MBV, and NCFOTA having a positive impact.

5. Conclusion

This study provides empirical evidences on the relationship between corporate governance and performance efficiency of non-financial enterprises listed in Vietnam from 2016 to 2020. Corporate governance has a positive impact on the performance efficiency of the variables BD SIZE, BD AUDIT, and CEO DUAL, while the variables BD IND, BD WOMEN, and OWN TOP3 have a negative impact on enterprise performance efficiency.

The performance efficiency of an enterprise depends heavily on corporate governance factors (Board size, percentage of independent BOD members, number of members of the Supervisory Board, female members of BOD, dual CEO, ownership concentration), so to improve performance efficiency, businesses in general and policy makers in particular can, through study, devise management strategies suitable to the situation of the enterprise in order to maximize performance efficiency and help increase the enterprise's value and reputation. To accomplish this, there is no governance mechanism known as a "template" that brings absolute efficiency to the majority of enterprises in Vietnam, depending on the situation of each enterprise, qualifications, and culture, so that each enterprise can create its own flexible, dynamic, and effective governance mechanism in order to transform the enterprise. Enterprises can also use the evaluation criteria of the ASEAN Corporate Governance Scorecard developed over time as a foundation for developing a standard governance mechanism based on international best practices./.

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DETERMINANTS OF BUSINESS PERFORMANCE OF THE FIRMS: A CASE OF VIETNAM LISTED BANKS

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Abstract

The study was meant to investigate factors affecting the business performance at Vietnam listed joint stock commercial banks. The study aimed at finding out how clientele, source of funds, leadership and promotional strategies, government regulations, macroeconomics factors influenced the business performance of Vietnam listed commercial banks. The study adapted a descriptive research design as a major method of research where questionnaires were used to collect data from a sample of Vietnam listed joint stock commercial banks. Data collection was both primary and secondary data. Primary data was collected using questionnaires distributed to the banks' employees. They were designed to obtain broad range of answers from respondents which were used to answer the research questions. They comprised of close ended questions and secondary data was gathered from previous studies and annual reports of banks. Descriptive statistics was used to analyze data and the statistical package for social sciences (SPSS 21.0) and advanced Excel were used. Reports were tabulated using frequency tables for clarity. The results established the relationship between business performance as a dependent variable and the independent variables including clientele, and source of funds, promotional strategies and leadership. The study findings showed a great influence of funds and clientele on the performance of commercial banks, followed by promotional strategies. Leadership was found to have less influence on performance of the bank. The study suggests to the financial sector players to maintain a sufficient clientele base and embrace healthy competition. The findings should draw the attention of scholars, the government and the private sector to help in ensuring economic stability of this country as banking is a major sector of the economy.

Key words: *Business Performance (BP), Enterprises (ES), Small and Medium Sized Enterprises (SMES); Vietnam Listed Banks (VLB)*

1. Introduction

Speaking of SMEs refers to the ability to create jobs and income, improve business management skills, and promote entrepreneurship and creativity. In particular, SMEs play an

important role in honing Es administration skills and promoting innovation. In addition, SMEs also help build a flexible industrial production system, with close links, exploiting and mobilizing all potentials of localities, creating a healthier competitive market and there are positive spillover effects on the economy. Therefore, promoting the development of SMEs is considered an effective means to mobilize capital as well as other resources for production and business activities, contributing to economic growth and stability socialization.

In the context of today's fiercely competitive market, in order to survive and grow, Es needs to be proactive and actively seek ways to increase profits in a reasonable manner. To do so, the Es owner first needs to have a basic awareness of the factors that affect his Es's performance. Specifically, profitability is the ratio to measure Es's performance, which is the main aspect of Es's financial statements. Profits of an Es show that Es's ability to generate income over a given period. Profitability is the deciding factor that helps managers develops an effective profitability strategy for Es.

2. Literature Review

When conducting research on investment, Lei and Chen (2011) said that enterprises make direct investment when it meeting 03 conditions. This is: (i) enterprises must own advantages compared to other businesses: such as scale, technology, marketing network, access to capital with low productivity; (ii) localization: it is more advantageous to use those advantages within an enterprise than to sell it to other businesses or to other businesses; (iii) production in the host country has lower costs than production in the host country.

Lei and Chen (2011) also show the choice decision of Taiwan firm's investment in Vietnam. Jabri et al (2013) and (2015) also show the determinants of investment in MENA region. This is the basis for my research in this paper. The theory of investment behavior of Jensen (2003) and Jouili (2018) shows that investor behavior is directly affected by: (i) changes in demand; (ii) interest rates; (iii) the level of development of the financial system; (iv) public investment; (v) human resources; (vi) other investment projects in the same industry or in connected industries; (vii) the situation of technology development, the ability to absorb and apply technology; (viii) the stability of the investment environment; (ix) procedural regulations and (x) completeness of information.

Kumar (1994) referred the determinants of export of foreign product in United States of America. Kwiatkowski, Philips, Schmidt, and Shin (1992) used the time series to test the null hypothesis. Tran (2009), Parker, Phan, Nguyen (2005) shows the relationship between the infrastructure and Investment attraction in Vietnam. There are some research related to Investment in the world such as Loree and Guisinger (1995) showed the determinants of United State FDI. Louail (2019), Mina (2007), Mina (2012), Moosa (2009) refers determinants of foreign direct investment in Arab countries. Nnadi and Soobaroyen (2015) show the financial statement standards and FDI in the Africa. Pricope (2017), Rogmans (2013) refer the FDI and adoption of international financial report standards in poor countries. Pesanran and Shin et al (1997), (1998), (1999) shows that business satisfaction indicates the level of satisfaction of businesses when investing in a country affected by three factors: (i) attribute group about the infrastructure; (ii) attribute group of

business policy, service support (SS); (iii) attribute group of living and working environment, also mentioned the impact of national small and medium-sized enterprises on FDI attraction in developing countries.

Nguyen et al (2020) refer the impact of working capital on profitability of Vietnam firms. Nguyen et al (2020) also note the determinants of enterprises listed on Vietnam Stock Exchange. Xuan (2020), Factors affecting foreign direct investment: Evidence at foreign technology enterprises in Vietnam, referred the main factors influenced the FDI in Vietnam and have evidence from the technology FDI firms. Models enterprise size is a category that reflects the size of the enterprise and the way to organize and arrange the parts that constitute the enterprise. There are many criteria for assessing the size of an enterprise, namely: Scale by capital, scale by number of employees, scale by turnover, scale by profit and so on. In Vietnam, the determination of scale enterprises comply with the provisions of the Government's Decree No. 56/2009 / ND-CP of June 30, 2009, on assistance for the development of small and medium-sized enterprises, which determines the size of enterprises mainly based on Two factors are capital and labor.

A study by Fausto et al. (2013) showed that type of business, age of business owner, number of capital contributors is factors affecting firm size. Meanwhile, Mssimo & Colombo (2015) said that the business activities, the type of import-export business, the number of founding members have significant explanations in the model of factors affecting the size of enterprise capital. The further pointed out that the size of firm capital is affected by the organization's capital contribution, number of employees and the rate of return on total assets of the industry. The gender and age of the person who has the decisive role in the enterprise also has a certain impact on the size of the business.

With studies in Vietnam, Xuan et al (2020) firms the business sector, type of export business or domestic, the form of business registration has a close relationship with the size of the capital of the business. The factors of business lines, type of business registration, location of production and business establishments, operating time of enterprises, percentage of capital contribution of the organization in the capital structure of the business is the factors that affect the size of the business capital of the business. Through a review of several studies shows, there are many factors affecting the business performance of Es in general and SMES in particular. Baard, VC and Van den Berg, A. (2004), Ari Kokko and Fredrik Sjöholm (2004), Henrik Hansen, John Rand and Finn Tar (2002) have shown that Es size is one of the factors influencing Es business results. According to the studies of Panco, R. and Korn, H. (1999), Henrik Hansen et al (2002), the age of an Es is a factor affecting the survival and development of an Es. Henrik Hansen et al. (2002), showed that the education level of the Es owner and the Government support policy has an impact on the business performance of SMES. In addition, once again demonstrated the level of access to government support policies affecting the business performance of Es, and the author shows the concern. Social system, revenue growth are also factors affecting business performance.

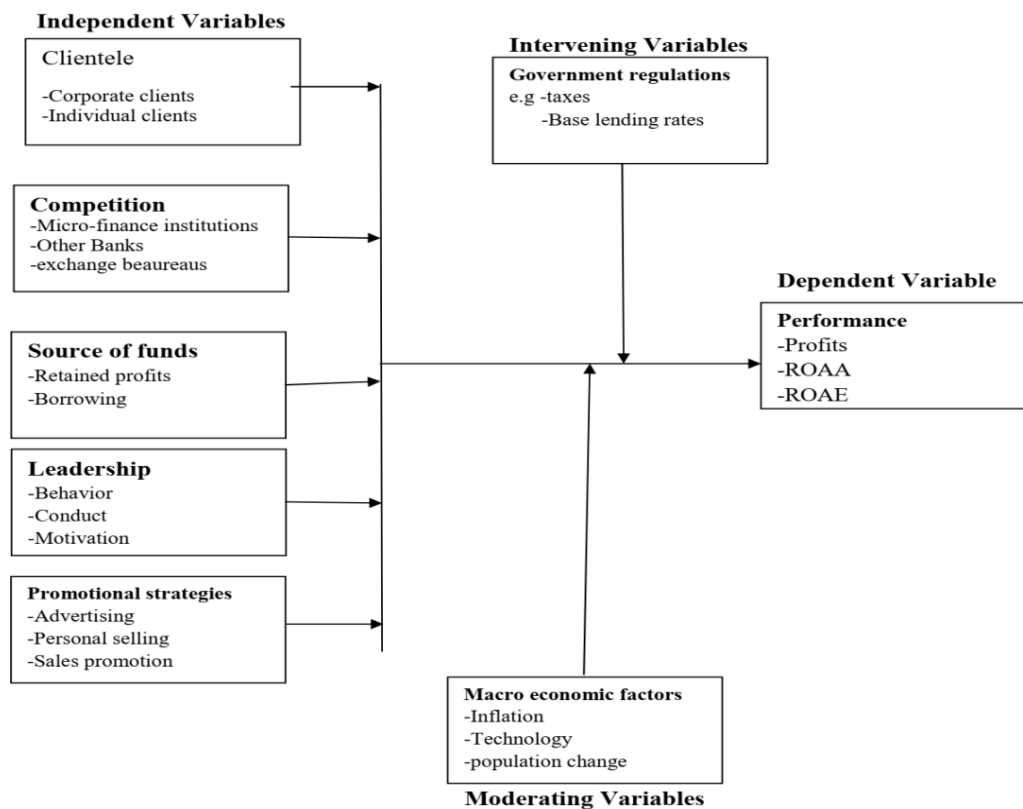


Figure 1. Conceptual framework

Source: complied by authors

Therefore, in this study, the above factors were put into the analysis model by the author to determine the factors affecting the business performance of Vietnam Listed Banks. The research model is as follows:

$$Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6 + \varepsilon$$

Where: The dependent variable Y is rate of return / revenue (ROS - return on sales) of Vietnam Listed Banks. Variables X1, X2, X3, X4, X5, and X6 are independent variables (explanatory variables).

Specifically, the research conducted tests of the following hypotheses:

H1: The number of Clients that VLB has been received that affects the profitability of the VLB.

H2: The sources of funds of VLB affect its profitability.

H3: The ability of leadership of VLB affects profitability.

H4: The promotional strategies of VLB affect the current profitability.

H5: The regulation government affects the profitability rate.

H6: The macroeconomics factors affect the profitability.

From the nature of the independent variables, the model that tests the influence of factors on the performance of VLB, the author expects the sign of the variables in the model Table 1.

Table 1. Interpretation of independent variables in a linear regression model

Variable	Explanations	Expected
X1	The number of Clients	+
X2	The sources of funds	+
X3	The ability of leadership	+
X4	The promotional strategies	+
X5	The regulation government	+
X6	The macroeconomics factors	+

Source: compiled by the authors

3. Method

Objectives

This study conducted to solve two objectives: (1) Analyze the current situation of business and production activities of the listed banks in Vietnam; and (2) Identify the factors that affect the performance of the listed banks in Vietnam.

Data collection

To conduct an estimation of the factors affecting the performance of small and medium-sized Enterprises (SMEs), use secondary data using convenient sampling techniques from the 2021 Financial Statements of 20banks and the database based on the ES listed on Vietnam's stock market, with the selected analysis criteria in the model. This study uses SPSS 21.0 software to support data analysis. Descriptive statistical methods with criteria such as average, rate, frequency, standard deviation are used to analyze the current situation of production and business activities. Multivariate linear regression analysis was used to identify the factors affecting the performance of banks in Vietnam.

4. Results

4.1. Factors affecting the business performance of VLB

The results of the linear regression analysis are as follows: (1) Observed significance level Sig. very small (Sig. = 0.00) shows that the security level rejects the Ho hypothesis, which means that there exists a linear relationship between the business performance of VLB (measured by the rate of profit) with at least one of the factors being an independent variable, such a linear regression model is given in accordance with the data;

(2) The R^2 value is adjusted smaller than the R^2 , so it should be used to evaluate the model as more suitable and it does not inflate the model suitability, so R^2 the adjusted= 0.861 meaning that 86.1% of VCLE's business performance can be explained by the linear correlation between the profit margin and the independent variables included in the model. The Durbin-Watson coefficient of the model is 1,936, indicating that the model has no autocorrelation phenomenon. In addition, the variance magnification (VIF) of the variables

in the model is much smaller than 10, so we conclude that the variables included in the model do not have multi-collinear phenomena.

Table 2. Results of the analysis model of linear regression

Criteria	Variables	Coefficient (B)	Level of significance (Sig.)	VIF
Constant		0.398	0.000	
The number of Clients	X1	0.50	0.000	1.105
The sources of funds	X2	0.60	0.005	1.061
The ability of leadership	X3	0.40	0.000	1.203
The promotional strategies	X4	0.52	0.008	1.084
The regulation government	X5	0.39	0.002	1.091
The macroeconomics factors	X6	0.32	0.004	1.052
<i>Sig. F coefficient</i>		<i>0.000</i>		
<i>coefficient R² adjustment</i>		<i>86.10</i>		
<i>Durbin-Watson coefficient</i>		<i>1,936</i>		

Source: survey data, 2021

Of the 6 variables included in the model, all 6 explain the change in business performance of VCLE as the following functions:

$$Y = 0.398 + 0.5X1 + 0.6X2 + 0.4X3 + 0.52X4 + 0.39X5 + 0.32X6 + Ei$$

The number of clients

In particular, the variable X1 (the number of clients) has a positive effect on the business performance of VLB, showing the importance of this factor to business activities. VLB's business is huge, which fits perfectly with the argument that the author originally made. In fact, the more the banks have clients, the more profit it can get.

The source of funds

In addition to the impact of source of funds, the variable X2 is also an important factor positively affecting the efficiency of business activities. Banks that have the huge funds can accumulate a lot of capital to finance their business activities as well as new investment projects. At the same time, because they have a large funds, these have a lot of advantages, so the performance are also high.

The ability of leadership

The variable X3 (the ability of leadership) is also positively correlated to the performance of VLB. The higher the leadership level, the more owners are able to access modern management science methods to help the banks grow more and have more

opportunities, while having a broader, more knowledgeable relationship about institutions, more policy regulations.

✚ The promotional strategies

When the banks invest more in advertising, they will get more business performance. The variables X4 is positively to the performance of VLB.

✚ The regulation of government

The coefficient of factor X5 (the regulation of government) bearing a positive sign (+) indicates that banks has better business efficiency when the Vietnam government have the support regulations. The reason is that banks have monitored by the state and when banks received the better regulations, which contributes to good business performance.

✚ The macroeconomics factors

Similarly, the X6 variable also has a positive coefficient with the performance of banks. This proves that sustainable macroeconomics factors also affect VLB's business performance.

4.2. Factors affecting the performance of VLB

The statistical value F in the model has a very small significance level, which is 0.000, showing that the safety level refutes the Ho hypothesis, meaning that the relationship exists. The linearity between the performance of VLB (measured by the ratio of profit/total assets ROA) with at least one of the factors is the independent variable, so the linear regression model is given in accordance with data.

The coefficient of determination of R² is 86.1%, which is quite reasonable, showing that the general fluctuations of the affecting factors explain about 86.1% of the VLB performance.

Specific results of each variable are as follows:

Number of Clients - X1

X1 with an estimated value of β_1 of 0.50 (sig. 0.0000) shows that, when the number of clients increases by 1%, the ROA will increase to 0.5%. The results of this study of the authors are consistent with the studies of B. Ramasamy (2005). The larger banks will have more clients compared to the small banks. Therefore, the more the clients the bank have, the more the ROA they have.

The Sources of funds - X2

The source of fund does significantly affect returns when the value of β_2 is very large as 0.6 with the value of sig. (0.005) is much higher than the 5% significance level. This result is consistent with collaborative research between D. Mehari and T. Aemiro (2013). Research shows that banks do mean higher profits when they have the large funds. In contrast, the banks have the small funds that cannot create the large ROA.

The ability of Leadership - X3

The ability of leadership has mostly positive effects on profitability with an estimated value of β_3 of 0.40 (sig. 0.0000). That is, when the ability of leadership increases by 1%, the ROA will increase to 0.40%. The results of this study are in line with the studies examined by A. Vijayakumar (2011).

According to the World Bank, also in line with modern economic theory, banks are very important for a country's economic growth and development. Banks can promote more jobs than the big firms can. Banks have a smaller scope so it is easier to set up and organize activities. The more effective the banks are, the more likely it is to increase profits.

The promotional strategies - X4

The promotional strategies of VLB have a positive impact on profitability at the present time with a β_4 coefficient of 0.52 (sig. 0.008). That is, when the promotional strategies banks increases by 1%, the ROA will increase to 0.52%. The results of this study are consistent with the studies of A. Stierwald (2009).

The regulation government - X5

The results indicate that the regulation government does affect the profitability of VLB when the significance level (sig. 0.002). Of the estimated value of X5 of this variable is quite large at 0.39. It means that when the regulation government increases 1% and then the ROA of banks will increase 0.39%. This research is different from the one tested by A. Stierwald (2009), AK Salman and D. Yazdanfar (2012) and the research of D. Yazdanfar (2013) shows that the bank's regulation government has negative impact on profits.

The macroeconomics factors - X6

The macroeconomics factors that affects profitability with an estimated value of β_6 is 0.32 (sig. 0.004). That is, when the VLB macroeconomics factors increases by 1%, the ROA will increase to 0.32%. The results of this study are consistent with previous studies that have been verified by A. Vijayakumar (2011), AK Salman and D. Yazdanfar (2012) and individual research by D. Yazdanfar (2013).

5. Discussion and Conclusion

VLB with the level of investment is large, flexible and very suitable for support the capital for developing economy. VLB is an appropriate and effective way to mobilize resources for the firms and individuals for economic development. Particularly for Vietnam, the development of the current VLB does fully meet the requirements of socio-economic development; VLB often operate with the goal of long term, within a large space. The competitiveness is also very good. The results of the study show that factors such as source of funds, the number of clients, promotional strategies mostly affect to the business performance of VLB. Through the research results, the author expects that the concerned departments and agencies will soon implement action programs to more develop VLB, contributing the capital to the country's socio-economic development.

Using the least squares estimation method in the multivariate regression model, the study estimated and identified the factors affecting the performance of banks including source of funds, number of clients, promotional strategies, ability of leadership, government regulations, and macroeconomics factors. The research results show that the more VLB has funds, the more effective the activities are. The research results have helped the authors synthesize a number of solutions to enable VLB to improve business performance in the current.

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THE EFFECT OF POLITICAL CONNECTION ON FIRM'S OPERATIONAL EFFICIENCIES: THE CASE OF SMES IN VIETNAM

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Abstract

This paper examines the effect of political connection on operational efficiencies of Small and Medium Enterprises (SMEs). I employ an unbalanced panel dataset from 2005 to 2015 in Vietnam. The results suggest that political connection has a significantly negative effect on both investment efficiencies and employee productivity. Significantly, the impact of political connection on employment decisions is more significant than it is on investment decisions. Furthermore, the findings also indicate that high-growth firms experience the interference of political connection on the decision-making process less often than their low-growth peers.

Key words: *Small and Medium Enterprise (SME), political connection, operational efficiency, Vietnam.*

1. Introduction

The relationship between political connections and firm operation attracts the attention of many scholars. Some evidence shows that political connections can bring economic benefits and advantages to connected firms (Khwaja & Mian, 2005; Li et al., 2006; Boubakri et al., 2013). Significantly, this phenomenon is more prevalent in developing economies where political connections play an essential role in improving firm operational efficiency (Chen et al., 2011). In contrast, some studies indicated that political connections lower the business performance, such as reducing firm profit or investment returns (Faccio, 2006; Boubakri et al., 2008). The mechanism through which the political connections affect firm performance and lead to operational inefficiency still needs to be explored.

Political connections benefit connected firms such as access to bank loans, receiving government subsidies, get tax reductions and exemption (Li et al., 2008; Boubakri et al., 2012; Li & Zhou, 2015). These advantages may influence connected enterprises to increase investment and employment. Considering corporate investment perspective, firms seek political networks to enhance the physical and human capital essential to a firm's competitive advantages by obtaining preferential treatments. Therefore, this paper aims to explore the effect of political connections on firm operational efficiencies in terms of investment and employment. This study follows the view of Shlefer and Vishny (1994) that political connections hamper the operational efficiencies of connected firms. Two possible phenomena have been proposed to investigate the channels through which political networks distort firm performance, including inefficient investment and excessive employment.

This study focuses on small and medium enterprises in Vietnam, providing an emerging economy's unique database and circumstances. The sample contains more than 14000 firm-year observations from 2005 to 2015. The estimation results suggest that political connection lowers the investment efficiencies of connected firms by providing evidence of the low sensitivity of investment expenditure to growth opportunities in connected enterprises. Besides, the results also indicate that political connection has a significantly negative effect on employee productivity, confirming the hypothesis that politicians affect employment decisions in connected firms to achieve their political objectives. Especially, the impact of political connection on employment decisions is much stronger than on investment decisions.

This study contributes to the literature in some aspects: first, unlike other previous studies that focus on the benefits of political connection, this paper provides some empirical evidence of the negative impact of political connection on a firm's operational efficiencies (Khwaja & Mian, 2005; Faccio, 2006; Li et al., 2008; Boubakri et al., 2012). Second, the findings contribute to corporate investment literature regarding the agency problem. Third, the political connection is considered a factor that influences connected firms to make inefficient investment decisions. From an economic perspective, firms seek profit maximization while the objectives of politicians may contrast with the wealth purpose of firm owners. Therefore, politicians may force connected firms to invest in inefficient projects or hire more employees. Finally, it analyzes the channels through which political connection influences a firm's operational efficiencies. Providing empirical evidence demonstrates a dimension to capture the negative side of the political link on small and medium enterprises in developing economies.

This paper has the structure as follows. Section 2 provides theoretical background and hypotheses development: section 3 details data and econometric models. Section 4 presents empirical results and further discussion. The last section offers a conclusion.

2. Literature Review

In the viewpoint of political economy, there are two possible ways political connections may influence firm performance, including the costs and benefits to a firm. First, most previous studies on political networks show evidence of a positive effect on firm performance. For example, Li et al. (2008) argued that when owners of private firms become members of the Chinese communist party, this membership has a positive effect on firm performance and facilitates them to obtain bank loans. Similarly, Ling et al. (2016) also indicated that firms with political connections could get more long-term bank loans and are more likely to overinvest than their peers.

However, there are also many studies to discuss the disadvantage of political connections. Faccio (2006) employed a cross-country database to analyze the impact of political connections on firm performance. It shows that besides the considerable benefits that political connections can provide to firms such as credit access, government subsidies, tax reduction and exemption, politically connected firms have lower performance than their non-connected peers on an accounting basis. Bertrand et al. (2007) indicate that the

connected firms in France tend to have higher employment rates but lower performance than the non-connected enterprises during the election cycles. Similarly, in the context of China, Fan et al. (2007) argue that after three years of post-IPO, political networks lower the performance of connected firms compared to the non-connected enterprises.

Excessive employment is the factor that causes the political cost to connected firms. When politicians run the electoral strategy, they may ask connected businesses to hire more employees to help them achieve their political goals and receive more votes. Thus, the surplus of employment will increase operating costs and reduce the profitability of connected enterprises. For instance, Bertrand et al. (2007) observe the effect of political connections on a firm's employment rate during the election period in France. They show that connected firms are more likely to hire more employees by creating new plants during the electoral cycle. Therefore, according to the economic perspective, businesses will try to reduce excessive employment to achieve better performance.

In contrast, a high employment rate will help politicians gain their political objectives and receive more political support for their careers. The contradiction between profit maximization objectives and political support objectives may lead connected firms to experience a lower performance than the non-connected ones. Thus, the first hypothesis that will be examined in this study is:

Hypothesis 1: Political connection is positively associated with excessive employment in connected firms.

Besides, another factor that is considered the cost of political connection is the investment strategy that serves as a tool for politicians' enrichment. When a firm pursues the profit maximization objective, its investment behavior is based on the net present value principle. However, the intervention of politicians to achieve their political goals may lead to investment inefficiencies (Chen et al., 2011). There are two possible ways that political connections affect the investment efficiency of connected firms. First, connected firms must choose to fulfill the political objectives instead of following the profitable investment opportunities. Second, it is difficult for connected firms to terminate or cut off the investment in unsuccessful projects if they do not meet the net present value principle. Because the termination action may cause conflict with the political objectives (Saeed et al., 2017).

Furthermore, the negative effect of political networks may become stronger on inefficient investment when the connected enterprises can get preferential treatment on access to bank loans (Chen et al., 2011). There are some studies providing evidence that connected firms receive benefits from political connections such as credit access, tax exemption, and reduction, government subsidies, which may worsen the investment inefficiency issue (Khwaja & Mian, 2005; Faccio, 2006; Claessens et al., 2008; Yeh et al., 2013). More importantly, even though the investment projects underperform as expected, connected firms continue doing it without the fear of being bankrupt. Because politicians can use their political power to bail out the debt for connected firms by using the public budget. This kind of relationship will be maintained until firms are valuable for politicians

to help them achieve political objectives and support. In contrast, connected firms can receive economic benefits and market power from politicians (Saeed et al., 2017).

According to agency theory which indicates the moral hazard issue between managers and stakeholders, when connected firms seek political connections, it may conflict with the profit maximization objective of other shareholders (Jensen, 1986). Empirical studies also argue that managerial sub-optimal decision plays an essential role in firm performance (Blanchard et al., 1994). For example, Aggarwal et al. (2007) explores the donation of connected firms to politicians in the US from 1991 to 2004. They find that political connection is associated with agency problems which contribute to weaker governance and lower returns. Considering both theoretical and empirical perspectives, it shows that political connections may instigate agency problems, affecting operational performance efficiency and hampers shareholder value. Thus, this study examines how political connections influence the decision-making process in connected firms and how it affects operational efficiencies. The second hypothesis that will be examined in this study is:

Hypothesis 2: Political connection negatively affects investment efficiency in connected firms.

3. Method

3.1. Empirical strategy

a. Excessive employment

As mentioned above, when politicians try to achieve their political objectives, they may use their political power to influence connected firms' decisions in order to facilitate them to achieve more political support. Typically, connected firms will hire more employees to help politicians achieve social objectives during the electoral period. However, it will lead to lower employee productivity in the connected firms being lower than the non-connected peers (Saeed et al., 2017). Following Saeed et al. (2017) study, this study uses low labor productivity to measure excessive employment. Because if considering employment as value-added of a firm, when the number of employees increases, it will lead to higher profit, which means that the employment rate has a positive effect on profitability. Thus, the variation in labor productivity would be smaller.

In contrast, if employment is not value-added, the employment level will lower the profitability. Resulting in a larger variation in labor productivity. Therefore, to test the first hypothesis, I use the following equation that follows the study of Bartel & Harrison (2005):

$$Emp - Pro_{it} = \beta_0 + \beta_1 growth - opp_{it} + \beta_2 PC_{it} + \beta_3 growth - opp_{it} \times PC_{it} + \beta_4 cashflow_{it} + \beta_5 firmsize_{it} + \beta_6 leverage_{it} + \varepsilon_{it} \quad (1)$$

Whereas the dependent variable ($Emp - Pro_{it}$) is labor productivity of firm i in year t . it is calculated as the ratio of firm profit to the total number of employees. The independent variables are growth opportunities, political connection, cash flow, leverage, and firm size.

The popular measurement of growth opportunities is the prices/earnings ratio (or Tobin's Q). However, this study is not applicable as our interest is in SMEs, which are not listed in the financial market. Therefore, the alternative methodology is employed by following the study of Abel and Blanchard (1983) and Fukuda et al. (2005). To estimate

Tobin's Q, I first assume that the first difference of after-tax profit follows an AR process. After checking the stationarity, lag 1 to 3 are used to estimate the future after-tax profit. Then, future after-tax ordinary profits will be estimated based on the AR process. Finally, the forecasted value of future after-tax profit leads to the present discount value of the profit for each firm as the following equation:

$$V_t = \sum_{i=0}^{\infty} \left(\frac{1}{1+r} \right)^i E\pi_{t+i}$$

Whereas r is the discount rate which is calculated by taking the total interest payment divided by total debt outstanding. Following the study of Hayashi and Inoue (1990), Tobin's Q is obtained by dividing the present discount value by the market value of the capital stock. At the same time, the market value of capital stock equals the total assets of building and structure, machinery and equipment, vessels and vehicles, and land plus the total gross investment (which are all reported as the market value in the survey).

PC_{it} is a dummy variable to describe politically connected firms, and it takes 1 if the owner/manager of the firm is the Communist Party member and 0 otherwise.

b. Investment efficiency

When the firm invests efficiently, it will only undertake the projects with positive net present value. Besides, there is a positive relationship between the firm's investment decision and its growth opportunities (Tobin, 1969; Jiang et al., 2011; Foucault & Fresard, 2012). However, in the imperfect market condition with the problem of agency cost and information asymmetry, firms do not respond well to the information of growth opportunities when making an investment decision. The relationship between market frictions and investment decisions has attracted many scholars' attention, and growth opportunities play an essential role in investment efficiency (Bushman et al., 2011). Thus, to measure the investment efficiencies, this study also uses the sensitivity of investment rates to growth opportunities.

To test hypothesis 2, the underlying institution is that politically connected firms are less sensitive to growth opportunities than non-connected firms. This approach is closed to the studies of Hung et al. (2008), Bushman et al. (2011), Chen et al. (2011), and Chen et al. (2017). The econometric equation to test hypothesis 2 is as follow:

$$Investment_{it} = \beta_0 + \beta_1 growth - opp_{it} + \beta_2 PC_{it} + \beta_3 growth - opp_{it} \times PC_{it} + \beta_4 cashflow_{it} + \beta_5 firmsize_{it} + \beta_6 leverage_{it} + \varepsilon_{it} \quad (2)$$

Whereas the dependent variable $Investment_{it}$ is the investment rate of firm i in year t . It is measured as the ratio of investment expenditure over the total assets. Following the study of Ratti et al. (2008), Saeed et al. (2017), the measurement of investment expenditure can be calculated as the change in fixed assets of year t and $t-1$, plus the depreciation of year t . The independent variables are growth opportunities, political connection, cash flow, leverage, and firm size.

3.2. Data description

The panel data was collected from the Small and Medium Scale Manufacturing Enterprises (SMEs) survey in Vietnam. The survey was carried out every two years from 2005 to 2015, under the collaboration of the Central Institute for Economic Management (CIEM), the Institute of Labor Science and Social Affair (ILSSA), and the Development Economics Research Group (DERG) of the University of Copenhagen (Denmark). The survey was conducted in nine provinces, including Hanoi, Ha Tay, Ho Chi Minh, Hai Phong, Phu Tho, Nghe An, Quang Nam, Khanh Hoa, Lam Dong, and Long An. However, the sample is still good enough to represent Vietnam because those cities and provinces are located in different areas of Vietnam, describing each region's unique characteristics. Besides, the survey was funded by the Royal Embassy of Denmark in Vietnam (Danida); thus, the choices also depend on funding-related issues.

The survey was collected in June-August by face-to-face interviews with the enterprise's owner/manager, including the main questionnaire, employee questionnaire, and financial account. The survey consists of enterprise characteristics, history, economic structure, sale structure, employment, and personal background. Unlike the lending side, borrowing behavior rarely involves criminal concerns underreporting financial sources' structure. Three types of enterprises participated in the survey: repeated enterprises, not previously surveyed enterprises, and repeated enterprises but no longer in operation in which the repeated enterprises but no longer in the process will be collected separately for another purpose that will not be discussed in this paper. Moreover, as the purpose of the dimensional tracer of the data over time, all firms that were only surveyed in one year or discontinuously surveyed will be excluded to minimize the estimation bias. There are 14351 observations in the sample size. Although some variables contain missing values, they do not have many, so we keep using the whole sample. Table 1 presents the data description of all variables that will be used in this paper.

Table 1. Data description

Variable	Obs.	Mean	Std. dev.	Min	Max
Party membership	14,351	0.13323	0.33984	0	1
Investment rate	14,239	0.11472	0.14474	-0.90532	0.98684
Employment productivity	14,221	5.76981	5.83104	-14.842	20
Leverage	14,206	0.29781	0.23343	0.00135	5.67351
cashflow	14,239	0.32586	0.88153	-3.79524	18.58989
Firm size	14,241	9.54728	9.07909	2.302585	49.97212
Tobin'q	8,094	2.62281	2.66993	0.10016	12.049
Employment	14,242	13.83738	26.40844	1	300

Besides, another comparison between the connected and non-connected firms in terms of financial structure and firm's characteristics is also conducted and presented in Table 2.

Table 2. Summary statistic: connected and non-connected firms

Variable	Connected firms				Non-connected firms				Mean difference (t-statistics)
	Mean	Std. dev.	Min	Max	Mean	Std. dev.	Min	Max	
Investment rate	0.0814	0.1765	-0.9053	0.7961	0.1198	0.1385	-0.01	0.9868	-0.0384***
Employment productivity	5.1291	6.2698	-13.708	20	5.8674	5.7552	-14.842	20	-0.738***
Leverage	0.3113	0.2713	0.0047	4.3552	0.2958	0.2270	0.0014	5.6735	0.0156***
Cashflow	0.3052	0.8158	-3.3931	15.1515	0.3290	0.8911	-3.7952	18.5899	-0.0237***
Firm size	9.3821	8.2425	2.5649	49.7673	9.5725	9.2001	2.3025	49.9721	-0.1904
Tobin'q	2.5222	2.62246	0.1006	11.6027	2.6376	2.6767	0.1002	12.049	-0.1153*
Employment	20.1187	35.7656	1	300	12.8780	24.5295	1	300	7.2407***

The size of connected and non-connected firms is almost the same, but the leverage of connected firms seems to be higher than non-connected firms. By contrast, the percentage of investment expenditure to total assets of connected firms is much lower than that of non-connected peers. Similarly, there is also a difference between the two groups in terms of employee productivity. All result is significant at 1% level. This phenomenon may be an indication of operational inefficiency.

4. Results

4.1. The effect of political connection on excessive employment

A panel regression with fixed effect is employed to test hypothesis 1. The regression results are reported in Table 3. Column 1 reports the regression result of the simple specification, which describes the relationship between political connection and employee productivity. In addition, it shows the comparison of the effect between the connected and non-connected firms. The result indicates that political connection negatively affects a firm's employment productivity, suggesting the phenomenon of excessive employment. The estimated coefficient is statistically significant at a 1 percent level. More specifically, politically connected firms have 2.7 percentage points lower employment productivity than non-connected firms. This estimated result holds even when adding a firm's growth opportunities in the model, which is reported in column 2 and column 3 with other control variables in the model.

Table 3. The effect of political connection on employment productivity

VARIABLES	Emp-Pro	Emp-Pro	Emp-Pro
	(1)	(2)	(3)
PC	-2.703*** (0.362)	-2.481*** (0.595)	-2.493*** (0.599)
Growth-opp		0.143*** (0.0346)	0.130*** (0.0351)
PC*Growth-opp		-0.0582 (0.111)	-0.0516 (0.111)
Cash flow			-0.124 (0.107)
Leverage			-0.980** (0.412)
Firm size			0.0261*** (0.00987)
Constant	6.127*** (0.0676)	5.590*** (0.137)	5.708*** (0.202)
Observations	14,221	7,478	7,461
R-squared	0.005	0.009	0.012

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

The other estimated coefficients also indicate that political connection significantly negatively affects employee productivity. In column 3, it shows that politically connected firms have a 2.493 percentage point of productivity lower than their non-connected peers. The negative coefficient of employment productivity confirms the first hypothesis that political connection leads to excessive employment in the connected firms. This result is supported by a similar finding in Bertrand et al. (2007) study.

The regression results also indicate that growth opportunities positively affect employee productivity. When a firm obtains 1 percentage point high growth, it increases productivity by 0.13 percentage points. This result supports the view that growing firms are more likely to have higher employee productivity related to better resource management. Although the interaction terms between political connection and growth opportunities are insignificant, the negative sign of its coefficient somehow illustrates that the effect of growth opportunities on employment productivity in connected firms is lower than in non-connected firms. While firm size has a significantly positive impact on productivity, leverage has the opposite sign. All results are statistically significant at 1 percentage level.

The regression results reported in Table 3 support that political connections lower a firm's operational efficiency. Besides, in some cases, it also indicates that political connection may lead firms to make an inefficient business decision in order to support politicians achieve their political objectives or political support during the electoral period. In other words, this study discovers the channel that connected firms may bear the political cost if they want to receive economic benefits from the connections.

4.2. The effect of political connection on investment efficiency

To test hypothesis 2, a panel regression with fixed effect is adopted. The estimation results are presented in Table 4.

Table 4. Impact of political connection on investment efficiency

VARIABLES	Investment rate	Investment rate	Investment rate
	(1)	(2)	(3)
PC	-0.0995*** (0.00914)	-0.0501*** (0.0139)	-0.0434*** (0.0131)
Growth-opp		0.0181*** (0.000808)	0.0152*** (0.000768)
PC*Growth-opp		-0.00903*** (0.00260)	-0.00759*** (0.00243)
Cash flow			0.000967 (0.00234)
Leverage			-0.0280*** (0.00901)
Firm size			0.00508*** (0.000216)
Constant	0.128*** (0.00171)	0.0773*** (0.00320)	0.0425*** (0.00441)
Observations	14,239	7,487	7,471
R-squared	0.011	0.116	0.223

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Column 1 reports a simple regression to describe the relationship between the political connection variable and investment expenditure among the connected and non-connected firms. It indicates that politically connected firms are 9.95% lower than non-connected firms in terms of investment efficiency. The estimation result is significant at 1 percent level. When discussing investment decisions, one of the most important factors that should be concerned is the firm's growth opportunities. Column 2 reports regression results regarding the sensitivity of investment to growth opportunities without control variables. It shows that growth opportunities have a significantly positive effect on investment decisions. More specifically, when a firm gets 1 percentage point higher growth opportunities, its investment efficiencies will increase 1.81 percentage points.

In contrast, the political connection shows a significantly negative effect on investment efficiencies. Especially, the coefficient of interaction terms between political connection and growth opportunities indicates that political connection lowers the impact of growth opportunities on investment efficiencies. The connected firms, on average, have 0.903% lower investment efficiencies than their non-connected peers. All results are significant at 1 percent level.

Even when adding other control variables in the estimation model, the results are held, as it is shown in column 3 of Table 4. The effect of growth opportunities on investment efficiency remains positive and significant at 1 percent level. While political connection, in contrast, harms investment expenditure. In detail, the efficiency of investment in politically connected firms is 4.34% lower than the non-connected firms. In addition, political connection even lowers the effect of growth opportunities on investment efficiency in connected enterprises. Therefore, the estimation results confirm the hypothesis that political connection leads to operational inefficiencies in connected firms.

The effect of control variables on investment decisions supports firm investment literature's prediction. First, cash flow shows a positive but insignificant impact on investment expenditure, which means that internal capital is not a significant predictor of investment decisions of Vietnamese enterprises. Second, firm size is found to correlate with investment expenditure positively. It can be explained by the fact that large firms often have advantages to access knowledge and capital intensity, which can help them make a better investment decision. Finally, leverage harms the investment rate. It may be seen as an adverse effect on firm investment due to the increasing cost of capital when leverage increases. All results are significant at a 1 percent level.

In summary, all estimation results confirm that political connection and investment efficiency have a negatively significant correlation. In other words, it indicates that political tie increases the agency cost and influences connected firms to make inefficient investment decisions. It is consistent with other previous studies that concluded that political connection is significant for investment allocation but not for investment expenditure (Claessens et al., 2008). The findings are understandable when the connected firms can make an inefficient investment decision without worrying about bankruptcy because they can get bailed out through the political connection.

4.3. Robustness check

There is a potential endogeneity issue that some unobserved variables related to firm investment efficiencies and excessive employment may also explain the political connection. Thus, the estimation results can be biased and inconsistent. Heckman's two-stage methodology is adopted to re-estimate the model for dealing with this endogeneity issue. The first stage of the estimation procedure involves a probit estimation. The dependent variable is the political connection which is a dummy variable with 1 if the owner/manager of the firm is the party member and 0 otherwise. Independent variables are the same as equations (1) and (2) and add one additional variable that must be strongly correlated with political connection but uncorrelated with investment and employee productivity. Following

the studies of Bertrand et al. (2007) and Boubakri et al. (2008), the firm's location can be employed as an instrumental variable for political connection. They provide evidence to show a relationship between the a firm's location and political tie but no correlation with the outcome of political connection. Therefore, this study uses a firm's location as an instrument variable, which takes 1 if the firm is in the two biggest cities of Vietnam (Hanoi and Ho Chi Minh city) and 0 otherwise. The regression in the first stage is the same for both investment and employment productivity models. In the second stage, the political connection is replaced by the inverse Mills ratio obtained from the first step with the probit model. Then the panel regressions with fixed effects are estimated following equations (1) and (2).

Table 5. Heckman two-stage: effect of political connection on investment efficiencies and employment productivity

Panel A		
VARIABLES	PC	
Location	0.1003*** (0.005)	
Growth-opp	-0.0086 (0.213)	
Cash flow	-0.02198 (0.315)	
Firm size	-0.00097 (0.637)	
Leverage	0.2306*** (0.002)	
Observations	8,015	
Pseudo R2	0.0035	
Panel B		
VARIABLES	Investment rate (1)	Emp-Pro (2)
PC	-0.0433*** (0.0146)	-2.517*** (0.668)
Growth-opp	0.0151*** (0.00277)	0.140 (0.126)
PC*Growth-opp	-0.00759*** (0.00243)	-0.0517 (0.111)
Cash flow	0.000849 (0.00722)	-0.0984 (0.330)
Firm size	0.00508*** (0.000369)	0.0272 (0.0169)
Leverage	-0.0268 (0.0710)	-1.241 (3.245)
Inverse Mills ratio	0.00650	-1.401

	(0.378)	(17.27)
Constant	0.0316	8.045
	(0.630)	(28.79)
Observations	7,471	7,461
R-squared	0.223	0.012

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

All regression results are reported in Table 5. The first part of the table presents estimation results of the first stage, while the second part illustrates the second stage regression. The coefficient of interaction terms between political connection and growth opportunities for the investment model indicates is negative and significant at 1 percent level. It confirms that political connection negatively affects investment efficiency, and connected firms have lower investment efficiency than non-connected enterprises. In the employment productivity model, the coefficient of political connection variable is also negative and significant at 1 percent level. One more time, the results confirm that political connection relatively lowers labor productivity and leads to excessive employment in connected firms. Significantly, the inverse Mills ratio is insignificant in both estimation models, meaning that all results are not biased and inconsistent. Therefore, there is no endogeneity issue in these estimation models, and the effect of political connection is confirmed.

5. Conclusion

Unlike a previous study focusing on the benefit of political connection to a firm, this paper explores the negative impact on the firm's operational efficiencies. More specifically, this study analyzes two possible aspects of operational efficiencies that political connection may affect, including investment efficiencies and excessive employment. The estimated results support hypotheses that political connection significantly affects a firm's operational efficiencies. More specifically, political connection influences investment decisions, leading to lower investment efficiencies measured as the sensitive investment expenditure to growth opportunities in connected firms. Furthermore, concerning the excessive employment problem, political connection harms labor productivity in connected firms. This is because politicians use their power to influence connected firms to hire more employees than needed to achieve their political objectives or political support. Especially, the effect of political connection on a firm's employment decisions is much stronger than it is for investment decisions. Therefore, this study illustrates an adverse impact of the political tie to operational efficiencies among connected SMEs.

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FACTORS AFFECTING HANOI STUDENTS' ENTREPRENEURIAL INTENTION IN THE FIELD OF CLEAN AGRICULTURE

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Abstract

The purpose of this study is to identify the main factors determining the entrepreneurial intentions of students in Hanoi in the field of clean agriculture - an advantageous business field of Vietnam. Data was collected from a questionnaire survey with 324 university students in the city. The research results show that there are four main factors, which include "Educational environment", "Perception of entrepreneurship", "Perception of clean agriculture's benefits" and "Business opportunities", that have an influence on student entrepreneurial intention. Based on these results, some recommendations are proposed: Students themselves need to actively cultivate knowledge about clean agriculture. Families, universities and society should seek to support students with entrepreneurial intentions, promote development of fundamental knowledge and skills, and provide students with practical experience. The business community and the Government should develop effective support policies to stimulate student entrepreneurial intentions in the field of clean agriculture.

Keywords: *Entrepreneurial Intention, Clean Agriculture, Factors, Students, Hanoi*

1. Introduction

Vietnam is considered to have advantages in agricultural development thanks to its favorable natural conditions. In the current context of international integration and increasing competition, investment and start-up activities in the field of "clean" agriculture have been encouraged by Vietnamese Government to speed up agricultural growth (Hien, N.V. & et al, 2020), of which promoting youth entrepreneurship is one of the top priorities (Shapero & Sokol, 1982).

Entrepreneurship is a process of creating and realizing values for entrepreneurs (Morris and Jones, 1999); is the initiation of new business ventures (William B. Gartner, 1989) by dedicating the necessary time and effort, taking on the associated financial, mental, and social risks and, as a result, receiving monetary rewards, personal satisfaction, and independence (Hisrich, Peters & Shepherd, 1998). Intention is assumed to capture the

motivational factors that influence behavior; is an immediate antecedent of behavior and an indication of how willing people are to try, in terms of the level of effort they intend to exert (Ajzen, I., 1991). A business intention is the subjective thinking and mental state of entrepreneurs before they engage in entrepreneurial behavior (Shepherd & Krueger, 2002).

The previous research by Ambad & et al. (2016) has shown three factors including “Individual Attitude”, “Cognitive Behavioral Control” and “Cognitive Relationship Support” that significantly influenced the entrepreneurial intention of university students in Malaysia. According to research by Lien, N.T.B (2020), the five factors of “Entrepreneurship education”; "Capital"; "Personality traits"; “Perceived feasibility” and “subjective standards” impact the entrepreneurial intention of students in Ho Chi Minh City. In the agriculture sector, the research by Abdullah, A. A., & Sulaiman, N. N. (2013) has identified three factors of “Attitude”, “Acceptance”, and “Knowledge” that affect young people’s participation in agricultural entrepreneurship. Novanda, R. R. & et al. (2020) have pointed out that “Family” is the most dominant factor, with family expectations encouraging young people to become agricultural entrepreneurs.

Starting a business in the field of clean agriculture includes all of the activities associated with different stages in the supply chains of producing safe agricultural products, from providing agricultural inputs and services, farming, processing, trading to distributing agro-products to the end consumers. "Clean" agriculture in Vietnam can be simply understood as including organic agriculture and good agricultural practices (GAP) standard agriculture (Vu Thi Minh, 2013). “Organic Agriculture is a production system that sustains the health of soils, ecosystems, and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic Agriculture combines tradition, innovation, and science to benefit the shared environment and promote fair relationships and good quality of life for all involved” (IFOAM, 2008). GAP is a set of principles to be applied to on-farm and post-production processes to create safe and healthy food and non-food agricultural products while at the same time to promoting socio-economic and environmental sustainability” (FAO, 2016). Developing clean agriculture is considered inevitable to meet the increasing demands of the market. However, entrepreneurs seeking to attract investment and start a clean agriculture business in Vietnam still face many barriers. The number of newly established enterprises doing business in clean agriculture remains very small compared to other economic sectors.

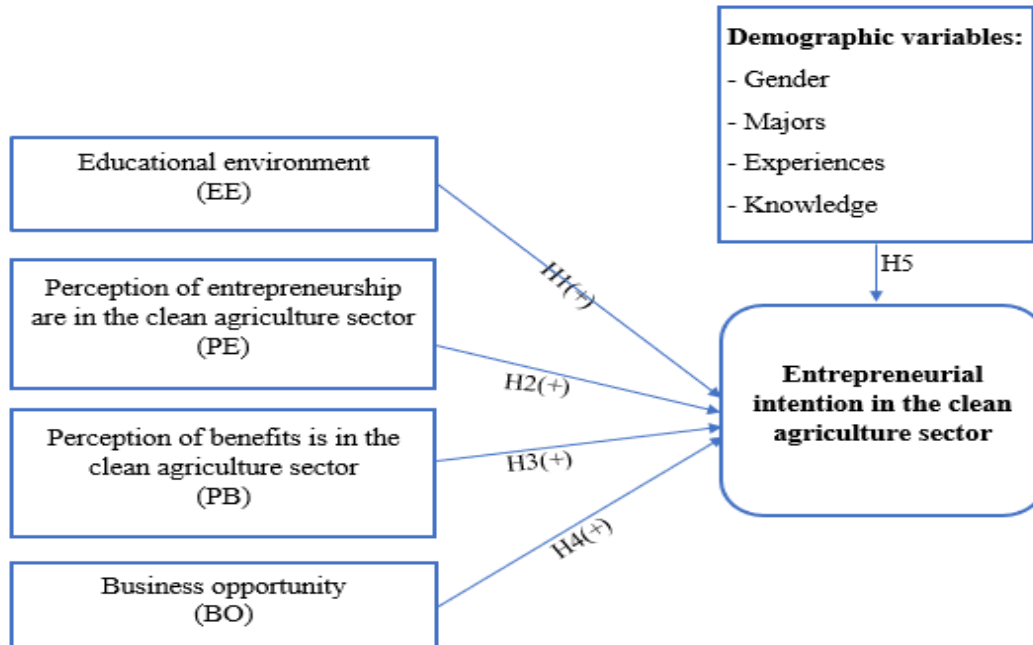
This study aims to identify the significant factors that influence students in their intention to start a clean agriculture business, as an attempt to understand and promote youth entrepreneurship in Vietnam.

2. Methods

Data was collected through an online survey using a structured questionnaire, with a 5-level Likert scale of “Strongly disagree”, “Disagree”, “Neutral”, “Agree”, “Totally agree”. The survey was carried out from November 2011 to January 2022 and obtained 350 answers, of which 324 were valid and usable. The questionnaire sought information on demographic characteristics and student perception on issues related to clean agricultural start-ups as well as whether students intended to set up a clean agriculture business.

Scale reliability test (Cronbach's Alpha), exploratory factor analysis (EFA), correlation analysis and linear regression analysis were all used to identify the factors that affect the entrepreneurial intention of students in Hanoi.

The research model and assumptions are indicated in the figure below.



3. Results

Table 1. Research Sample Description

Sample information		Percentage
Gender	Male	35,19%
	Female	64,81%
Education level	Freshman	23,15%
	Sophomore	23,15%
	3rd year student	36,42%
	4th year student	12,04%
	Others	5,25%
Work experience	Experience	69,44%
	Inexperienced	30,56%
Specialization related to the agriculture sector	Yes	73,46%
	No	26,54%
Interested in products from clean agriculture	Yes	94,14%
	No	5,86%
Willing to pay more to use products from clean agriculture	Yes	91,05%
	No	8,95%

Source: Data analysis results of the authors (2022)

Table 2. Descriptive statistics of variables

Sign	Explanation	Min	Max	Mean	Std. Deviation
EE1	The teachers' lectures provide me with knowledge about clean agricultural entrepreneurship.	1.00	5.00	3.4877	1.06877
EE2	My knowledge of clean agricultural entrepreneurship is largely provided by my family and people around me.	1.00	5.00	3.5278	1.03012
EE3	My knowledge of clean agricultural entrepreneurship is largely provided by extracurricular activities.	1.00	5.00	3.5741	1.01265
EE4	Growing up in a farming place fueled my entrepreneurial intention in the clean agriculture sector.	1.00	5.00	3.4660	1.12657
PE2	Entrepreneurship in the clean agriculture sector brings higher income than other sectors.	1.00	5.00	3.4568	1.01749
PE3	Entrepreneurship in the clean agriculture sector is more difficult than in other sectors.	1.00	5.00	3.7006	1.02290
PE4	Entrepreneurship in the clean agriculture sector contains more risks than other sectors.	1.00	5.00	3.5062	1.04539
PE5	The activities that can be entrepreneurship in the clean agriculture sector are those that grow crops and raise livestock to create clean products.	1.00	5.00	3.3025	.08024
PE6	I will only do entrepreneurship in the clean agriculture sectors if I am unemployed.	1.00	5.00	2.8179	1.24699
PB1	I believe that using products of clean agriculture helps protect the health of myself and those around me.	1.00	5.00	3.9568	1.17164
PB2	I believe that clean agricultural production ensures food security.	1.00	5.00	3.7377	1.11658
PB3	I believe that clean agricultural production helps protect the environment and biodiversity.	1.00	5.00	3.8549	1.13784
PB4	I believe that clean agricultural production ensures food with clear origins and transparency in the production process.	1.00	5.00	3.9475	1.11576
BO1	Vietnam's natural conditions are favorable for clean agriculture	1.00	5.00	3.9352	.96957

Sign	Explanation	Min	Max	Mean	Std. Deviation
BO2	Access to resources (land, water, fertilizer, labor, technology) for farming is not too difficult.	1.00	5.00	3.7284	1.00170
BO3	Policy support and encouragement of the Vietnamese government for clean agricultural products is more than before.	1.00	5.00	3.7931	.91622
BO4	Clean agriculture with safe products is increasingly becoming a global trend.	1.00	5.00	4.0895	.91497
BO5	People are increasingly willing to pay more for clean agricultural products to protect their health.	1.00	5.00	3.9846	.96201
BO6	The supply of clean agricultural products in the market is still limited.	1.00	5.00	3.8704	.93530
BO7	The development of science and technology is a favorable condition for the entrepreneurship of clean agriculture.	1.00	5.00	4.1235	.94273
EI1	I would rather be an entrepreneur in the clean agriculture sector than an employee in a company/organization in the same sector.	1.00	5.00	3.2963	1.13971
EI2	I always try to realize my entrepreneurial intention in the clean agriculture sector as soon as possible.	1.00	5.00	3.2809	1.06948
EI3	I am ready to face the challenges of entrepreneurship in the clean agriculture sector.	1.00	5.00	3.4846	1.06292
EI4	I can only make a lot of money if I am self-employed.	1.00	5.00	3.4599	1.10792

Source: Data analysis results of the authors (2022)

Through Cronbach's Alpha Analysis to test reliability of scales, the results of Cronbach's Alpha of the independent variables show that scales of EE, PE, PB, BO have Cronbach's Alpha coefficients of 0.839; 0.833; 0.925; 0.917 respectively; Corrected Item – Total Correlation is higher than 0.3. Cronbach's Alpha coefficient of dependent variables of entrepreneurial intention (EI) is 0.843 and Corrected Item – Total Correlation is also greater than 0.3. Thus all scales are satisfactory for performing further analysis of EFA.

EFA for independent variables in a first iteration (with 4 factors and 21 observed variables) gives the following results: KMO is equal to 0.926 (≥ 0.5); sig Bartlett's Test is equal to 0.000 (< 0.05); Total Variance Explained 68.744% ($> 50\%$); Eigenvalue is equal to 1.326 (≥ 1); Factor loading coefficients are higher than 0.5 except the observed variable PE1 of *starting a clean agricultural business brings a better future for me, my family, society*

and the country. The variable has the factor loading coefficient under 0.5, so it does not load up in any factor and it should be eliminated.

After removing the PE1 variable, in a second iteration EFA is carried out with 4 factors and 20 observed variables. The results obtained are as follows: KMO is equal to 0.923 (≥ 0.5), factor analysis is accepted with the research data set. Sig Bartlett's Test is equal to 0.000 (< 0.05), factor analysis is appropriate. Eigenvalue is equal to 1.325 (≥ 1) and extracted 4 factors that have the best information summary meaning. Total Variance Explained of 69.708 ($\geq 50\%$) show that the EFA model is suitable. The results of the Rotated Component Matrix in the table 3 show that 20 observed variables are grouped into 4 factors, the factors are redefined as follows: The factor “Educational environment” includes 4 variables EE1, EE2, EE3, EE4; The factor “Perception of entrepreneurship in clean agriculture” includes 5 variables PE2, PE3, PE4, PE5, PE6; The factor “Perception of benefits in clean agriculture” includes 4 variables PB1, PB2, PB3, PB4; The factor “Business opportunity” includes 7 variables BO1, BO2, BO3, BO4, BO5, BO6, BO7.

Table 3. Rotated Component Matrix

	Component			
	1	2	3	4
BO4	.830			
BO7	.813			
BO5	.788			
BO1	.717			
BO6	.705			
BO3	.683			
BO2	.679			
PB3		.854		
PB1		.840		
PB2		.808		
PB4		.678		
PE6			.840	
PE5			.762	
PE4			.676	
PE3			.667	
PE2			.625	
EE3				.781
EE1				.775
EE2				.735
EE4				.712

Source: Data analysis results of the authors (2022)

The results of EFA for the dependent variable of entrepreneurial intention in the field of clean agriculture show Factor Loadings are higher than 0.5, so the observed variables are important in the factor and are of practical significance. With KMO is equal to 0.797 (≥ 0.5), factor analysis is accepted for the data set. Sig Bartlett's Test is equal to 0.000 (< 0.05), showing that observed variable are correlated with each other in the total and therefore factor analysis is appropriate. The Eigenvalue is equal to 2.763 (≥ 1). Total Variance Explained is equal to 69.070 ($\geq 50\%$) which shows that the EFA model is suitable. The dependent factor of entrepreneurial intention in the clean agriculture sector (EI) includes 4 variables EI1, EI2, EI3, EI4 (see table 2 for explanation).

The results of Regression analysis are indicated in the tables 4, 5 and 6. The coefficient Adjusted R Square of 0.510 in the table 4 show that the linear regression model is suitable for the data set of 51%. In other words, 51% of the variation of the dependent variable of entrepreneurial intention in the clean agriculture sector is caused by the independent variables. The remaining 49% is due to unobserved variables outside the model or random error.

Table 4. Model fit

R	R square	Adjusted R Square	Std. Error of the Estimate
0.718 ^a	.516	.510	.63277

Source: Data analysis results of the authors (2022)

In the Table 5, the model's F-value is equal to 84.885 and the observed significance level is very small (Sig value is 0.000) showing that the given linear regression model is suitable for the data set.

Table 5. Model fit test

	Sum of Squares	df	Mean Square	F	Sig
Regression	135.951	4	33.988	84.885	.000 ^b
Residual	127.727	319	.400		
Total	263.678	323			

Source: Data analysis results of the authors (2022)

The regression results of the factors in the table 6 show that, with the 95% significance level, all factors of EE, PE, PB, and BO have an impact on the entrepreneurial intention in the field of clean agriculture (due to all of them have Sig values less than 0.05). The variance magnification coefficients VIF are all less than 2, showing that there is no multicollinearity phenomenon. All factors are qualified.

Table 6. Meaning of partial regression coefficients in the model

	Unstandardized Coefficients		Standardized Coefficients	Sig	VIF
	B	Std. Error	β		
Constant	.153	.196		.435	
EE	.247	.052	.239	.000	1.672
PE	.194	.053	.178	.000	1.567
PB	.308	.048	.349	.000	1.935
BO	.131	.064	.113	.040	1.970

Source: Data analysis results of the authors (2022)

The regression models of the impact of factors on Hanoi students' entrepreneurial intention in the field of clean agriculturer are drawn as follows:

Regression equation with unstandardized coefficients:

$$EI = 0.153 + 0.131*BO + 0.308*PB + 0.194*PE + 0.247*EE$$

Regression equation with standardized coefficients:

$$EI = 0.349*PB + 0.239*EE + 0.178*PE + 0.113*BO$$

The regression results in the table 6 show that the “Perception of benefits in clean agriculture PB” is the most influential and positive factor on Hanoi students' entrepreneurial intention in the field of clean agriculture, with significance level Sig is equal to 0.000 (< 0.05) and the the coefficient β_3 is 0.349 (> 0). According to the results of above descriptive statistics, it can be seen that the perception of benefits related to clean agriculture such as “*protection of health*”, “*ensure food security*”, “*protection of the environment and ecological diversity*”, “*transparency of origin, production process*” is perceived very well with quite large mean values of 3.9568, 3.7377, 3.8549 and 3.9475 respectively, approximately at level 4 (equivalent to the meaning of “*agree*”). Current students are gradually having the right interest and awareness of the benefits that clean agriculture brings to themselves, their families and society. According to the sample description results, up to 91.05% of students are willing to pay more to use products from clean agriculture. However, the entrepreneurial intention in this sector is still quite low (mean value is equal to 3.3804), which proves that many young people in addition to being aware of the benefits are also aware of the difficulties in this sector when embarking on the entrepreneurial process. Maybe they don't know what to do or where to start, have difficulty in accessing capital, resources, attracting customers, and distributing products to consumers. Those problems make students worry, leading to a decrease in entrepreneurial intention.

“Educational environment EE” is the second most influential and positive factor to Hanoi students' entrepreneurial intention in the field of clean agriculture (with the significance level Sig is equal to 0.000 (< 0.05) and the coefficient β_1 is 0.239). According to the results of above descriptive statistics, there is a quite new finding: students think that they acquire knowledge about clean agriculture more from “*extracurricular activities*” than from “*knowledge from school*” and “*family, society*”. Contrary to the initial thought that

schools help students acquire more knowledge, the research shows that students tend to receive knowledge more easily through practical activities than more theoretical lectures. This finding of the research will help schools to adjust their training programs to be more suitable for students. EE4 of *“Growing up in a farming place fueled my entrepreneurial intention in the clean agriculture sector.”* has mean value of 3.4660. Many students said that when they were born and raised in a place with a tradition of agricultural production, being exposed to agriculture for a long time helped them have more knowledge of agriculture compared to students with an environment that lives differently. This result show that if students are exposed to agriculture for a long time, this will promote their entrepreneurial intention in the clean agriculture sector. Therefore, the authors will make some recommendations to help students be exposed to clean agriculture from an early age to promote their passion and entrepreneurial intention.

“Perception of entrepreneurship PE in clean agriculture” has a positive impact and is the third influencing factor to Hanoi students’ entrepreneurial intention in the clean agriculture sector, at significance level Sig is equal to 0.000 (< 0.05) and the coefficient β_2 is 0.178 (> 0). According to the results of descriptive statistics, most students think that *“Entrepreneurship in the clean agriculture sector is more difficult (Mean = 3,7006) and contains more risks (Mean = 3.5062) than in other sectors”*. The reality reflects that starting a business in any industry or field contains risks. So having chosen the path of entrepreneurship, people must have great confidence and determination. The independent variable of PE5 *“The activities that can be an entrepreneurship in the clean agriculture sector are those that grow crops and raise livestock to create clean products.”* (Mean = 3.3025) received the majority of the agreement of the students. Although this is considered a correct it represents an incomplete understanding of the breadth of clean agriculture. Clean agriculture is a large field, students can choose an enterprise in any stage of the supply chain: producing products according to the requirements of clean agricultural products (according to GAP, organic ingredients or high technology); processing clean agricultural products; trading clean agricultural products for domestic consumption and for export etc. Most of the students disagreed with *“I will only do entrepreneurship in the clean agriculture sectors if I am unemployed.”* (Mean = 2.8179). This shows that clean agriculture is an area in which respondents are thinking of starting their own business. However, the percentage of students actually starting a business in clean agriculture is still very low. A possible reason for this is that there is still limited exposure to the idea of entrepreneurship in agriculture and especially in the clean agricultural subsector. These findings will help the authors draw solutions to help students increase exposure to the idea of entrepreneurship in the clean agriculture sector.

“Business opportunity BO” has a positive effect and is the factor that has the least impact on Hanoi students’ entrepreneurial intention in the clean agriculture sector (with the significance level Sig is equal to 0.04, less than 0.05, and the coefficient β_4 is equal to 0.113, higher than 0. According to the results of descriptive statistics above, the students all said

that business opportunities in the field are very high (mean coefficients ranged from 3.7284 to 4.0895 meaning “agree”). However, this is the least influential factor for entrepreneurial intention in the clean agriculture sector. This could explain that while most students have awareness of existing business opportunities, the attraction of the profession is not high or some do not have the capabilities to access those business opportunities. Therefore, the authors will propose some recommendations to expand access to business opportunities for young people in the clean agriculture sector.

In addition, the research used the mean test (Independent Sample T-Test) and One Way ANOVA) to measure the “Demographic” factor affecting surveyed students’ entrepreneurial intention in the clean agriculture sector. The results obtained are as follows: There was no difference in the intention of students to start a business in the clean agriculture sector between the male and female genders (Sig T-Test = 0.594 > 0.05), between those with experience and no experience (Sig T -Test = 0.393 > 0.05), between people with different education levels (Sig T-Test = 0.461 > 0.05). In contrast, between people with related and not related to agriculture majors (Sig T-Test = 0.02 < 0.05), between those interested and not interested in clean agriculture products (Sig T-Test = 0.00 < 0.05), and between those who are willing and unwilling to pay more to use products originating from clean agriculture (Sig T-Test = 0.001 < 0.05), there is a significant difference in perceived clean agricultural entrepreneurial intention. From the above results, it can be seen that academic major has an important influence on students’ entrepreneurial intention in the field of clean agriculture. Unfortunately, the number of students with majors related to agriculture in Hanoi and Vietnam is still quite small. According to the survey results, about 26.54% of students have majors related to agriculture, and the remaining 73.46% of students have majors not related. Therefore, increasing the number of students majoring in agriculture may be considered.

4. Discussion and Conclusion

This research has pointed out four factors affecting Hanoi students' entrepreneurial intentions in the field of clean agriculture. Based on these results, recommendations to promote the development of clean agricultural start-ups are as follows:

Firstly, each student himself needs to understand the importance of health, food security and the value of the living environment, and not to be indifferent or insensitive to agricultural products for daily consumption. Students should have their own orientations from an early age, actively learn, practice skills from studying at school, actively participate in extracurricular activities and competitions in order to accumulate knowledge and understanding of entrepreneurship, especially in clean agriculture, to support the start-up process later.

Secondly, universities should research to adjust and expand the training program, or establish more branches of universities and colleges in different disciplines in the clean agricultural subsector with the goal of modern and advanced direction in applying science and technology in the 4.0 revolution period. In addition, it is necessary to organize more

extracurricular activities such as talk shows, contests, or picnics, or study tours to businesses and farms doing organic or GAP standard agriculture. This will help students have more experiential opportunities.

Thirdly, family and friends should be more open-minded, guide and support students in career choice decisions, support and encourage them to be motivated to achieve their goals. Anyone who shares the same interest in clean agriculture, please create social networking sites to share connections.

Fourthly, the State needs to have policies which encourage and orient the progressive ideas about clean agriculture as well as create favorable conditions for young people who have entrepreneurial intention in the field of clean agriculture, including supporting and financing start-up program projects where students can effectively apply their knowledge into practice.

Finally, businesses operating in the field of clean agriculture should cooperate with universities to create programs that combine study and work, create opportunities for students to gain practical knowledge as early as possible in their working lives in line with the German model (Michael Gessler, 2016), promote a wide understanding of the virtues of their trade, and directly provide capital and expertise to students who seek to start clean agriculture enterprises.

This research still has limitations relating to focusing factors influencing only students' entrepreneurial intention in the clean agriculture sector. Thus subsequent researches could study the factors affecting the transition from entrepreneurial intention to start-up behavior in this field. The study showed that 51% of the variation in the entrepreneurial intention in the field of clean agriculture is caused by the four factors in the research model. The remaining 49% is due to other factors that have not been observed yet, so further studies could add new factors into the model. In order to increase the generalizability of the model, subsequent studies should expand the research area to different provinces and larger sample sizes representing the North - Central - South regions of Vietnam and at the same time expand the research object to other age groups.

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THE IMPACTS OF AGENCY COSTS ON THE PERFORMANCE OF VIETNAMESE LISTED REAL ESTATE FIRMS

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Abstract

This paper will discuss the impacts of agency cost on the performance measured by ROA, ROE and Tobin'Q of real estate firms in Vietnam. By applying the model of pooled OLS, random effects and fixed effects, the results show the positive impact of agency cost using a proxy called asset utilization on firm performance. Meanwhile, firm performance is negatively affected by agency costs using administrative expenses to net sales ratio and short-term debt to total assets ratio. Moreover, the study also found the optimal agency cost for real estate businesses to achieve the best business performance.

Keywords: *agency cost, firm efficiency, pooled OLS, random-effects model, fixed-effects model.*

1. Introduction

The agency theory was first introduced in 1976 by Jensen and Meckling - two American economists and since then, more and more scholars have investigated this issue. However, in enterprises in Vietnam, the issue of agency costs has not yet been mentioned much. Moreover, the application of all models and studies of foreign documents to the current Vietnamese market situation is not feasible and impractical.

With a sample of 117 real estate companies listed on Vietnam's stock market, empirical research results show that agency costs are measured by four performance proxies of asset utilization (NSTA), General and administrative expenses on net sales (AENS), free cash flow (FCF) and short-term debt (STDTA) have a negative impact on corporate performance as assessed through 3 variables ROA, ROE, and Tobin's Q. The

results of the study show that agency costs have a significant impact on business performance through the variables ROA and ROE. However, when measuring efficiency by Tobin's Q, the AENS and FCF indicators have no statistical significance. Besides, in the next part of the study, our team measures the optimal cost of agency costs so that real estate enterprises can achieve the best efficiency.

The remainder of this article is structured as follows. Section 2 discusses old hypotheses to develop our hypothesis. Section 3 presents our data and methodology. Our experimental results are provided in Section 4. Section 5 concludes.

2. Literature Review

Agency costs are understood as costs incurred when there is a lack of agreement between the goals of managers and owners or the goals of managers and creditors in an enterprise. Many studies show that agency cost has a negative impact on firm performance.

However, it is difficult to measure the level of agency costs directly. Given that it is difficult to measure agency costs, some studies attempt to propose several proxies for agency costs. In the study of Ang et al. (2000), it is believed that agency cost has a negative effect on Total Assets Utilization (measures how efficiently a company's managers use their assets). According to G. T. Akinleye (2018), the efficiency of using assets has a positive impact and affects significantly the performance of manufacturing enterprises. It means that the lower the agency cost can lead the higher efficiency and better firm performance. Rakesh H M, Lakshmi P (2013) used the ratio of operating expense to revenue to measure and also demonstrate that financial leverage and agency costs also have a negative effect on each other. They argue that this measure better reflects the “managerial discretion in spending company resources” (Singh & Davison (2003) than the counterpart measure in Ang et al (2000). A higher ratio of operating expenses indicates higher agency costs. Jensen (1986) also pointed out that when firms possess a lot of free cash flow, they often face problems between managers and owners. According to Ismail Kalash, an increase in a firm's free cash flow leads to an increase in the firm's financial leverage. Financial leverage has a strong negative impact on business performance as measured by two indicators ROA and ROE. In addition, Rakesh (2013) also used the debt ratio to demonstrate that financial leverage and agency costs also affect each other. The results are compatible with the results of assessing the impact of agency costs through the debt index, which is also mentioned by Lee (2010).

Besides, research on the relationship between agency costs and ownership structure and between structure and performance of the firm is also mentioned (Ang et al., 2000; Singh & Davidson, 2003; Fleming et al., 2005; McKnight & Weir, 2009; Black & Kim, 2012; Liu, 2015; Chen, 2015). On the other hand, an ownership structure that comes with low agency costs can lead to an increase in firm performance. The reason is that as the size of the board increases, agency cost problems will arise more because conflicts between owners occur more.

3. Method

✚ Data Sources

Data for the research comes from two sources which is Vietdata system and the public financial statement of Vietnamese real estate firms on the two current stock exchange in Vietnam, namely: Ho Chi Minh Stock Exchange and Hanoi Stock Exchange. Finally, the dataset has 1281 firm-year observations of 117 Vietnamese listed real estate firm in 2007-2020 period.

✚ Methodology

To examine the impact of agency costs on business performance, the study uses the following regression model:

$ROA_{it} = \alpha_0 + \alpha_1.NSTA_{it} + \alpha_2.AENS_{it} + \alpha_3.FCF_{it} + \alpha_4.STDTA_{it} + \alpha_5.SIZE_{it} + \alpha_6.AGE_{it} + \alpha_7.LEV_{it} + \varepsilon_{it} \quad (3.1)$
$ROE_{it} = \beta_0 + \beta_1.NSTA_{it} + \beta_2.AENS_{it} + \beta_3.FCF_{it} + \beta_4.STDTA_{it} + \beta_5.SIZE_{it} + \beta_6.AGE_{it} + \beta_7.LEV_{it} + \mu_{it} \quad (3.2)$
$Q_{it} = \gamma_0 + \gamma_1.NSTA_{it} + \gamma_2.AENS_{it} + \gamma_3.FCF_{it} + \gamma_4.STDTA_{it} + \gamma_5.SIZE_{it} + \gamma_6.AGE_{it} + \gamma_7.LEV_{it} + v_{it} \quad (3.3)$

(In which: i represents the enterprise i and t represents the research period, ROA_{it} is the ratio of profit after tax to total assets of enterprise i in year t , ROE_{it} is the ratio of profit after tax to the equity of enterprise i in year t , Q_{it} is the tobin's Q coefficient, equal to the sum of the market value of capital over the book value of total assets of enterprise i in year t , $NSTA_{it}$ is the asset utilization efficiency, equal to net sales over total assets of enterprise i in year t , $AENS_{it}$ is the administrative expenses on net revenue of enterprise i in year t , FCF_{it} : Free cash flow of firm i in year t , $STDTA_{it}$ is the ratio of short-term debt to total assets of enterprise i in year t , $SIZE_{it}$ is the enterprise size, equal to the base e logarithm of total assets of enterprise i in year t , AGE_{it} is the age of firm i in year t , LEV_{it} is the financial leverage of the enterprise, equal to total debt to total assets of enterprise i in year t , ε_{it} is the residual of the 3.1 model, μ_{it} is the residual of the 3.2 model, v_{it} is the residual of the 3.3 model)

To estimate the above regression equations, we apply ordinary least squares (OLS) model, the random effects model (REM) and the fixed effects model (FEM) for the regression equations to evaluate the impact of agency costs on firm performance. To choose an appropriate model between the pooled OLS model, the RE model, or the FE model, Wooldridge (2010) proposes employing the Breusch and Pagan Lagrangian multiplier test and the Hausman test. However, since the Hausman test cannot be used when standard errors are adjusted for heteroskedasticity and clustered at the firm level, we employ a test of overidentifying restrictions to choose between RE model and FE model (Schaffer & Stillman, 2010). After using the Breusch and Pagan Lagrangian multiplier test and the test of overidentifying restrictions, the FE model should be used to estimate 3.1, 3.2, 3.3 model. As a result, the results estimated from the FE model in this paper is the most optimal.

4. Results

4.1. Descriptive statistics

The descriptive statistics of all the variables used for the regression presents in Table 4.1. Both ROA and ROE, the gap between the mean value and the minimum value as well as the maximum value is quite large. The mean value of the firm's free cash flow (FCF) is negative and equal to -1.25%. This specified that real estate enterprises have difficulty in investing in new projects, paying employees' salaries, paying dividends and paying debts in the period 2007 to 2020. The value of TOBIN Q is 0.730 (73%), which means that on average, real estate businesses in Vietnam are currently undervalued compared to their intrinsic value.

Table 4.1. Descriptive statistics of all variables

Variable	Obs	Mean	Std.dev	Min	Max
ROA	1,281	0.0365	0.0743	-0.853	0.481
ROE	1,267	0.0868	0.195	-2.104	1.021
AENS	1,249	0.203	0.402	0	4.896
FCF	1,277	-0.0125	0.135	-0.924	0.689
STDTA	1,272	0.331	0.203	0.000259	0.971
SIZE	1,281	27.81	1.599	21.07	33.68
AGE	1,281	2.603	0.664	0	4.205
LEV	1,268	0.515	0.220	0.00141	0.989
TOBIN Q	889	0.730	0.625	0.000531	6.366
NSTA	1,266	0.284	0.288	0.000256	3.861

4.2. Correlation matrix analysis

Table 4.2. Correlation coefficient matrix

	ROA	ROE	Q	NSTA	AENS	FCF	STDTA	SIZE	AGE	LEV
ROA	1									
ROE	0.7678	1								
Q	0.1273	0.1356	1							
NSTA	0.2393	0.2046	0.032	1						
AENS	-0.3115	-0.2287	-0.0514	-0.264	1					
FCF	0.0715	0.1163	0.0145	0.0475	-0.0201	1				
STDTA	-0.1033	0.0153	-0.0049	0.2806	-0.0245	0.0133	1			
SIZE	0.0064	0.0423	0.2667	-0.1976	0.1128	0.1128	0.0312	1		
AGE	0.0025	0.0469	-0.0364	0.168	-0.0606	0.0864	0.095	0.1926	1	
LEV	-0.097	0.0628	0.1474	0.1301	-0.0696	0.0906	0.6201	0.2703	0.1358	1

Table 4.2 shows the correlation matrix of all the estimated variables. The results show that most of the coefficients are quite small (the absolute value of the data is less than 0.3), which can prove that our model has no plurality collinear problem.

4.3. The effect of agency cost on return on assets (ROA)

4.3.1. Linear impact of agency cost on return on assets (ROA). Linear impact of agency cost on return on assets (ROA)

Table 4.3 shows that when others are not changed, ROA increased 0.05% for each increasing percent of NSTA, ROA and total asset turnover (NSTA) have a positive relationship. This result supported *hypothesis 2*. The table also showed that free cash flow (FCF) had a positive impact on ROA, opposed to *hypothesis 3*. However, ROA decreased 0.0412% and 0.0239% respectively for each increasing percent of AENS and STDTA. This means the relationship between ROA and AENS is negative. This result supported *hypothesis 1*. The negative relationship between ROA and STDTA had supported *hypothesis 4*.

The outcome of REM showed the same results as the OLS regression. Except, STDTA had no impacts on ROA. Moreover, FEM also indicates the same results as the OLS regression in which NSTA had a positive impact on ROA and AENS had a negative impact on ROE. However, in FEM, both FCF and STDTA had no impact on ROA.

Table 4.3. The linear effect of agency cost on ROA

Dependent variable: Returns on assets (ROA)			
VARIABLES	(1) Pooled OLS	(3) Random Effects	(3) Fixed Effects
NSTA	0.0500*** (0.00698)	0.0632*** (0.00738)	0.0812*** (0.00874)
AENS	-0.0412*** (0.00463)	-0.0343*** (0.00440)	-0.0307*** (0.00451)
FCF	0.0369*** (0.0131)	0.0177 (0.0122)	0.0104 (0.0126)
STDTA	-0.0239** (0.0117)	-0.00696 (0.0137)	0.000948 (0.0152)
SIZE	0.00208* (0.00123)	0.00425** (0.00184)	0.00917*** (0.00276)
AGE	-0.00315 (0.00284)	-0.0223*** (0.00402)	-0.0388*** (0.00570)
LEV	-0.0355***	-0.0549***	-0.0623***

	(0.0109)	(0.0138)	(0.0160)
Constant	0.00971	-0.00090	-0.0991
	(0.0331)	(0.0482)	(0.0690)
Observations	1,238	1,238	1,238
R-squared	0.145		0.192
Number of firmid		117	117

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

4.3.2. Evaluate optimal level of ROA through agency cost

By using OLS regression, REM, FEM, we evaluated the linear impact of NSTA, AENS, STDTA and FCF on ROA. The result in three model showed that NSTA and STDTA had an optimal level to the firm efficiency (through ROA).

The nonlinear impact of NSTA on ROA are shown in Table 4.4, in OLS regression, REM and FEM; NSTA and NSTA2 both have P-value of 1%, and the coefficient of NSTA2 is negative (-0.0368, -0.0238 and -0.0207 respectively) which means that the impact of NSTA to the form efficiency have a reversed U shape with the highest efficiency when NSTA= 1.965, 2.2689 and 2.6816 respectively in three model.

Table 4.4. Non-linear effect of asset utilization on ROA

Dependent variable: Returns on assets (ROA)			
	(1)	(2)	(3)
VARIABLES	Pooled OLS	Random Effects	Fixed Effects
NSTA	0.0955*** (0.0114)	0.108*** (0.0122)	0.111*** (0.0143)
NSTA2	-0.0243*** (0.00486)	-0.0238*** (0.00526)	-0.0207*** (0.00779)
AENS	-0.0360*** (0.00470)	-0.0301*** (0.00446)	-0.0282*** (0.00459)
FCF	0.0324** (0.0130)	0.0134 (0.0122)	0.0102 (0.0125)
STDTA	-0.0276**	-0.00830	0.000190

	(0.0116)	(0.0136)	(0.0152)
SIZE	0.00262**	0.00447**	0.00937***
	(0.00122)	(0.00183)	(0.00275)
AGE	-0.00396	-0.0219***	-0.0395***
	(0.00282)	(0.00399)	(0.00569)
LEV	-0.0310***	-0.0514***	-0.0594***
	(0.0108)	(0.0137)	(0.0160)
Constant	-0.0135	-0.0193	-0.110
	(0.0331)	(0.0480)	(0.0689)
Observations	1,238	1,238	1,238
R-squared	0.162		0.198
Number of firmid		117	117

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Through the Breusch Pagan and Hausman test, the results of the FEM give the most optimal results with the NSTA asset utilization efficiency of 2.8616, the firm's efficiency is the highest.

The nonlinear impact of STDTA on ROA are shown in Table 4.5. In OLS, STDTA have negative impact on ROA. In REM and FEM, the impact of NSTA to ROA have a reverse U shape with the highest efficiency when NSTA equal $-\alpha_4/2\alpha_5=0,0596/2*0,0826 = 36.08\%$ and $-\alpha_4/2\alpha_5=0,0802/2*0,0959 = 41.81\%$ respectively

Table 4.5. Non-linear effect of short-term debt to total assets on ROA

Dependent variable: Returns on assets (ROA)			
	(1)	(2)	(3)
VARIABLES	Pooled OLS	Random Effects	Fixed Effects
NSTA	0.0500***	0.0623***	0.0779***
	(0.00699)	(0.00739)	(0.00886)
AENS	-0.0412***	-0.0347***	-0.0313***
	(0.00463)	(0.00440)	(0.00451)
FCF	0.0373***	0.0188	0.0118

	(0.0132)	(0.0122)	(0.0126)
STDTA	-0.0139	0.0596*	0.0802**
	(0.0314)	(0.0358)	(0.0403)
STDTA2	-0.0132	-0.0826**	-0.0959**
	(0.0386)	(0.0410)	(0.0452)
SIZE	0.00201	0.00386**	0.00895***
	(0.00124)	(0.00186)	(0.00276)
AGE	-0.00330	-0.0237***	-0.0410***
	(0.00288)	(0.00407)	(0.00578)
LEV	-0.0334***	-0.0548***	-0.0626***
	(0.0109)	(0.0138)	(0.0160)
Constant	0.0106	0.00384	-0.0978
	(0.0332)	(0.0483)	(0.0689)
Observations	1,238	1,238	1,238
R-squared	0.145		0.196
Number of firmid		117	117

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

By using Breusch and Pagan Lagrangian and Hausman test, we can see that the results of FEM give the most optimal results. With the ratio of short-term debt to total assets (STDTA) accounting for 41.81%, the business performance is the highest.

4.4. The effect of agency cost on return on equity (ROE)

4.4.1. Linear impact of agency cost on return on equity (ROE)

The regression results of equation (3.2) in OLS, REM, FEM shown in Table 4.6 shows the effect of agency cost on ROE. When others are not changed, ROE and total asset turnover (NSTA) have a positive relationship which has appeared in some previous studies. This result supported *hypothesis 2*. The table showed that free cash flow (FCF) had a positive impact on ROE. This result is opposed to *hypothesis 3*. However, ROE decreased 0.0859% and 0.0707% respectively for each increasing percent of AENS and STDTA. This means the relationship between ROE and AENS is negative. This is supported *hypothesis 1*. The negative relationship between ROE and STDTA had supported *hypothesis 4*.

The outcome of REM showed the same results as the OLS. Except, STDTA had no impacts on ROE. Moreover, FEM also indicates except FCF and STDTA had no impact on ROE.

Table 4.6. The linear effect of agency cost on ROE

Dependent variables: Return on equity (ROE)			
VARIABLES	(1)	(2)	(3)
	Pooled OLS	Random Effects	Fixed Effects
NSTA	0.119*** (0.0212)	0.145*** (0.0223)	0.189*** (0.0276)
AENS	-0.0859*** (0.0140)	-0.0726*** (0.0137)	-0.0611*** (0.0142)
FCF	0.146*** (0.0398)	0.0882** (0.0383)	0.0560 (0.0397)
STDTA	-0.0707** (0.0354)	0.00488 (0.0409)	0.0780 (0.0481)
SIZE	0.00572 (0.00372)	0.0114** (0.00513)	0.0327*** (0.00871)
AGE	-0.00618 (0.00862)	-0.0437*** (0.0114)	-0.110*** (0.0180)
LEV	0.0476 (0.0330)	-0.0220 (0.0406)	-0.0896* (0.0506)
Constant	-0.0710 (0.100)	-0.130 (0.135)	-0.554** (0.218)
Observations	1,238	1,238	1,238
R-squared	0.090		0,110
Number of firmid		117	117

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

4.3.2. Evaluate optimal level of ROE through agency cost

By using OLS regression, REM, FEM, we evaluated the linear impact of NSTA, AENS, STDTA and FCF on return on equity (ROE). The result in three model showed that only NSTA had an optimal level to the firm efficiency (through ROE).

The nonlinear impact of NSTA on ROE are shown in Table 4.7. In OLS, REM and FEM, the coefficient of NSTA2 is negative (-0.0368, 0.0417 and 0.0447 respectively) means that the impact of NSTA to the form efficiency have a reversed U shape with the highest efficiency when NSTA equal to 2,5543, 2,2689 and 0.4664 respectively.

Table 4.7. Non-linear effect of asset utilization on ROE

Dependent variables: Returns on Equity (ROE)			
VARIABLES	(1)	(2)	(3)
	Pooled OLS	Random Effects	Fixed Effects
NSTA	0.188*** (0.0350)	0.224*** (0.0374)	0.0417*** (0.0451)
NSTA2	-0.0368** (0.0149)	-0.0417*** (0.0157)	-0.0447* (0.0246)
AENS	-0.0780*** (0.0144)	-0.0646*** (0.0140)	-0.0559*** (0.0145)
FCF	0.139*** (0.0398)	0.0798** (0.0383)	0.0556 (0.0396)
STDTA	-0.0764** (0.0354)	0.00236 (0.0409)	0.0764 (0.0480)
SIZE	0.00655* (0.00373)	0.0120** (0.00514)	0.0331*** (0.00870)
AGE	-0.00741 (0.00862)	-0.0436*** (0.0114)	-0.111*** (0.0180)
LEV	0.0514 (0.0329)	-0.0170 (0.0406)	-0.0835* (0.0507)
Constant	-0.106 (0.101)	-0.168 (0.136)	-0.578*** (0.218)
Observations	1,238	1,238	1,238
R-squared	0.094		0,113
Number of firmid		117	117

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The results of Breusch and Pagan Lagrangian and Hausman test shown FEM is the most optimal. In fixed effect model, the result shown that P-value of NSTA and NSTA2 is at 1% and 10% with the coefficient of $\beta_1=0.0417$; $\beta_2=-0.0447$. The coefficient of NSTA2 is negative means that the impact of NSTA to ROE had a reversed U shape with the highest efficiency when NSTA equal to $-\beta_1/\beta_2=0,0417/2*0,0447 = 0,4664$.

4.3. The effect of agency cost on Tobin's coefficient Q

4.3.1. The linear effect of agency costs on Tobin's coefficient Q

The regression results of equation (3.3) in OLS, REM and FEM are shown in Table 4.8, OLS regression was calculated to estimate Tobin's Q. In OLS model, when others are not changed, Tobin's Q increased 0.274% for each increasing 1 percent of NSTA means that Tobin's Q and total asset turnover (NSTA) have a positive relationship which has appeared in some previous studies. This result supported *hypothesis 2*. The table also showed that administrative expense ratio affects positively to Tobin's Q but not having statistically significant. This correlated with free cash flow variable. STDTA is negative with statistically significant at 5%, means that STDTA affects negatively to Tobin's Q. This result supported *hypothesis 4* talking about relationship between STDTA and firm performance.

Table 4.8. The linear effect of agency costs on Tobin's coefficient Q

Dependent Variables: Tobin's coefficient Q			
VARIABLES	(1) Pooled OLS	(2) Random Effects	(3) Fixed Effects
NSTA	0.274*** (0.0951)	0.219** (0.0920)	0.200** (0.0965)
AENS	0.00982 (0.0495)	-0.0168 (0.0438)	-0.0155 (0.0446)
FCF	0.106 (0.168)	-0.180 (0.147)	-0.306** (0.150)
STDTA	-0.334** (0.148)	0.226 (0.179)	0.573*** (0.205)
SIZE	0.108*** (0.0147)	0.166*** (0.0251)	0.169*** (0.0400)
AGE	-0.0856** (0.0383)	-0.0668 (0.0592)	-0.0362 (0.0832)
LEV	0.396*** (0.131)	-0.153 (0.180)	-0.557** (0.218)
Constant	-2.248*** (0.410)	-3.707*** (0.661)	-3.862*** (1.003)
Observations	872	872	872
R-squared	0.094		0.049
Number of firmid		110	110

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The outcome of REM indicates that with statistically significant at 5%, NSTA affects positively to firm performance and FCF in this model correlated to the OLS model. However,

STDTA effect is different from OLS result when showing no statistical significance and little impact on Tobin's Q. FEM has same results as the REM except both the FCF and STDTA affect the Tobin'Q coefficient with the significance level of 5% and 10%, respectively.

4.3.2. Evaluate optimal level of Tobin' coefficient Q through agency cost

By using OLS, FEM, and REM regression methods, we have measured the non-linear impact of agency costs indicators on business performance (in terms of Tobin's Q). Experimental results from the three methods show that no optimal level is detected.

5. Conclusion

When investigating the agency costs in corporate governance, most of the studies assume that agency costs have a negative impact on firm performance (Singh & Davidson, 2003; Hermalin & Weisbach, 2003; Morck & Yeung, 2004; Fleming et al., 2005; Wang, 2010; Lakshmi P, 2013; Khidmat, 2014; Le Duc Hoang, 2019, Vu Thi Khuyen, 2021, etc). However, there are also some studies that show a positive impact of agency costs on firm performance (Chen, 2006; Chrisostomos Florackis and Aydin Ozkan (2008); Iran Pouraghajan, 2012; Abdulrahman, 2014; Wonyonyi, 2016). The aim of this paper is to investigate the impact of agency costs on the performance of Vietnamese firms, especially listed real estate firms, a field where agency costs are currently high-rise.

Our sample consists of 117 Vietnamese listed real estate firms over the period from 2007 to 2020. Our results show that agency costs, measured by asset utilization ratio, administrative expenses to net sales ratio and short-term debt to total asset ratio, exert a negative impact on firm performance, measured by return on assets, return on equity and Tobin'Q. Additionally, we also use free cash flow to measure agency costs, but the results from our test show that agency costs measured in free cash flow will have a negative or positive effect depending on its degree. Finally, we have proven that there is an optimal agency cost so that real estate businesses can achieve their best firm performance.

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THE RELATIONSHIP BETWEEN HRM, INNOVATIVE WORK BEHAVIOR, AND EMPLOYEE PERFORMANCE AT COMMERCIAL BANKS

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Abstract

The purpose of this study is to investigate the relationship between Human Resources Management (HRM) and the Innovative Work Behavior of employees (IWB), and consequently measure Employees' Performance (EP). Questionnaires were collected from 329 leaders and followers working within the Banking sector in Hanoi, Vietnam. The results indicate that human resources management positively impacts employees' innovative work behavior, and there is a strong positive influence of innovative work behavior on employees' performance. This study also suggests a mediating role of innovative work behavior in the correlation between human resources management and employees' performance.

Keywords: *Commercial banks, Employee performance (EP), Innovative work behavior (IWB), Human resources management (HRM).*

1. Introduction

Banking is considered the lifeblood of the national economy, so improving the operational capacity of the banking system is always a top priority (Vu Van Thuc, 2015). In the context that industrialization, modernization, and international integration are inevitable development steps, along with the prospects of the Industrial Revolution 4.0 in Vietnam, human resources are considered the sustainable foundation of development in any industry, especially the banking industry (Vo Thi Phuong, 2019). In a business environment that is constantly applying technology and innovative development, businesses need to adapt and create competitive advantages (Ramamoorthy et al., 2005). Meanwhile, the human resources department, employees, and managers are the factors that contribute to the company's results. (Barney, 1991). What is more, innovative work behavior in enterprises has not only been considered to "play an important part in the development of enterprises" (De Jong and Den

Hartog, 2010) but has also been evaluated to promote the capacity of individuals or firms (West and Farr (1989), West (1989), Janssen (2000, p. 288)).

This study will evaluate and demonstrate the impact of Human Resource Management, or HRM (as measured by the variables Recruitment & Selections, Training and Development, Performance Appraisal, and Pay & Rewards system) on Innovative Work Behavior (IWB) through research in the banking industry in Vietnam, and at the same time, the study also investigates how IWB influence the Employee Performance (EP) of employees in commercial banks in Hanoi city (the capital city of Vietnam). The results of this study will contribute to an overview of research related to Innovative Work Behavior.

1.1. Human Resources Management and Innovative Work Behavior

Dorenbosch et al. (2005) stated that HRM includes all decisions and actions influencing the relationship between enterprises and employees to enhance employees' innovative work behavior. Based on previous studies on the related topics, the authors agree that HRM includes the following four components: Recruitment and Selection, Training and Development, Performance Appraisal, and Pay and Reward system (Prieto, 2014, Singh, 2004, De Jong, J. & Den Hartog, D., 2010). On the other hand, Innovative work behavior (IWB), is to generate and apply advanced ideas to one's job intentionally (Janssen, O., 2000). De Jong and Den Hartog (2010) also defined IWB as the act of coming up with new and practical solutions (Farr and Ford, 1990) and implementing such ideas (Amabile, 1988).

Many previous studies focused on the relationship between HRM and IWB. The design of a comprehensive HRM system to build high-quality relationships with the workforce will positively influence the employee's working attitude and encourage the development of innovative behavior (Sun et al., 2007). Research by Prieto and Pérez-Santana (2014) showed a highly effective HRM system according to the AMO (Ability - Motivation - Opportunity) has a positive influence on the employee behavior change process. Most findings mentioned above establish the relationship between HRM and innovation at only the organizational level. Based on previous studies, Janssen (2004) asserted that HRM can influence innovation behavior at work at the individual level, which is completely reasonable and well-founded. Therefore, the authors have come up with the following hypotheses.

Hypothesis 1: Recruitment and Selection have a positive effect on Innovative Work Behavior.

Hypothesis 2: Training and Development as a positive effect on Innovative Work Behavior.

Hypothesis 3: Performance Appraisal has a positive effect on Innovative Work Behavior.

Hypothesis 4: Pay and Reward system has a positive effect on Innovative Work Behavior.

1.2. Human Resources Management and Employee Performance

Previous studies have shown that the four basic contents of HRM, which are Recruitment and Selection, Training and Development, Performance Appraisal, and Pay and Reward system, are important means of promoting employee performance. Employee performance (EP), according to Anitha J (2014), refers to results and achievements achieved at work. Hameed and Waheed (2011) stated that the employee's job performance is the employee's productivity and output, which is the result of that employee's development process.

Previous research about the relationship between HRM and EP proved the existence of a positive correlation between them (Gerhart et al., 1992; Haddock-Millar et al., 1992, Tabiu & Nura, 2013). The social exchange theory (SET) argues that human resource management contributes to a positive exchange relationship between employers and employees - especially when the needs of individual employees are considered - to which employees respond with positive, cooperative attitudes and behavior (Gould-Williams & Davies, 2005). After synthesizing, the researchers put forward the following hypotheses:

Hypothesis 5: Recruitment and Selection has a positive effect on Employee Performance.

Hypothesis 6: Training and Development has a positive effect on Employee Performance.

Hypothesis 7: Performance Appraisal has a positive effect on Employee Performance.

Hypothesis 8: Pay and Reward system has a positive effect on Employee Performance.

1.3. Innovative Work Behavior and Employee Performance

Janssen (2000) proved that innovation is beneficial to every individual and group in a working environment. De Jong and Den Hartog (2007) pointed out a way for organizations to stimulate innovation better, which is by making use of employees' innovative behavior. "Employees can help to improve business performance through their ability to generate ideas and use these as building blocks for new and better products, services and work processes". Aryee, S. et al, (2012) surveyed a large Chinese telecommunication company to discover the link between innovative behavior and task performance, since innovative employees gather and consider a broad range of information to generate new ideas and improve existing processes, Tesluk, Farr, & Klein, 1997. In the banking sector, as the growth speed is getting faster and faster, the relationship between IWB and EP needs deeper investigations. Therefore, the authors have come up with the following hypothesis.

Hypothesis 9: Innovative Work Behavior has a positive effect on Employee Performance.

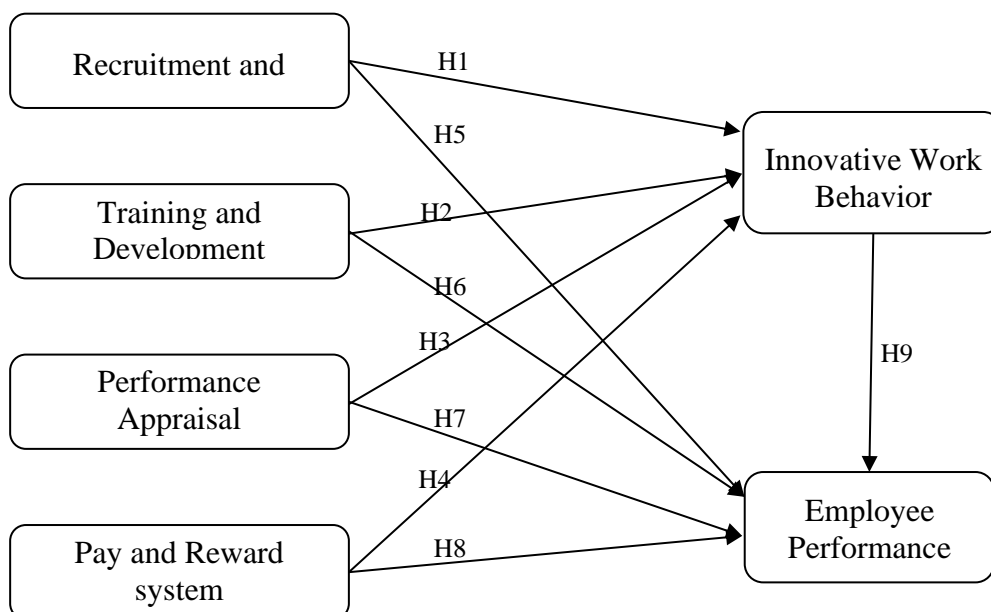


Figure 1. Proposed research model

2. Method

The study used different methods to test the hypothesis. In the scope of the topic, all raw data has been collected from the managers and employees of commercial banks in Hanoi city. 30 staff members at commercial banks in Hanoi were invited to participate in in-depth interviews. The content of the in-depth interview focused on the participants' personal views on the current situation of HRM, IWB, and individual work results at their workplace. In-depth interviews are divided into two main stages: (1) the phase before the quantitative research and (2) the phase after the quantitative research.

With the COVID-19 epidemic remaining complicated, raw data has been collected from an online survey. The questionnaire with 47 observed variables and 5 open-ended questions (including 2 multiple-choice questions and 3 essay questions) was sent to staff at more than 20 commercial banks in Hanoi. The survey received 329 valid responses, reaching a statistically valid rate of 96.76%. The structure of the survey sample by the banking agency is described in detail in Table 1.

Table 1. Analysis of Sample structure by banking agency

Commercial banks	Sample: 340	
	Number (of respondents)	Ratio (%)
Agribank	21	6.4
BIDV	42	12.8
Vietinbank	33	10.0
Vietcombank	24	7.3
MB Bank	28	8.5
VP Bank	32	9.7
TP Bank	16	4.9
Techcombank	35	10.6
ACB	23	7.0
HD Bank	13	3.9
Others	62	18.9

Source: Survey Result

3. Results

3.1. Measure Reliability

Cronbach's Alpha is used to evaluate the reliability of each factor and to assess their relationship. According to Hair. et al (2009), the factor is considered reliable once its Cronbach's Alpha exceeds 0.7. The collected Cronbach's Alpha results of all the factors are shown in Table, ranging from 0.912 to 0.944, therefore satisfying the requirement above.

Table 2. Reliability analysis results

Factor Code	Construct	Number of observed items		Cronbach's Alpha
		Before	After	
RS	Recruitment and selection	8	8	0.917
TD	Training and Development	9	9	0.938
PA	Performance Appraisal	8	8	0.943
PR	Pay and Reward structure	6	6	0.915
IWB	Innovative Work Behavior	9	9	0.944
EP	Employee's Performance	7	7	0.912

Source: Quantitative research results

3.2. Measure Validity

Following an evaluation of each factor's reliability, the authors performed a validity test using Exploratory Factor Analysis (EFA), utilizing the Principal Components and Varimax rotation method. If the loading factors of each factor exceed 0.5, the items in that factor will be kept; otherwise, the factor will be rejected. After all, there are a total of 41 factors are kept for the analysis (PA4, TD9, RS1, RS8, RS3, IWB1 were rejected due to not meeting the loading factor requirements), while KMO test = 0.952 and the Barlett's test with Sig. = 0.000. What is more, the factors RS and TD were accumulated into 1 factor during the validity test, so the authors decide to name it TDRS and continue to the next step in the analysis. The Exploratory Factor Analysis will be shown in **Appendix 1**.

3.3. Confirmatory Factor Analysis

The authors use Confirmatory Factor Analysis for model fit. The CFA findings show that the hypothesized model proposed fits with the data shown. Specifically, the result of the significant Relative Chi-square or CMIN/df is $1.930 \leq 2$, the compatibility tests such as CFI is $0.819 \geq 0.9$, TLI is $0.931 \geq 0.9$, RMSEA is $0.053 \leq 0.06$; PClose is $0.096 \geq 0.05$ (Hair et al., 2010; Hu & Bentler, 1999; Baumgartner & Homburg, 1995; Doll, Xia & Torkzadeh, 1994).

Moreover, the factor validation analysis of Maximum Likelihood Estimates shows that the values of C.R for regression are greater than 0.9, ranging from 0.912 to 0.948. The values of AVE are also bigger than 0.5, from 0.587 to 0.676; and all the values of MSV are smaller than AVE, which proves the reliability validity, convergent validity, and discriminant validity (Hair et al., 2010)

3.4. Structural Equation Modelling

After testing CFA, the authors continue using SEM to evaluate the model. The results include CMIN = 4876,461; CFI = $0,937 > 0,9$; CMIN/df = $1,930 \leq 2$ and RMSEA = $0,053 < 0.06$. Hence, the hypothesized model proposed fits with the data as shown.

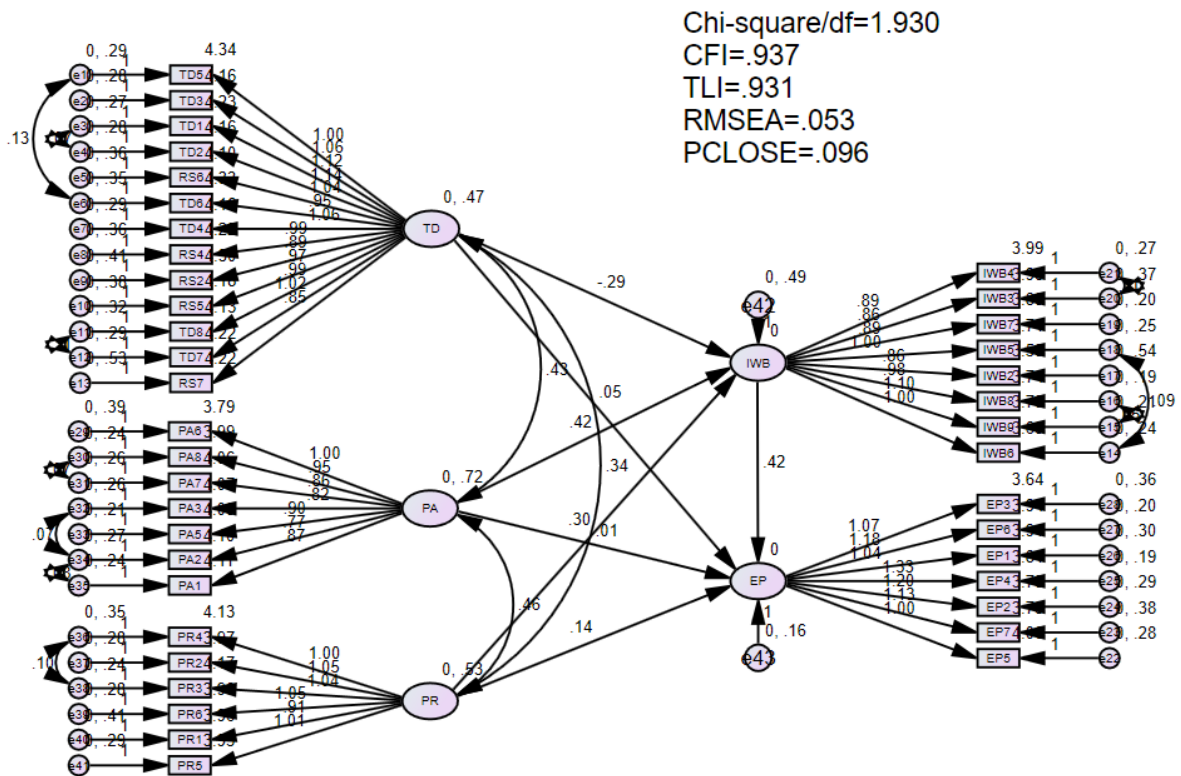


Figure 2. SEM result

Source: Quantitative research results

Table 3 depicts that the P-value of the impact of TD, and PA on EP is greater than 0.5; others are smaller than 0.5, therefore, the test accepts the hypotheses H1, H3, H5, H7, H8, H9 and oppose H2, H4, and H6.

Table 3. The result of analyzing SEM

The relationship of indicators			Estimate	S.E.	C.R.	P	Standardized Estimate
IWB	<---	TD	-0.293	0.103	-2.839	0.005	-0.250
IWB	<---	PA	0.418	0.097	4.325	***	0.441
IWB	<---	PR	0.298	0.102	2.929	0.003	0.269
EP	<---	TD	0.053	0.063	0.844	0.399	0.063
EP	<---	PA	0.008	0.059	0.133	0.894	0.012
EP	<---	PR	0.142	0.062	2.285	0.022	0.179
EP	<---	IWB	0.424	0.045	9.431	***	0.593

Source: Quantitative research results

In addition, based on the regression value, Performance Appraisal (PA) impacted IWB at 0.44, representing that the indicator PA has the biggest impact on IWB. Meanwhile,

the regression value of IWB impacting EP is quite large, 0.593. Besides, a contrasting trend has been observed in the relationship between Recruitment & Training (TD) and (IWB).

3.5. Intermediate variables testing

Table 4. Normalized indirect effect coefficient

	PA	TDRS	PR	IWB	EP
IWB	0.000	0.000	0.000	0.000	0.000
EP	0.261	-0.149	0.160	0.000	0.000

Source: Quantitative research results

The research team used the intermediate test method to analyze the influence of variables PA, TD, and PR on EP through the variable HRM, leading to the conclusion that the variable PA has the strongest influence on EP with a value of 0.261 through the intermediate variable HRM. This is followed by the PR variable, with the value of 0.160, having a partial effect, and finally, the variable TD has the least influence (with the value of -0.149).

3.6. Test for differences by multi-group analysis

The authors have used multi-group analysis by positions, and ranks (employees and managers) of those who have participated in the survey.

Table 5. Multi-group analysis results

	Chi-square	df
Constrained model	2773.551	1525
Unconstrained model	2765.649	1518
Differences	7.902	7
P-value	0.34131479	

Source: Quantitative research results

Both the groups partial invariant and variable models of ministry fit the actual data. The results of testing the difference of the compatibility criteria between the variable and partial invariant models for p-value are $0.34 > 0.05$ (95% confidence level), accepting the hypothesis H_0 , thus There is no Chi-square difference between the variable and invariant models. The study chooses the invariant model to read the results because it has higher degrees of freedom. This allows the authors to conclude that there is no difference in the impact of the variables in the model between employee and management ranks in assessing the relationship between HRM activities, and IWB.

4. Discussion and Conclusion

Regarding direct effects: The research results accept H1, H2, H3, H4, H8, H9, and reject the hypotheses H5, H6, and H7. Research shows that Performance Appraisal has the strongest impact on IWB. Meanwhile, Recruitment and Training with IWB are negatively related, and the Pay and Reward system has a negligible effect on IWB. Regarding the impact on Employee Performance: The Pay and Reward system factor partly influences, while the Recruitment and Training, and Performance Appraisal have a feasible impact on Employee Performance. IWB is also a factor that has a strong impact on EP.

Regarding indirect effects: The research results accept hypotheses H7, H8, and reject hypothesis H5. Performance Appraisal factor has the strongest impact on Employee performance, followed by the Pay and Reward system, while Recruitment and Training have a negative indirect effect on the Employee Performance.

Based on the research results, some recommendations are given to the commercial bank industry.

Firstly, in terms of performance appraisal, commercial banks should have their own set of evaluation criteria, specific to each position group as well as focus on the process of innovative employees to complete the assigned work. In which, there is an adjustment of the weighting of the criteria based on the job requirements and the total amount of time allotted to perform the work. Banks also should commend and reward individuals who apply innovative behaviors at work. In addition, a competitive salary and bonus system should be developed proportionally to the level of dedication of staff, which will create an open atmosphere among employees, a will for the development of the organization, and for the sake of their own benefit. Banks also need to set out clear and reasonable recruitment criteria with innovative guidelines and goals. The selection process should be done carefully and focus on selecting the right people for the bank with the ability to innovate. Besides, the banking industry needs to regularly foster, and update knowledge and skills on business and technology for staff. The training process should also not be stereotyped, but most importantly, helps bankers to improve their soft skills, logical thinking skills, and the ability to solve problems in a flexible and timely manner.

Second, the commercial banking industry needs to actively promote and encourage IWB. These financial institutions should emphasize the importance of innovative behaviors in every department, especially those that need creative ideas and contributions to develop and keep up with the trends of the age. Individuals with creativity and innovative behaviors need to be provided with a favorable set of working conditions to enhance their own creative capacity and apply such ideas to work, directly contributing to the development of the banks.

Third, to improve employee performance, Vietnam commercial banks need to build a proper scale to evaluate the level of work completed according to the set goals suitable for each department. In addition to letting managers directly evaluate the level of employees' job completion, each worker should also have the opportunity to self-recognize and self-evaluate their own performance to make suitable changes and adjustments. Moreover, such an opportunity would enable them to find out more practical solutions for their own department to continuously improve and enhance employee performance results.

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Appendix

Appendix 1. Validity analysis results

Pattern Matrix					
	Component				
	1	2	3	4	5
TD5	0,917				
TD3	0,879				
TD1	0,876				
TD2	0,864				
RS6	0,823				
TD6	0,821				
TD4	0,772				
RS4	0,698				
RS2	0,688				
RS5	0,662				
TD8	0,657				
TD7	0,648				
RS7	0,612				
IWB6		0,902			
IWB9		0,876			
IWB8		0,875			
IWB2		0,849			
IWB5		0,848			
IWB7		0,847			
IWB3		0,790			
IWB4		0,754			

EP5			0,871		
EP7			0,845		
EP2			0,794		
EP4			0,782		
EP1			0,763		
EP6			0,758		
EP3			0,635		
PA6				0,868	
PA8				0,849	
PA7				0,833	
PA3				0,794	
PA5				0,739	
PA2				0,714	
PA1				0,705	
PR4					0,865
PR2					0,861
PR3					0,825
PR6					0,783
PR1					0,755
PR5					0,717
Extraction Method: Principal Component Analysis.					
Rotation Method: Promax with Kaiser Normalization.a					
a Rotation converged in 8 iterations.					

Source: Quantitative research results

FACTORS AFFECTING LOYALTY ATTITUDE AND BEHAVIORAL LOYALTY CUSTOMERS' QUALITY OF BANKING SERVICES IN HA NOI

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Abstract

This study was carried out with the aim of discovering the factors that influence the attitude legal and behavioral loyalty of personal customers with quality banking services in Ha Noi. This research used the combination of qualitative and quantitative methods. The result indicated 6 factors related to research object in total, namely trust, commitment, word of mouth, customer insight, customer experience and loyalty attitude. From there, the research pointed out the potential for development and find solutions to maintain customer loyalty to banking services in Hanoi.

Key words: *behavioral loyalty, Ha Noi, personal customers, quality banking services.*

1. Introduction

Today, the role of the customer is very important to the bank's business. And in order to attract new customers and retain old customers, banks need to ensure good service quality and constantly improve. In addition, for customers to approach and recognize the quality of the bank's services, promotion is an indispensable form in attracting customers to the bank. It is thanks to this marketing media that customers know about new products and services as well as promotions, customer care... of the bank and also creates a good image of the bank in the future. customer's mind, helping customers to remember the first bank when there is a transaction need. At the same time, it will strengthen the customer relationship with the bank because the bank understands the needs of customers better and customers trust the

bank more. That is the problem that runs through the research topic: “Factors affecting customer loyalty, attitude and behavior towards the quality of banking services in Hanoi.”

2. Method

2.1. Theoretical basis

2.1.1. The impact of factors affecting the loyalty attitude of individual customers

Based on published studies, the study has drawn the conclusion that: The expression factors of loyalty are trust, commitment, word of mouth, understanding, and experience all have an important and positive impact on customer loyalty

2.1.2. The impact of loyalty attitude affects the behavioral loyalty of individual customers

Studies have tested that the direction of attitudinal loyalty and behavioral loyalty are closely related. Caruana (2002) shares the same opinion and adds that once customers have a positive attitude towards a product or service, a need will arise for the service, thereby making repeat purchases from the brand. many times. The impact of loyalty attitude has a positive influence on behavioral loyalty.

2.2. Suggested model

This model has variables considered for different effects. In the study of the impact of factors affecting the loyalty of individual customers. Independent variables are belief, commitment, word of mouth, customer insight, customer experience, and dependent variable is loyalty attitude.

In studying the impact of attitude loyalty on individual customers' behavioral loyalty. Independent variable is loyalty attitude and dependent variable is behavioral loyalty.

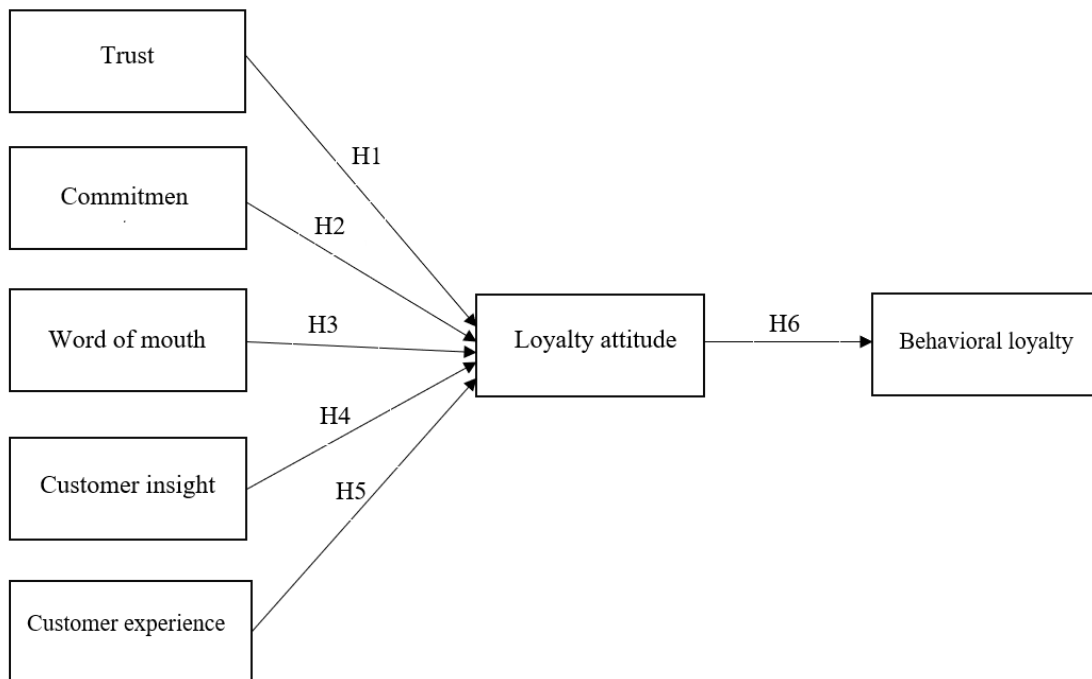


Figure 1. Theoretical model of factors affecting loyalty attitude and behavioral loyalty customers' quality of banking services in Ha Noi

Source: The research team

Behavioral loyalty: the customer's continued repurchase at the same brand, revealed based on future repeat purchase behavior along with the number of customers.

Loyalty attitude: an approach to customers' attitudes, perceptions, and strongly influences customer actions.

Trust: the deep commitment and promise of one party and will fulfill obligations in the exchange relationship.

Commitment: the degree to which customers are willing to sacrifice part of their benefits to maintain a long-term, sustainable relationship with a partner.

Word of mouth: the transmission of information orally from one person to another.

Customer insight: the act of deeply grasping the aspirations, tastes, and desires that are deep in the mind of consumers.

Customer experience: refers to the way customers perceive a brand through their use and exposure to that brand.

- Hypotheses:

H1: Trust is positively correlated with loyalty attitude.

H2: Commitment is positively correlated with loyalty attitude

H3: Word of mouth is positively related to loyalty attitude.

H4: Customer insight has a positive correlation with loyalty attitude.

H5: Customer experience is positively correlated with loyalty attitude.

H6: Loyalty attitude is negatively correlated with behavioral loyalty.

3. Method

The study uses quantitative and qualitative methods. The study aims to screen the observed variables, determine the components as well as the value and reliability of the scale, and test the theoretical model and the hypotheses in the scale model. The test of the scale along with the proposed hypotheses by Cronbach Alpha coefficient, EFA factor analysis, and multiple linear regression analysis is based on the results of SPSS statistical data processing.

4. Results

4.1. Descriptive statistics

Gender: The difference is quite high, there are 219 females, account for 62.4% while the number of males is 132, only 37.6%.

Age: People between the ages of 18 and 25 participating in the survey accounted for 75.8%, corresponding to 266 people; followed by the age group over 35 and the age group from 26 to 35 years old, accounting for 9.7% and 9.4%, respectively, with 34 and 33 people respectively; only a small number of people under 18 years old participated in the survey, accounting for 5.1% corresponding to 18 people.

Career: Mostly from "Student" accounting for 72.9%, corresponding to 256 people, and "Worker" with 21.9% in total equal to 77 people. There is also the position "Pupil" with 5.1% corresponding to 18 people.

Monthly income: There are 142 people with income under 1 million, accounting for 40.7%; followed by 100 people with income from 1 to 5 million, accounting for 28.5%; followed by the income of 10 to 15 million there are 39 people, accounting for 11.1; followed closely by 10.8%, corresponding to 38 people with incomes over 15 million, and finally, the income level from 5 to 10 million, corresponding to 31 people, accounting for 8.8%.

4.2. Cronbach’s Alpha reliability test and Exploratory factor analysis EFA (EFA)

4.2.1. Cronbach’s Alpha reliability test

After conducting Cronbach’s Alpha analysis, the result shows that all independent variables of a model have Alpha coefficient which is greater than 0.7, this justifies that the scale of all variables ensures about the coefficient. Of those, a scale of factor Trust has the greatest Cronbach’s Alpha value (0.828) and factor Word of mouth has the lowest value (0.718). With each of the scales, the research group realizes that none of the values of Corrected Item - Total Correlation less than 0.3. Therefore, all 26 observed variables on a table of the notions such as the influence of the people around and society, internal motivation, financial capability, media, attitude, personality and risk perception reach a requirement and continue to be used for analyzing Exploratory factor analysis EFA.

4.2.2. Exploratory factor analysis EFA

EFA result for the first time:

Table 1. KMO Coefficient and Bartlett test first time

KMO Measure of Sampling Adequacy		0.821
Bartlett’s Test of Sphericity	Approx. Chi-Square	4382.043
	Df	276
	Sig.	0.000

Source: The research team

According to table 1, KMO is equal to 0.821 (satisfying $0.5 \leq KMO \leq 1$) which shows the results of analyzing factors that are suitable with the research data. Bartlett’s Test of Sphericity has Sig as equal to 0.000 less than 0.05 which illustrates observed variables have a correlation with each other in the whole. Cumulative of variance reaches 62,727%, satisfyingly higher than 50% that justifies the EFA model is appropriate. In addition, the Eigenvalues value of six factors is higher than 1 so all factors are detained.

The result of research demonstrates TN2, NT1, TH3, CK5 variables have Factor Loading greater than 0.5 on two factors and the difference of Factor Loading is lower than 0.3, so this does not ensure discriminant value. Thus, the research group conducts to eliminate three observed variables (TN2, NT1, TH3 and CK5) and continues to bring 20 remaining variables to do the second of Exploratory factor analysis EFA.

EFA result for the second time:

Table 2. KMO coefficient and Bartlett's test second time

KMO Measure of Sampling Adequacy		0.876
Bartlett's Test of Sphericity	Approx. Chi-Square	2196.292
	Df	190
	Sig.	0.000

Source: the research team

Table 2 shows that KMO is equal to 0.876 (satisfying $0.5 \leq \text{KMO} \leq 1$) and the results of analyzing factors are suitable with the research data. Bartlett's Test of Sphericity has Sig as equal to 0.000 less than 0.05 which illustrates observed variables have a correlation with each other in the whole. Cumulative of variance reaches 60,477%, satisfyingly greater than 50% that justifies the EFA model is appropriate. Besides that, the Eigenvalues value of six factors is higher than 1, so all factors are retained.

4.3. Pearson Correlation analysis

In short, all six independent variables have a correlation with dependent variables.

Table 3. Correlation between variables

		TD	NT	CK	TM	TH	TN
HV	Pearson	0.749**	0.498**	0.421**	0.447**	0.401**	0.376**
	Sig (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000

***. Correlation is significant at the 0.01 level (2-tailed)*

Source: the research team

The result illustrates that all variables such as trust, commitment, word of mouth, customer insight, customer experience and loyalty attitude are used for Linear Regression analysis.

4.4. Regression analysis

4.4.1. F-statistic

According to the analysis results, "Adjusted R square" reached 0.631, meaning that the independent variables explain 63.1% of the variation of the dependent variable. 36.9% of the variation of dependent variables is affected by variables outside the model and statistical errors. This result indicates a suitable regression model.

Table 4. Model Summary

Model	R	R square	Adjusted R square	Std. Error of the estimate	Durbin-Watson
1	0.798	0.636	0.631	0.41283	2.030
a. Estimate variables: Constant, NT, CK, TM, TH, TN					
b. Independent variables: TD					

Source: The research team

According to the estimation results of behavioral loyalty, “Adjusted R square” is 0.560, meaning 56.0%, proving that the independent variables explain 56.0% of the variation of the dependent variable. The rest 44.0% is affected by variables outside the model and statistical error. This result indicates a suitable regression model.

Table 5. Model Summary

Model	R	R square	Adjusted R square	Std. Error of the estimate	Durbin-Watson
1	0.749	0.561	0.560	0.48612	2.020
c. Estimate variables: Constant, TD					
d. Independent variables: HV					

Source: The research team

The F value equal 120.810 with Sig. by $0.000 < 0.05$, this shows that linear regression model fits the data and can be used.

Table 6. Result of ANOVA analysis with independent variable TD

Model	Sum of Squares	Df	Mean Squares	F	Sig.
Regression	102.949	5	20.590	120.810	.000
Residual	58.799	345	0.170		
Total	161.748	350			
a. Estimate variables: Constant, TN, TH, TM, CK, NT					
b. Independent variables: TD					

Source: The research team

The F value equal 445.603 with Sig. by $0.000 < 0.05$, this shows that linear regression model fits the data and can be used.

Table 7. Result of ANOVA analysis of general linear regression

Model	Sum of Squares	Df	Mean Squares	F	Sig.
Regression	105.301	1	105.301	445.603	.000
Residual	82.473	349	0.236		
Total	187.774	350			
c. Estimate variables: Constant, TD					
d. Independent variables: HV					

Source: The research team

4.4.2. Testing the hypothesis and evaluate the significance of the variable

The values in the Sig column are all less than 5%, so all 5 independent variables are statistically significant to the dependent variable. In other words, 5 hypotheses H1, H2, H3, H4, H5 are accepted.

Table 8. Coefficients with dependent variable TD

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error				Beta	Tolerance
Constant	-0.611	0.179		-3.416	0.001		
NT	0.268	0.037	0.279	7.228	0.000	0.708	1.413
CK	0.213	0.036	0.222	5.984	0.000	0.765	1.307
TM	0.217	0.038	0.211	5.659	0.000	0.758	1.320
TH	0.242	0.038	0.238	6.366	0.000	0.752	1.329
TN	0.193	0.039	0.189	5.020	0.000	0.745	1.342

Source: The research team

The value in column Sig is less than 5%, so the independent variable H6 has statistical significance to the dependent variable. In other words, hypothesis H6 is accepted.

Table 9. Coefficients with dependent variable HV

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error				Beta	Tolerance
Constant	0.560	0.144		3.889	0.000		
TD	0.807	0.038	0.749	21.109	0.000	1.000	1.000

Source: The research team

From the result, our research group suggest regression model below:

$$\mathbf{TD = 0.268*NT + 0.213*CK + 0.217*TM + 0.242*TH + 0.193*TN}$$

$$\mathbf{HV = 0.807*TD}$$

$$\mathbf{=0.807*(0.268*NT + 0.213*CK + 0.217*TM + 0.242*TH + 0.193*TN)}$$

Including:

NT: Trust

CK: Commitment

TM: Word of mouth

TH: Customer insight

TN: Customer experience

TD: Loyalty attitude

HV: Behavioral loyalty

4.4.3. Standardized Distribution Residual of Sphericity

To a Histogram chart, if Mean value is approximately equal to 0, standard deviation is close to 1, bell-shaped distribution curves can confirm that the distribution is approximately normal, assuming the normal distribution of the residuals is not violated. The survey indicates the residual has Mean value is $-2.14E-15$ (approximately equal to 0) and standard deviation is 0,993 (close to 1). Therefore, distribution of residuals is approximately normal, the assumption of normal distribution of residuals is not violated.

With a Normal P-P Plot chart, if quantiles in the distribution of the residual are centered on a diagonal, that is, the residuals are normally distributed. The data show that the percentiles are concentrated on a diagonal, so the residuals are normally distributed.

5. Discussion and Conclusion

5.1. Solution

Consumers

First, each consumer should choose reputable banks with high level of information security, ability to fulfill commitments and risk management capabilities.

Second, consumer should consult bank's customers about their service before selecting. In addition, consumers can share their opinions about their experience in banks to others and even bank's staff to help them improve their service quality.

Banks

First, banks need to ensure that they fulfill their commitments to customers, provide high quality services, and especially ensure absolute confidentiality of customers' personal information and transactions.

Second, if errors occur, banks must ensure that they are handled quickly and flexibly. If the bank makes a mistake, there must be an apology and timely correction. If the error originates from the clients, the customer service team should give them deliberate and precise guidance.

Third, Banks should use positive customer feedback to showcase the quality and services your bank offers. In addition, providing special offers for loyal customers will motivate them to tell their friends, family,... about how great the bank is.

Fourth, understand customer's needs actively to give them prompt advise products and services related to the desire of customers is an effective way that banks should focus on to bring better care to their clients

Fifth, it is essential to improve capacity and awareness of staffs, because they have a significant impact on customer evaluation. In addition, banks should improve service quality according to modern technology such as internet banking, mobile banking... as well as the quality of tangible services to bring comfort to customers while working with the bank.

Management Agency

First, the Financial Management Agency needs to have clear regulations and strictly control the activities of commercial banks to ensure the interests of those banks as well as their customers, especially the regulations of information security.

Second, the Financial Management Agency has to adjust procedures and timeframes for approval of promotional and gratitude programs to help commercial banks get closer to their clients.

5.2. Conclusion

Loyal customers play an important role in the development of commercial banks. This research demonstrate that Trust, Commitment, Word of mouth, Customer insight and Customer experience have impacts on Loyalty attitude and Behavioral loyalty. Commercial banks should find the solutions linked with these factors to boost consumer engagement by strengthening the bond between the banks and the customers.

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THE IMPACT OF INFORMAL COMPETITION ON PRODUCT AND PROCESS INNOVATION IN VIETNAM

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Abstract

In many studies, current documents and regulations of Vietnam, innovation is considered a key weapon for business development and national economic growth. Innovation is not the process that only large enterprises are interested in and have advantageous resources to carry out, but many small businesses also have their own motivations and advantages to invest in innovation activities. This is the premise to create a competitive advantage and be decisive to survival in the market as well as for long-term and sustainable development for any kind of business. Determinants of innovation have been well explored but rare researches have paid attention to the relationship between informal competition and innovation. Therefore, the purpose of this research is to build a model of the impact of informal competition on both product innovation and process innovation of Vietnamese enterprises. Our research uses secondary data on more than 200 Vietnamese enterprises extracted from World Bank's enterprise surveys. As a result, informal competition positively impacts on product innovation and processes of formal Vietnamese enterprises.

Keywords: *informal competition, product innovation, process innovation*

1. Introduction

1.1. Rationale

With the strong impact of innovation in improving the efficiency of the business, the topic of research on factors affecting innovation has received much attention from academic researchers. However, this study has found an important factor variable, which is informal competition for the results of the business innovation. In the last few decades, the informal economy in Vietnam accounted for about 30% of the country's GDP. Firms operated in this economy are often small and unregistered and the firms do not sign for labour contracts with their workers. The existence of the informal economy has a lot of causes divided among

each group of subjects, which can be listed as follows: due to the desire to make a lot of profits, due to the limited legal policies and many complicated administrative procedures, due to the large tax burden, due to the growing social networking, the types of online business are increasingly popular (Vu S. T., 2021). While formal businesses must carry out many administrative procedures to be officially operated, informal firms have stronger motivation to engage in the informal economy to avoid legal requirements such as taxes and regulations for higher profits. This puts a lot of pressure on all formal enterprises in every sector when the same products are sold to customers in the same markets with different prices which are often lower from the informal producers (Heredia et al., 2017). This is called informal competition.

It is pivotal to mention that innovation is the trend of every Vietnamese enterprise in recent years (Techfest, 2021). In 2021, Vietnam ranked first for the achievements in innovation in the groups of lower middle-income countries (Vu S. T., 2021). Especially in the recent Covid period, enterprises have been heavily affected and have to innovate in either new product development or cost-saving processes to survive and grow in the market. Only 11% of businesses said they were "unaffected" and nearly 2% noted a "completely positive" or "largely positive" impact due to the Covid-19 pandemic (Le, 2021). The old business trails and strategies are no longer suitable or not effective enough to revive an entire business. Covid hasn't really gone away yet, but informal competition still exists and even grows up because workers lose their jobs during the pandemic. This really raises the question of whether that informal competition has any impact on the innovation of enterprises. In this regard, there are not many research papers exploring that relationship (Webb et al., 2013) and in particular, there have not been any research papers in the same field conducted in Vietnam recently. Therefore, our research will look for the relationship between informal competition and innovation of enterprises to see the consequence of informal competition in the new lens which is beneficial for the competitive advantage of all kinds of businesses.

The main contribution of this article is to provide the evidence that informal competition spurs formal firms to engage in both product and process innovation in Vietnamese firms. Our research responds to the suggestion of previous research to consider how informal competition impacts other types of innovation besides product innovation.

The following sections are structured as follows: in section 2 we review literature on topics related to relationship of informal competition and innovation; Section 3 presents the research model and hypotheses development. Section 4 describes the data, variable measurement, and data processing methods. The estimation results, model fit analysis, and hypothesis determination are presented in Section 5. In section 6, we explore the findings in further depth and provide managerial implications, conclusions as well as limitations of the research that should be addressed in future research.

1.2. Literature review and empirical review

1.2.1. Innovation

During the recent Covid-19 pandemic, innovation is being talked about more than ever as a driving force to create the next phase of economic growth. However, it has been of

interest for quite some time almost a century ago by many researchers and authors. Regarding the definition of innovation, Varadarajan (2018) finds that it is the use of knowledge and resources to create new value in products and processes. From another perspective, innovation is a prerequisite for creating competitive advantages, reducing costs and improving the quality of new products and services, while providing good business models on how to better distribute goods (Lazzarotti et al., 2010; Lichtenthaler, 2008, 2009; Spithoven et al., 2013). In general, the concepts all imply that the purpose of innovation is to improve labor productivity and develop the economy, so it has been fully summarized in Article 3 of the Law on Science and Technology of Vietnam as follows: "Innovation is the creation and application of achievements, technical solutions, technologies and management solutions in order to improve the efficiency of socio-economic development, improve productivity, quality and added value. increase in products and goods". There are four most common types of innovation, namely: product innovation, process innovation, marketing innovation and organizational innovation (OECD/Eurostat, 2005).

Innovation plays a very important role in the development of countries and businesses. It helps to confirm the competitive position of the enterprise with other competitors in the new market (Becheikh et al., 2006; Edison et al., 2013). Moreover, in the world, the increasing level of competition requires an early focus on investment in developing technological capabilities to enhance position in the era of globalization (World Bank, 2013). Not only in the world but even in Vietnam, the indispensable role of innovation is undeniable while the research on innovation of Vietnamese enterprises is still limited. The reality shows that although many businesses are aware of the role of innovation, very few businesses know how to innovate (Phung & Le, 2013).

There are many different reasons for the inconsistency in the impact of factor variables on innovation such as characteristics, concepts and various measures of innovation concepts or characteristics of firms (Souitaris, 1999). In which, internal factors are factors that enterprises can control and the number of those factors affecting innovation is very diverse and rich, including general characteristics of the business, factors belonging to the management team/leaders, factors belonging to functional resources and strategy. External factors emphasize on external necessary things to promote innovation motivation such as groups of factors belonging to the field of activity, groups of geographical factors, and groups of factors of cooperation and interaction in networks, acquiring knowledge and technology. In our model, we account for both internal and external factors on determining the probability of innovation in businesses with the focus on the informal competition factor.

1.2.2. Informal competition

1.2.2.1. Informal economy and Informal competition

Informal competition is our main external independent variable. Before explaining the relationship of informal competition and other factors on innovation output, this study starts from the origin of the term "informal competition", which is "informal economy". Informal economy can be originated from "informal economic sector" firstly proposed by Hart (1973) to describe a traditional economic sector in a

developing economy in which clearly distinguishes between the informal economy and the formal sector on the basis of paid labor and self-employment. The informal economic sector is the production and business households that do not have legal status, do not have an operating license, but still produce goods and exchange in the market. Recently, the informal economy in Vietnam accounts for about 30% of the country's GDP (Vu S. T., 2021). This figure does not include illegal business activities in Vietnam, indicating the important role other businesses play in the informal economy when it comes to job creation and significantly reducing poverty. In addition, it is also about creating a "safety net" for the economy during recessions when absorbing "economic shocks", which is most evident in the pandemic years 2020-2021.

Currently, the emergence of new professions/ fields such as Youtuber, online sales, e-commerce... are developing strongly, but the concept of "informal" is still quite vague with many definitions of different authors. From the concept and characteristics of the informal economy, the concept of informal competition is understood as competition between companies that have not yet registered for a business license but have income from the production of goods and legal services with formal businesses (Nichter & Goldmark, 2009). The formal firms, who registered for a business licences, face invisible competition from the informal sector due to large price disparities. However, the consequences of this competition are still controversial because it varies depending on the state and characteristics of the economy (Porta & Shleifer, 2008). In Vietnam, the Covid pandemic has caused companies to cut spending, resources and suspend some essential services, making it a good opportunity for informal business to emerge. The fact has shown that the growth in the trend of the informal economy in recent years and probably soon will exist more commonly in rural areas than in urban areas (Vu N. T., 2021). Accordingly, its impact on small and medium enterprises and large enterprises is also different.

1.2.2.2. The relationship between informal competition and innovation

In recent years, innovation has emerged not only as a way for businesses to increase profits or reduce costs, but also as a new approach to improve the economic inclusion of the poor (Meagher, 2018). Or in emerging markets, Juan Bu et al. (2020) especially emphasizes informal costs, which affect both internal and inter-enterprise relationships, limiting the incentives and innovation capabilities of firms. As a result, more and more firms engage in imitation rather than innovation. Externally, in Europe, the threat of informal competitors of firms has been shown to have a direct relationship and a positive impact on product innovation (Miocevic et al., 2022). Another interesting finding in Africa and Latin America shows that there are two directions of interaction between these two concepts. That is, when the intensity of informal competition is low, it will have a positive effect on corporate innovation. On the contrary, if that level of competition exceeds the threshold (located at a high level), it will have a negative impact, inhibiting innovation and creativity (Mendi & Costamagna, 2017). In Vietnam, researchers pay little attention to informal competition. Although some questions are raised regarding the informal economy across the non-farm

sectors and diversification of household income sources, these studies are also limited by the lack of data (Cling et al., 2010).

1.3. Research frame and hypothesis development

Our study uses the theoretical model proposed by McCann & Bahl (2017). This model is used to account for strategic behavior and business results of enterprises across three dimensions: industry-based competition, firm-specific resources and capabilities, institutional context. We use this model to analyse the relationship between informal competition as an industry-based competition factor and product/ process innovation of enterprises in Vietnam.

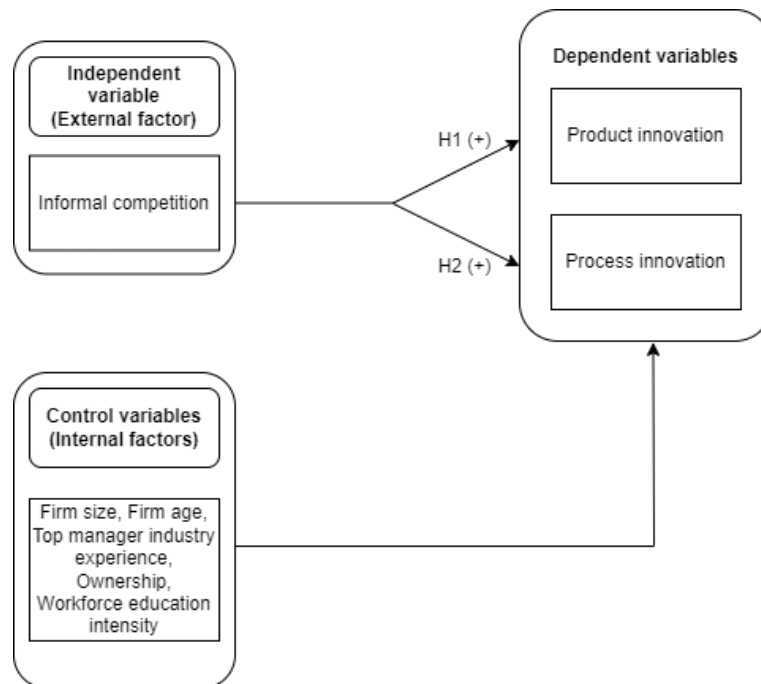


Figure 1. Proposed research model

Source: proposed by authors based on McCann & Bahl (2017).

1.3.1. The influence of informal competition on firm's product innovation

Product innovation is the process of transforming an idea into a commercially viable customer value proposition (Chandy & Tellis, 1998). Firstly, new product development is a method usually used by formal companies to reduce rivalry threats from informal firms. Normally, customers use lower-cost products by informal enterprises rather than formal businesses. Formal firms can exploit their resource advantages to better differentiate themselves from their informal competitors who are unable to adopt similar strategies. Better actions are those that competitors will find difficult to replicate because they help formal firms to gain a competitive advantage and attract customers from competitors' markets who care about low prices of the same products. Second, previous research indicates that informal firms tend to be run by less-educated managers and operate at lower productivity levels (Porta & Shleifer, 2008). With less knowledge to draw upon and inferior productivity, informal competitors are less able to compete with formal ones by product innovation output. Besides, many studies showing that innovation increases in the presence of competition

(Blundell et al., 1999; Kilponen & Santavirta, 2011; Tishler & Milstein, 2009). So, this research hypothesizes that:

H1: Informal competition has a positive impact on the product innovation of formal enterprises.

1.3.2. The influence of informal competition on firm's process innovation

Process innovation is the implementation of a new or significantly improved method of production or distribution (OECD/Eurostat, 2005). Process innovation is more strongly influenced by informality than product innovation. In developing countries, it is often easier to introduce a new product category than to engage in the redesign of production processes, especially if the company lacks the necessary skills to manufacture new technology or to adjust knowledge. Evidence indicates that the main motivation for customers to transact with informal firms is to gain lower priced products (Williams & Martinez-Perez, 2014). Therefore, formal companies have strong motivations to get innovation in their process to enjoy cost-based advantages. In other words, formal enterprises will compete with informal enterprises to reduce price of products (Peng, 2003; Peng & Heath, 1996).

H2: Informal competition has a negative impact on the process innovation activities of formal enterprises.

2. Method

2.1. Data collection

This research utilizes the secondary data from two surveys including the World Bank's Vietnam Enterprise Survey (ES) in 2015 and the Innovation Follow-up Survey of Manufacturing Firms in Vietnam (2016). The ES survey was conducted on a sample of 996 enterprises. The Innovation Capability Survey (ICS) conducted in 2016-2017 surveyed over 300 firms (a subsample of 996 firms from the ES survey). The ES Survey sampling method consists of two ways to produce sample sizes, namely a sample representation of the entire non-agricultural private economy and the composed sample covering both service industries and other related sectors of the economy. Three stratified levels are as follows: field of operation, business size and geographical location. In this study, the research team combined both datasets into one set to facilitate the regression of the main models. The authors use some existing variables of the World Bank's dataset and create some new variables.

2.2. Measurement

Dependent variables

This study handles two dependent variables serving as innovation particularly product innovation and process innovation. The measure of product innovation is referenced from de Jong & Vermeulen (2006); Fritz (1989); Phung Minh Thu et al. (2018); Spithoven et al. (2013). We also created a new variable to measure enterprise process innovation representing three questions related to process innovation. This measure is referenced from the study of (Do & Tran, 2021).

Intermediate variables

To measure the level of informal competition, we appraise the size of impediment from competitors' practice in the informal sector to some extent (Farooq et al., 2019; Heredia et al., 2017).

Control variables

We follow the concepts of definition based on the studies of Farooq et al. (2019) and (McCann & Bahl, 2017). The research team has synthesized and selected the control variables that are most suitable for the existing data set as follows:

Firm size: Size here is defined as the natural logarithm of the total number of employees in the firm (Farooq et al., 2019).

Workforce education intensity: Education intensity here is defined as the percentage of the company's employees who have a university degree or diploma (McCann & Bahl, 2017).

Firm age: Firm age here is the total number of years since the establishment of the firm (Farooq et al., 2019).

Top manager industry experience: Top manager industry experience here is the natural log of the number of years of experience the firm's top manager has in the firm's primary industry (McCann & Bahl, 2017).

Ownership: We also considered the ownership composition of the firm by including controls for percentage ownership that is foreign, government, and other with private being the omitted category (McCann & Bahl, 2017).

2.3. Data analysis

The research team uses Stata software to help analyze the following specific issues:

- Descriptive statistics on the overview of enterprises participating in the survey
- Statistics of survey results on informal competition affecting innovation of enterprises
- Analyze the correlation between factors and innovation of enterprises.

Since the measurement of the dependent variable uses binary questions, the method of least squares (OLS) in the may give false results. The appropriate estimation method is called logistic regression (Long & Freese, 2001). This study will apply binary logit regression to test the hypotheses.

The general formula of logistic regression model:

$$p(PI_i = 1|X_i) = \frac{e^{\beta_0 + \beta_i x_i}}{1 + e^{\beta_0 + \beta_i x_i}}$$

The logarithm of both sides gets the equation:

$$\text{logit} = \ln(\text{odds}) = \ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_i x_i$$

Replacing the dependent and independent variable names, we get:

$$\ln\left(\frac{p(PI_i/PCI_i=1|X_i)}{1-p(PI_i/PCI_i=1|X_i)}\right) = \beta_0 + \beta_1 \cdot \text{InformalComp} + p_i + \varepsilon_i \quad (1)$$

(1): The equation with only independent variable is "Informal Competition"

In which:

p: Probability for an enterprise to innovate products/processes

p-1: Probability that the enterprise does not have product/process innovation

β_0 : intercept (factor of freedom)

β_k : regression coefficient

InformalComp: independent variable reflecting the level of informal competition

p_i : Fixed effect - controls for unobserved effects of the model and somewhat reduces Omitted variable bias.

ε_i : Remainder

Significance:

Impact direction

β_i has a positive sign: increased informal competition will lead to increased innovation

β_i has a negative sign: increased informal competition will reduce innovation

Impact magnitude

In the Logistic model, we explain the change in the probability of the dependent variable's event occurring due to the influence of the causal variable through the rate of change. Odds ratio (odds ratio - is the ratio of two Odds coefficients)

If x_i increases by one unit, then $\ln\left(\frac{p}{1-p}\right)$ increases β_i times, the odds change $(e^{\beta_i}-1)\times 100\%$

3. Results

Table 3.1 reports descriptive statistics for the variables used in our analyses. Univariate statistics provide some interesting background. Informal competition is a significant issue in our sample with over 63 percent of respondents indicating that they compete against informal firms (177/280). The average perceived obstacle presented by informal competitors is 1.239 (midway between a minor and a moderate obstacle). There is only more than third of the firms report that they have introduced a new or upgraded product or service (0.35) and half of the firms experience process innovation during the reported period

Table 3.1. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Product innovation	297	.35	.478	0	1
Process innovation	298	.5	.501	0	1
Informal competition	280	1.239	1.214	0	4
Firm age (logged)	300	13.727	10.329	1	68
Firm size (logged)	300	3.764	1.397	.693	8.854
Top manager industry experience	294	7.599	.005	7.58	7.607
Foreign ownership	300	8.24	26.5	-9	100
State ownership	300	2.143	9.829	0	70
Workforce education intensity	296	24.98	19.953	0	100

Table 3.2 reports the correlation matrix for informal competition, control variables and product innovation. It shows that the individual correlation coefficients of the pairs of independent variables are all less than 0.7, showing that there is no multicollinearity in the

model. For more certainty, the team used the VIF method to calculate the variance and got the mean value of 1.184, which is much lower than the limited value of 10. Moreover, the individual VIF values are also low results, so it is certain that the group's study does not experience multicollinearity in this case.

Table 3.2. Pearson correlation analysis product innovation

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Product innovation	1.000							
(2) Informal competition	0.121	1.000						
(3) Firm age (logged)	0.086	0.003	1.000					
(4) Firm size (logged)	0.195	-0.201	0.370	1.000				
(5) Top manager industry experience (logged)	-0.199	-0.038	-0.356	-0.143	1.000			
(7) Foreign ownership	-0.085	-0.149	-0.052	0.236	0.026	1.000		
(8) State ownership	0.126	0.130	0.216	0.252	-0.119	-0.048	1.000	
(10) Workforce education intensity	0.021	0.194	-0.016	0.004	0.015	-0.007	0.044	1.000

Source: Data analysis result of authors

Table 3.3. Result of variance inflation factor - VIF

	VIF	1/VIF
Informal competition	1.138	.879
Firm age (logged)	1.343	.745
Firm size (logged)	1.38	.725
Top manager industry experience (logged)	1.15	.87
Foreign ownership	1.102	.908
State ownership	1.134	.882
Workforce education intensity	1.043	.959
Mean VIF	1.184	.

Source: Data analysis result of authors

Table 3.4 report the correlation matrix for informal competition, control variables and product innovation. It shows that the individual correlation coefficients of the pairs of independent variables are all less than 0.7, showing that there is no multicollinearity in the model. For more certainty, the team used the VIF method to calculate the variance and got the mean value of 1.186, which is much lower than the limited value of 10. Moreover, the

individual VIF values are also low results, so it is certain that the group's study does not experience multicollinearity in this case.

Table 3.4. Pearson correlation analysis process innovation

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Process innovation	1.000							
(2) Informal competition	0.239	1.000						
(3) Firm age (logged)	0.044	0.006	1.000					
(4) Firm size (logged)	0.099	-0.196	0.373	1.000				
(5) Top manager industry experience (logged)	-0.132	-0.043	-0.356	-0.146	1.000			
(7) Foreign ownership	-0.080	-0.147	-0.051	0.236	0.025	1.000		
(8) State ownership	0.015	0.131	0.217	0.253	-0.119	-0.048	1.000	
(10) Workforce education intensity	0.013	0.199	-0.015	0.018	0.011	-0.003	0.047	1.000

Source: Data analysis result of authors

Table 3.5. Result of variance inflation factor - VIF

	VIF	1/VIF
Informal competition	1.139	.878
Firm age (logged)	1.345	.743
Firm size (logged)	1.383	.723
Top manager industry experience (logged)	1.15	.87
Foreign ownership	1.101	.908
State ownership	1.134	.882
Workforce education intensity	1.048	.955
Mean VIF	1.186	.

Source: Data analysis result of authors

Table 3.6 illustrates four fixed effect logit models to investigate the direct impact of informal competition to product and process innovation. Model 1 and 2 include only informal competition and product, process innovation. It shows strong positive relationships between informal competition and two kinds of innovation. Model 3 includes product innovation, informal competition and all the control variables; it shows that larger firms, firms that have lower top manager experience are more likely to have product innovation than others. Moreover, informal competition affects product innovation positively. Model 4 includes process innovation, informal competition and all the control variables; it shows that larger firms, firms that have lower top manager experience, firms with higher levels of domestic ownership are more likely to have process innovation than others. Informal competition also positively affects process innovation in this model. Results from logit models can also be interpreted in terms of marginal effects—this calculation indicates that a one-standard-deviation increase in the informal competition rating increases the probability of product and process innovation percentage points. The illustration of marginal effects are presented in appendix.

Table 3.6. Regression result

	(1)	(2)	(3)	(4)
Dependent variables	model1	model2	model3	model4
	(Product innovation)	(Process innovation)	(Product innovation)	(Process innovation)
Informal competition	.23** (.109)	.485*** (.122)	.274** (.13)	.551*** (.133)
Firm age (logged)			-.017 (.016)	-.019 (.016)
Firm size (logged)			.477*** (.137)	.347*** (.118)
Top manager industry experience (logged)			-88.55*** (33.645)	-58.692* (32.715)
Foreign ownership			-.011 (.007)	-.009* (.005)
State ownership			.008 (.016)	-.018 (.015)
Workforce education intensity			-.001 (.008)	-.007 (.007)
Industry fixed effects	YES	YES	YES	YES
_cons	-1.404*** (.346)	-1.082*** (.312)	669.783*** (255.581)	444.046* (248.624)
McFadden's R2 (Pseudo)	.042	.095	.12	.124
AIC	1.367	1.383	1.317	1.393
BIC	-1067.477	-1104.310	-1012.722	-1028.552
Prob> Hosmer-Lemeshow Chi-squared	0.5910	0.5910	0.8108	0.2987
Prob> Log likelihood	0.415	0.002	0.005	0.001
Prob> Wald Chi-squared	0.3948	0.0149	0.0232	0.0072
Observations	268	276	259	266

Standard errors are in parentheses

*** $p < .01$, ** $p < .05$, * $p < .1$

Source: Data analysis result of authors

Based on the results above, Informal competition clearly has positive effects on firms' product and process innovation. Therefore, hypothesis H1, H2 are supported

4. Discussion and Conclusion

This study mainly focuses on analyzing the relationship between innovation of enterprises in Vietnam and informal competition. According to the results in the data set, more than 63% of enterprises face difficulties in competing with informal enterprises; from which it can be seen that informal competition is a very important part of competition in the Vietnamese economy. Furthermore, we apply McCann's theory and Farooq's control variables to enrich the research model by studying the impact of informal competition on product and process innovation (Farooq et al., 2019; McCann & Bahl, 2017). The study has successfully applied the theories of previous studies and added an important theoretical basis for the informal competition and innovation of enterprises in Vietnam.

Furthermore, research has shown that informal competition positively affects a firm's ability to develop new/ significantly updated products or processes. By showing the relationships between informal competition and enterprise innovation, our study provides important recommendations for policies. First, informal competition does not always negatively affect a firm's ability to innovate products and processes in Vietnam. This implies that policies that coerce or attempt to formalize informal enterprises may not be justified and need to be reconsidered in many cases. Our research also shows that 64% of surveyed enterprises did not have any product innovation and 50% did not innovate in the last 3 financial years. From that, it can be concluded that the innovation of enterprises in Vietnam is not common and need to be encouraged by various policies including the regulations on informal economy. Increasing informal competition will help licensed enterprises in Vietnam have the motivation and conditions to innovate, helping them to develop their development potential more.

Our research also has several limitations. First, our study is currently only using cross sectional data, which could not help us to conclude the strong causal relationships between variables. We suggest further studies can employ the panel data to support our findings. Second, we have not taken into account the reversed U-shaped suggested by Mendi & Costamagna (2017) between informal competition and innovation. We invite additional research to provide further theory and evidence for this mechanism.

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Appendix

Figure A.1. Probability of product innovation when all independent variables are at mean values

```

Adjusted predictions           Number of obs   =   259
Model VCE   : Robust
Expression   : Pr(product innovation), predict()
at          : Informal competition =  1.274131 (mean)
              age                  =  14.13514 (mean)
              size                  =  3.769373 (mean)
              Inexperience           =  7.599257 (mean)
              Foreign ownership      =  7.478764 (mean)
              State ownership        =  2.212355 (mean)
              Workforce education intensity = 23.67954 (mean)
    
```

Delta-method						
	Margin	Std.Err.	z	P>z	[95%Conf.	Interval]
_cons	0.323	0.032	10.230	0.000	0.261	0.385

Source: Data analysis result of authors

Figure A.2. Probability of process innovation when all independent variables are at mean values

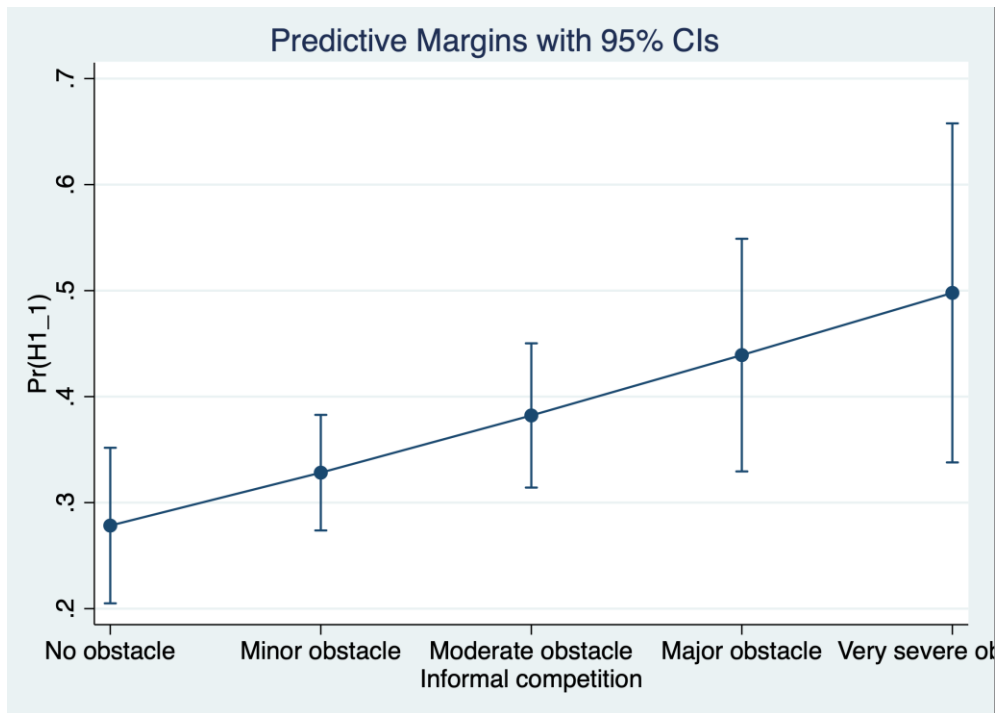
```

Adjusted predictions           Number of obs   =   266
Model VCE   : Robust
Expression   : Pr(process innovation), predict()
at          : informal competition=  1.255639 (mean)
              age                  =  14.21429 (mean)
              size                  =  3.761889 (mean)
              Inexperience           =  7.599249 (mean)
              Foreign ownership      =  7.676692 (mean)
              State ownership        =  2.154135 (mean)
              Workforce education intensity = 23.75188 (mean)
    
```

Delta-method						
	Margin	Std.Err.	z	P>z	[95%Con	Interval]
_cons	0.483	0.034	14.320	0.000	0.417	0.549

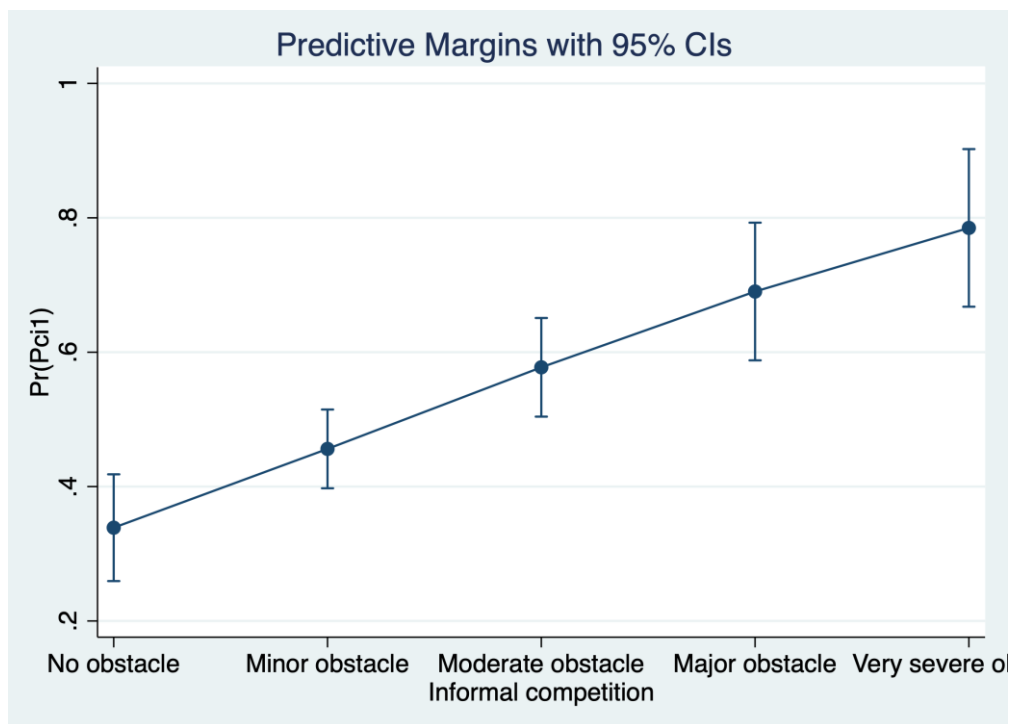
Source: Data analysis result of authors

Figure A.3. Marginal effect plot of product innovation probability



Source: Data analysis result of authors

Figure A.4. Marginal effect plot of process innovation probability



Source: Data analysis result of authors

THE EFFECT OF CUSTOMER RELATIONSHIP AND ASSOCIATION MEMBERSHIP ON SME'S INNOVATION: EVIDENCE IN VIETNAM

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Abstract

This paper aims to investigate some characteristics of a business network to explore the relationship between such networks and innovation of the small and medium enterprises. This paper uses the survey of small and medium enterprises from 2005 to 2015 and a logit regression is used as the main method to run the data of more than 17,000 observations from SMEs of various sectors in many regions in Vietnam. small and medium enterprises can enhance their innovations by leveraging the relationship with their big customers and other members of their business association in which they participate.

Keywords: *Networking, customer relations, innovation, small and medium enterprises*

1. Introduction

Innovation at firm level has been one of the main themes of economic research for many years. Schumpeter is also known as the first scholar to coin the term “entrepreneurship” to the world (Schumpeter & Backhaus, 2003). For Schumpeter, entrepreneurs are sources of innovation, the driving force of capitalism not just owning, running, or investing in a business. An entrepreneurship has to be proven by new combinations of resources and commercial applications of those combinations (Sobel & Clemens, 2020). The definitions of innovation has changed over time since then. The idea of innovation initially is linked to the role of Research and Development (R&D) activities, that are internal innovation. However, recently, the research trend has shifted significantly to the impacts of external relationships, alliances, networks, and other forms of external interactions of external sources on innovation performance.

There are several studies that show the relationship between network ties and firm innovation performance, emphasizing that networks are valuable tools that foster the innovation performance (Chen et al., 2011; Freeman, 1991; Love & Roper, 2001; Nieto & Santamaría, 2007; Rogers, 2004; Zeng et al., 2010). Nevertheless, most of the studies that examine the use of networks in firm's innovation explore the impact of network structures characterized by strong ties of weak ties on innovation. Our research aims to examine the

relationship between network and innovation of Vietnamese SMEs. In specific, we investigate the impact of network size, number of times of network and network actors on innovation features, innovation activities and innovation capabilities of these SMEs.

By following this aim, our research tends to discover the role of network on activating and supporting innovation in SMEs. Although there are many research about the effects of network on innovation, those mostly focus on large enterprises on developed countries. The contribution of this research to the empirical research is that the model is based on panel data of SMEs in Vietnam which is a developing country. The study is constructed in five parts. The first part that has already illustrated the introductory parts of this study including rationale, research background, aims and objectives, research object and scope, and research methods. The next part will review many literature that investigate the relationship between network and innovation in small-and-medium-sized enterprises. The third part describes the specific method and research model that are used to demonstrate the relationship. The fourth part will present the results and discussion around them. The final part include some conclusions and limitations of this study.

In this research, SMEs is defined based on quantitative approach. Hatten (2011) specifies SMEs are which noted by adjectives indicating size and the most common condition to differentiate between small and medium enterprises and large ones is number of workers. Meanwhile, European Commission claims that SMEs should be defined based on number of workers as mandatory criteria and other two financial criterias (which are annual turnover and annual balance sheet) as optional criterias. In Vietnam, SMEs are characterized by their smaller size in terms of total assets and total revenues of the three previous years which do not exceed three hundred billions VND. Otherwise SMEs have mostly the legal forms of private entity and limited company. SMEs performance depends heavily on the owners characteristics.

Network is the interaction and engaging between people for mutual benefits. According to Snehota and Hakanson (2002) believe that network consists of companies and their relationships with the others. These companies can simply write informal or formal agreements with. Ecorys (2014) defines network as the combination of business relationship. In this paper, network is the relationships between business and other organizations, customers, etc. We measure network by factors include the *size* of the network with each actor (companies in the same and different business lines, bank official, politicians and civil servants), *number of times* firms contact those networking actors, and *the percentage* of those actors attached with the role of suppliers, customers, debtors, and creditors.

The role of network on firms' innovation

There many ways to explain the improvement in innovation performance due to networking. Florin et al. (2003) used the social capital model to state that entrepreneurs can take advantage of opportunities and social resources that are embedded in networks. Jarillo (1989) reasoned that entrepreneurs can use networks to tap needed resources that are “external” to the firm. Lasagni (2012) explains that linkages offer firms easier access to new ideas and can enhance the transfer of knowledge from research units to business activities. The trend of open innovation studies, which initiated by Chesbrough (2003), has

been the hottest research theme in innovation studies recently. The “open innovation” topic has been studied and debated by many management scholars (Chesbrough, 2003; Chesbrough et al., 2006; Huizingh, 2011; Lichtenthaler, 2011). Innovation is traditionally viewed as activities that take place internally in a single firm. However, for Chesbrough (2003), the nowadays increasing availability and mobility of knowledge workers, the flourishing of the Internet and market transformation (Verhees & Meulenbergh, 2004), and the broadening scope of possible external supplier have undermined the effectiveness of traditional innovation system. In the presence of these changes, the term “open innovation” has emerged. Companies now not only want to commercialize their own inventions, but also the external ideas which gained outside of the firm boundary (Lee et al., 2010). Alongside the increasing trend of open innovation, the concern over environmental issues – such as global warming and scarcity of resources – is increasing at an alarming rate over the world (Coenen & Díaz López, 2010; Dahesh et al., 2020; Markard et al., 2012). Recently, there has been a trend toward a sustainable economy in many countries in the world including Vietnam with the introduction of electric car company VinFast that reinforces the importance of innovation in the sustainable development orientation of the society today. In effect, innovation now is increasingly driven by the social and environmental issues rather than the economic issues, meaning that this new trend of innovation will promote the well-being of societies and do not harm the environment (Dahesh et al., 2020).

Despite that there has been a mainstream of research regarding open innovation, those are focused on large technology-based firms, where the first notion of the open innovation started (Lee et al., 2010). The open innovation of Small-and-Medium sized Enterprise is nearly excluded in the mainstream of the theme (open innovation) (West et al., n.d.) for several reasons. Firstly, the open innovation is easier to examine in large firms than in small firms since the lack of resources of SMEs deter these firms from looking outward for new ideas (Spithoven et al., 2013) and fewer technological assets that they can exchange than large firms (Narula, 2004). Secondly, SMEs normally consider non-internal means of innovation such as networking with large firms as a way to boost their technological competences (Rothwell, 1991) and thereby the networking concept for innovation is not new to them. However, their relationship with large firms tends to be constrained to the strategic alliances (Dodgson & Rothwell, n.d.), and SMEs normally outsources through other SMEs (Rothwell, 1991). Therefore, there are many types of ties of SMEs, and it is crucial to examining the different ties of SMEs in the context of innovation. Finally, SMEs use external sources for later stages of innovation, which is the access to the marketing and sales channels to launch their products, while the open innovation concerns the innovation at early stages. The commercialization stage (later stage), however, has not been investigated in the existing studies.

The study scope includes three main parts: the scope of content, the period of time, and the scope of geography. Regarding the content, the study only concerns three aspects of innovation including the introduction of new products, significant improvements, and new processes; and four characteristics of networks such as the number of people a firm has with regard to each of four main actors (business people in the same sector, business people in

different sectors, banks, and politicians and civils); the number of times that firm contact those people in each of the four; and the roles played by all those actors are categorized into four different stakeholders (suppliers, customers, creditors, and debtors). The variables for those roles are calculated in terms of percentage out of total contacts of a firm. The study only examine impacts of above attributes of networking activities to above innovation performance. With the current available data, the study cannot answer the question “*to what degree do the networking activities affect innovation capabilities?*”. Thus, not all the relationships have the same effects on the innovation capabilities. For example, a strong relationship with big customers may help firm to gain information, knowledge and trust which generate innovation. On contrast, SMEs are constrained with their financial resources. A relationship with bankers might not encourage their innovation activities which are financially supported by other resources except bank credit.

The study does not focus on the *structural characteristics* of networks mainly because the data collected from the questionnaires is not suitable for us to follow that direction of research. If examining the relationship between the structural characteristics of networks and innovation capabilities, the study has to use many proxies to represent the unavailable variables. For example, to illustrate the *tie strength* of a network according to the *theory of weak ties*, the study has to use frequency (or number of times a firm contact to its actors) as a proxy. This usage of proxy may lead to the variation in results.

Innovation capability can be considered as a process to improve firms’ performance or as an outcome of some determinants such as internal sources, external sources, and technological intensity (Saunila, 2020). Innovation is the new or improved products or process that are different from the previous products or process which have been brought into use for the customers (Oslo Manual). However, there appears two paths of studying innovation capability. One stream of studies examine determinant of innovation capability and the others studied consequences of innovation capability. This study follows the second path that examine innovation capability as an outcome of networking activities. Therefore, in terms of an outcome, innovation capability is multi-dimensional. Thus, we hypothesize the following:

H1: Big customers have positive impact on the firm’s innovation.

H2: Association membership have positive impact on the firm’s innovation capability

2. Method

Data

In this paper, logit regression is used as the main method to run the data of more than 17,000 observations from SMEs of various sectors in many regions in Vietnam. This method is used to test the model expressing the relationship between network and innovation. The reasons for using this regression method is that all dependent variables are dummies, which generate only 0 for “yes” and 1 for “no” in innovation capabilities. There are totally three innovation variables that are initially in dummy forms including new products, products improvements, and new processes. Because of these dummies variables, it is impossible to use normal regression which is OLS (the ordinary least squared regression) to test since it will cause many problems and the results will not be correct. Also, there are

some limitations of OLS model in explaining the relationship between dependent and independent variables.

There are two models which are logistic and probits models that can be used for these dummies variables and generate mostly the same results. However, this study uses logistic model due to its simple mathematical functions and its popular usage. We use STATA to run data and get the results since STATA is a popular and well-performed application for researchers.

In terms of time period, the data are collected over a period of 12 years from 2003 to 2014 by UNU-WIDER. The data are collected once for two years. Regarding the scope of geography, the UNU-WIDER organization collected data from more than 2,500 Small and medium size enterprises in Vietnam.

Dependent variables

Innovation capability can be considered as a process to improve firms' performance or as an outcome of some determinants such as internal sources, external sources, and technological intensity (Saunila, 2020). The Oslo Manual by OECD and its partner Eurostat also distinguish between the innovation as an outcome and as a process (OECD & Eurostat, 2018). In the other words, there appears two paths of studying innovation capability. One stream of studies examines *determinant* of innovation capability and the others studied *consequences* of innovation capability. This study follows the second path that examine innovation capability as an outcome of networking activities. Therefore, in terms of an outcome, innovation capability is multi-dimensional. It is divided into 3 aspects including new products to firms, new improvement to the existing products, and new process. A dummy variable indicates that firm generates either one of the three above activities or all the three will have value of 1.

Independent variables

Network factors include the *size* of the network with each actor (companies in the same and different business lines, bank official, politicians and civil servants), *number of times* firms contact those networking actors, and *the percentage* of those actors attached with the role of suppliers, customers, debtors, and creditors.

A dummy variable with a value of 1 indicating a big customer was included if the proportion of sales to government, to export, to state-owned enterprise, to FDI is greater than zero. A dummy variable with a value of 1 presenting the association membership if firm stated that it joins an association.

Control variables

We included several control variables at firm level in order to avoid alternative explanations for a relationship between network and innovation. Several studies found that firm performance has influenced a firm's innovation capabilities. We controlled for firm performance by measuring gross profit on assets. Firm age and firm leverage are controlled for by calculating the log value of total years since the firm was founded and the ratio of total liabilities divided by total assets.

3. Results

The unit of analysis for this study was firm-level innovation. Table 1 shows the descriptive statistics and correlation of all variables. The mean innovation was 0.37 with standard deviation of 0.48.

Table 1. Correlation matrix

	inno	roa	lev1	size	invt	exper	lnage	firmage	Big- customer	Ass-mem
inno	1									
roa	-0.02	1								
lev1	0.15*	0.05*	1							
size	0.17*	-0.52*	0.14*	1						
invt	0.19*	0.05*	0.49*	0.09*	1					
exper	-0.03*	0.02	-0.09*	-0.11*	-0.08*	1				
lnage	-0.09*	-0.05*	-0.10*	-0.10*	-0.08*	-0.14*	1			
Ln-firmage	-0.11*	0.01	-0.12*	-0.17*	-0.07*	0.07*	0.35*	1		
Big-customer	0.16*	-0.06*	0.20*	0.28*	0.17*	-0.10*	-0.08*	-0.14*	1	
Ass-mem	0.12*	-0.06*	0.13*	0.20*	0.13*	-0.06*	0.01	0.01	0.13*	1
Mean	0.37	0.21	0.01	12.53	0.57	3.10	3.78	2.35	0.26	0.09
S.D	0.48	0.21	0.06	3.52	0.49	1.69	0.23	0.77	0.44	0.28
Min	0.00	-0.68	0.00	2.10	0.00	1.00	2.94	0.00	0.00	0.00
Max	1.00	1.00	0.92	20.64	1.00	6.00	4.16	4.09	1.00	1.00

Table 2 shows the results of binomial regression. Model 1 tests the effect of big customer and association membership on innovation. Model 2 through model 6 tests the effect of four network configurations (such as relationship with firms in the same industry, denoted as “netbus”, relationship with firms from different industry denoted as “netdif”, relationship with banks, denoted as ‘netbank’ and lastly the relationship with regulators, denoted as ‘netpol’) on innovation. The hypotheses predicted that a firm’s innovation is positively related to its big customer and its membership in a business association. The results strongly support H1 and H2, showing a positive moderating effect of firm network on innovations.

Table 2. Binomial regression model

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
cons	-1.579*** (-2.78)	-1.641*** (-2.87)	-1.426** (-2.46)	-1.677*** (-2.95)	-1.573*** (-2.77)	-1.613*** (-2.77)
roa	0.113 (0.82)	0.110 (0.80)	0.122 (0.88)	0.149 (1.08)	0.108 (0.78)	0.146 (1.06)
lev	2.207*** (4.11)	2.259*** (4.17)	2.102*** (3.92)	2.240*** (4.15)	2.228*** (4.14)	2.263*** (4.14)
size	0.167*** (8.71)	0.166*** (8.59)	0.169*** (8.78)	0.182*** (9.36)	0.166*** (8.56)	0.179*** (9.12)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
invt	0.658*** (12.14)	0.664*** (12.18)	0.654*** (12.04)	0.782*** (13.04)	0.657*** (12.12)	0.794*** (13.03)
exper	0.00436 (0.27)	0.00457 (0.29)	0.00463 (0.29)	0.00198 (0.12)	0.00456 (0.29)	0.00276 (0.17)
lnage	-0.467*** (-3.89)	-0.462*** (-3.85)	-0.472*** (-3.93)	-0.485*** (-4.05)	-0.466*** (-3.88)	-0.483*** (-4.03)
lnfirmage	-0.140*** (-3.88)	-0.140*** (-3.89)	-0.138*** (-3.84)	-0.138*** (-3.81)	-0.141*** (-3.90)	-0.138*** (-3.81)
bigcustomer	0.325*** (5.41)	0.325*** (5.40)	0.315*** (5.18)	0.303*** (5.00)	0.325*** (5.41)	0.291*** (4.76)
assmem	0.535*** (5.83)	0.531*** (5.78)	0.535*** (5.84)	0.563*** (6.10)	0.530*** (5.77)	0.550*** (5.95)
netbus		0.0839 (1.24)				0.117 (1.64)
netdif			-0.169 (-1.32)			-0.160 (-1.20)
netbank				-0.277*** (-4.70)		-0.298*** (-4.91)
netpol					0.0347 (0.66)	0.0784 (1.42)

N=7446

* p<0.1

** p<0.05

*** p<0.01

The results of our study found that big customers have relatively great impact on innovation activities of focal firm. Among various categories of network contacts, firm prefers collaboration with its big customers to gain access to innovative technologies with the network. Banks appeared to have negative impact on the innovation, indicating a possibility of heavier informal financing among the SMEs in the network. It is commonly believed that most of the SMEs in Vietnam still maintain their fundings mostly from their friends and relatives.

4. Discussion and Conclusion

This paper depicts the impact of networking on firms' innovation. Overall, empirical analysis supports the research hypotheses. First, firms participate in a business network could facilitate innovation by increasing their contacts with their big customers and diversifying their contacts with other members in their business associations may bring firms with superior access to important ideas and opportunities, resulting in stronger innovative capabilities.

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CORPORATE SOCIAL RESPONSIBILITY IN TECHNOLOGY ENTERPRISES

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Abstract

The subject of "Corporate Social Responsibility" (CSR) is becoming increasingly important in the operation of organizations; fulfilling societal duties not only benefits firms financially but also fosters intimate links between CSR implementation and corporate personnel technologies. The goal of this study is to explore how corporate social responsibility affects company performance and how that influence changes between domestic and overseas enterprises. The investigation was conducted using document analysis methodologies and structural equation theory. The findings indicate a link between corporate social responsibility (CSR) and two determinants of company performance (corporate reputation and employee engagement); for companies that have done business and are interested in the Vietnamese market, both social and environmental CSR make positive contributions to the company's performance; and environmental aspects of CSR are most important to the reputation and commitment of employees to the company. This research aims to give additional empirical evidence on how CSR helps to company success. This study aims to give further empirical evidence on how CSR affects company performance. It also suggests theoretical and practical consequences, emphasizing what local and international corporations in developing nations still need to accomplish in terms of CSR. Research supplies policymakers with useful knowledge.

Keywords: *Corporate social responsibility, Firm performance*

1. Introduction

Researchers, scholars, and investors have been actively striving to address the relevance of corporate social responsibility (CSR) in the recent period of creative and competitive technology, devoted to giving a better life to the local community and society. There are multidimensional CSR measurements that capture company actions and goals in order to involve prospective stakeholders worldwide and give different input ways for translation into outputs. This literature focuses on facets of the CSR connection and their financial consequences for businesses and the business environment (Murtaza et al. 2014).

As a result, the emphasis is on comprehending this in connection to various theoretical ideas and presenting the real procedure based on practical findings. Unfortunately, the association does not have a random orientation. This has been proven (Rasheed et al. 2018).

Economists are split on this; for example, the neoclassical theory believes that the directionality of this relationship is minimal and that actual facts are inconsistent. As a result, they say that the ineffective rise in financial expenditures is the outcome of corporate social responsibility initiatives' competitive disadvantage. Instead of just increasing shareholder ratios, current thinkers aim to employ local company resources and the environment to produce management and social benefits for society (as in agency theory). They emphasize that developments in a firm's management and social performance will always result in resource efficiency, improved product marketing, and highly skilled workforces as compared to competitors to capitalize on previously undisclosed market opportunities.

To enhance their financial situation, businesses must cultivate positive connections with their customers, creditors, employees, government authorities, suppliers, local communities, and stakeholders. They want to make the most money possible. Each stakeholder can affect how the company operates during this process. Modern economics regard social responsibility as a key indication of resource choice and profit maximization to attain the aims. According to these academics, socially responsible corporate governance will also assist optimize shareholder return and wealth (Jouini et al. 2018; Thao et al. 2019; Mumtaz 2014). Being environmentally friendly has ramifications for many organizations' business operations and image, and it must be represented in corporate social responsibility (CSR) initiatives (Iram et al. 2019; Baloch et al. 2020; Mohsin et al. 2019b).

It has become an essential instrument for creating a competitive advantage due to its comprehensive approach to CSR. According to Mohamud (2018), CSR may be helpful to a firm since it has a large and favorable impact on revenue. People today have a greater awareness of a company's intellectual talents connected to its organization, product, or organization and services, production, and operations, according to current studies, and they are more careful about how corporations' function for the good of society. However, academics frequently concentrate on measuring the relationship between financial success and corporate social responsibility within an organization to assess whether a key indication would be beneficial. construct or demolish Understanding the financial ramifications of company efforts contributes to the establishment of the relationship between CSR and profit optimization. As a result, this research not only establishes the link between CSR and profitability, but also undertakes an empirical investigation of a firm's performance.

The literature on CSR and corporate performance is developing, with an emphasis on major firms (Jouini et al. 2018; Adeneye and Ahmed 2015; Thao et al. 2019). (Mumtaz 2014). This research did not yield comprehensive findings about the relationship between CSR and corporate performance (Schramm-Klein et al. 2015; Agudo Valiente et al. 2012). As a result, the goal of this research is to highlight the importance of corporate social responsibility in the actions of local and international businesses. This study collected 83 questionnaire responses from small and medium-sized company (SMEs) entrepreneurs to

determine the aim. The research is divided into five sections: (1) introduction, (2) theoretical background, (3) methods, (4) results, and (5) discussion and conclusion.

The remainder of this study is organized as follows. The section that follows analyzes the substantial literature on CSR, while the section that follows describes the sample and methods. The study's findings, as well as a critical examination of the findings, are offered in the last section.

2. Theoretical background

2.1. Corporate social responsibility and corporate performance

The Pyramid of Corporate Social Responsibility

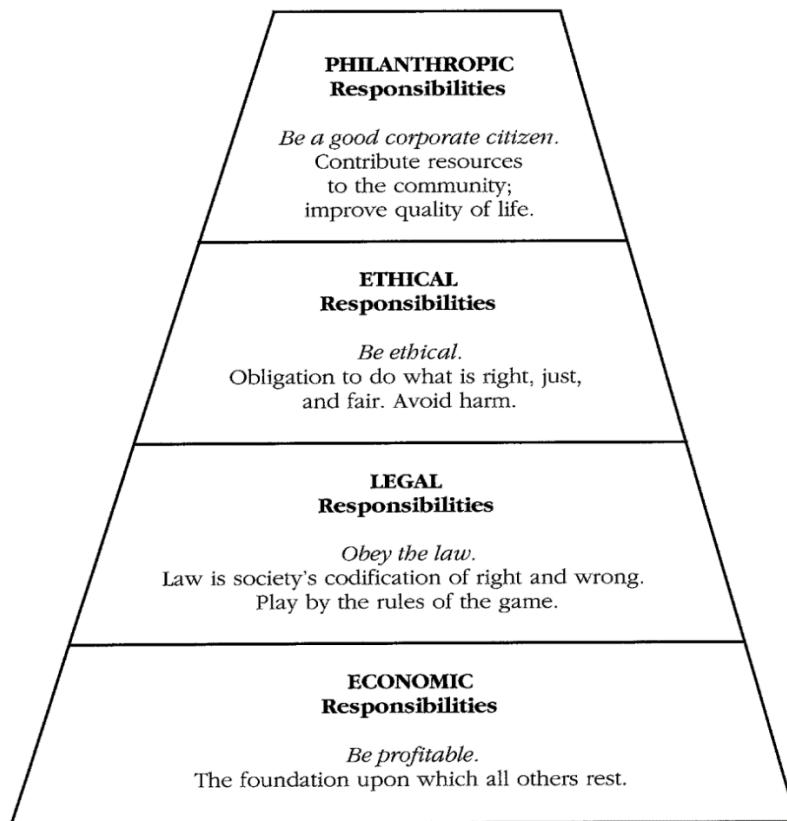


Figure 1. The Pyramid of Corporate Social Responsibility

Source: Carroll (1991, 1999)

The corporate social responsibility pyramid is displayed. It describes the four elements of corporate social responsibility, starting with the fundamental principle of economic accountability success is the foundation of everything else. At the same time, because the law represents society's understanding of what is and is not acceptable behavior, business is required to follow the law. The next step is to keep the business ethics. This person is, At its most basic level, it's about doing what's right, reasonable, and fair, as well as avoiding or minimizing harm to stakeholders (employees, consumers, the environment, and others). Last but not least, firms are likely to act responsibly. responsibly. Thus this issue can be encapsulated in the concept of philanthropy, in which businesses are expected to provide money and human resources to the society in order to raise the level of living

Previous literature reviews on current topics discovered that CSR practices resulted in long-term relationships between firms and communities, owing to the idea that customers buy items from companies that intentionally engage in CSR activities (Mares 2010). Environmental CSR demands improving business performance via waste management, recycling, and energy saving (Moghaddam and Zare 2017; Kakabadse et al. 2008). Being environmentally responsible may provide better advantages and long-term benefits to the SME sector. Companies should analyze their environmental responsibilities in relation to CSR for long-term growth and development, as this will help enhance the favorable effect on corporate performance.

2.2. Environmental and social impacts CSR

The premise that social entrepreneurship, social responsibility, social and environmental responsibility, corporate social responsibility, and the SME sector are linked is supported by the framework model that demonstrates transformation theory, hopeful about the future of the company. Entrepreneurs has a vital role in enhancing business performance and encouraging CSR practices, according to previous studies in this field. Companies that engage in CSR initiatives improve their reputation in society while also increasing market efficiency (Shum and Yam 2011). Furthermore, the SME sector, which includes small and medium-sized businesses, feels that the relationship between corporate reputation and CSR activities is complicated since small-scale businesses are run by a limited number of individuals. Medium-sized firms, on the other hand, will take on a pretty big number of businesses. SME owners are frequently unable to publicize CSR efforts due to a lack of visibility and connection between society and business.

Therefore, the following research hypotheses are established:

H1: CSR has a favorable impact on customer responsibilities.

2.3. CSR and employee commitment have good and significant linkages that help to build strong bonds inside the business

This study shows that a company's reputation is a significant intangible resource that adds to its competitive advantage (Barney, 1991; Deephouse, 2000; Fombrun and Shanley, 1990). ; Roberts and Dowling, 2002; Shamsie,2003), "just because the creation of a product with a solid reputation takes a long period and is more dependent on a steady and constant investment business than on speed" (Roberts and Dowling, 2002). Companies' decisions to engage in or discontinue CSR efforts may boost or degrade their corporate reputation.' Bhattacharya and Sen (2003) have shown that CSR " Builds a source of goodwill without companies can attract in times of crisis ". Correspondingly, McWilliams and Siegel (2001) reported that CSR "creates a reputation that a company is trustworthy and honest". It is not easy to emerge.

Unlike employee involvement, where workers may watch their firm's CSR activities, the influence of CSR on the company's reputation is determined by how the company communicates its CSR activities and how its actions are covered in the national media and other media.Branco and Rodrigues (2006) companies may develop a positive image when they can demonstrate, via effective communication with a wide range of stockholders,

demonstrating that they follow moral and environmental values, whereas neglecting to do so would jeopardize their reputation. As previously mentioned, the two prerequisites for CSR having an influence on a company's reputation – the ability to convey the plan to key stakeholders and media interest in the issue – are not always accessible to enterprises operating in these markets. In emerging economies, organizations' capacity to tell their stakeholders about CSR efforts is hampered by a lack of skills and traditions in communicating internal activities such as CSR initiatives with outsiders. Because of this, the company's capacity to alter stakeholder views in order to improve its image is limited. Furthermore, CSR is not yet a well-established subject in emerging nations; as a result, the media may not provide the required space for firms engaged in CSR activities to create public goodwill, which may eventually convert into a positive corporate reputation. intriguing. We suggest that CSR will have no influence on a company's reputation in emerging markets due to the lack of visibility of CSR efforts.

Therefore, the following hypotheses are developed to measure corporate reputation:

H2: CSR has a positive relationship with a company's reputation.

2.4. Employee commitment and CSR are vital and desirable organizational interactions

Employee commitment is described as "the amount to which workers in a business unit appreciate the company, perceive their ties to it, and are ready to work for it" in a broad sense. Individual sacrifice for the sake of the company" Jaworski and Kohli (Jaworski and Kohli, 1993). Employees make judgements on their bosses, according to Aguilera et al. (2007). The company's CSR activities are based on its observations. Process processing, CSR activities, and the consequences of CSR actions "Socially responsible behavior or irresponsible behavior has substantial ramifications for employees," the authors conclude. Several research have looked into the relationship between CSR and employee commitment (Albinger and Freeman, 2000; Backhaus et al., 2002; Green and the turban, 2000; Maignan et al., 1999; Peterson, 2004; Turban and green, 1997). Past research shows that a company's socially responsible actions problems with its employees (Albinger and Freeman. 2000; Backhaus et al., 2002; Peterson, 2004), and has Trends of Positive Impact on Employee Commitment Branco and Rodrigues (2006) According to the survey, organizations with a high social responsibility image are more likely to be able to attract more job applications.

Better job applications to attract them and sustain employee morale after they are employed. Correspondingly, Maignan et al. (1999) Employee engagement to CSR activities is expected to expand for two reasons: (1) they are committed to guaranteeing the quality of the working experience, and (2) they address societal concerns - such as environmental preservation or community welfare - caring for society in general and therefore for workers. Given that employees' perceptions of the firm are influenced by their evaluations of the company's CSR initiatives, the following argument is consistent with research on employees' perceptions of justice (Rupp et a l., 2006). Furthermore, via equality and socially responsible practices, CSR participants tend to expand their CSR activities inside to their employees (Rupp et al., 2006). As a result, businesses are expected to participate. CSR activities will develop good relationships with workers, and as a consequence, they will be more likely to

acquire employee commitment than companies that do not engage in CSR programs (Aguilera et al., 2007). Furthermore, contrary to popular belief, there is no relationship between CSR and financial incentives. Employees may immediately notice CSR initiatives, which can lead to an immediate positive image of them, boosting their morale and loyalty to the firm. Given that some firms in emerging economies take advantage of a weak institutional environment to create exploitative working conditions in which workers are underpaid and work long hours in hazardous conditions, CSR activities that benefit employees make a difference and are appreciated by employees (Budhwar and Mellahi, 2007).

Consequently, the following study hypotheses were devised to assess employee commitment:

H3: Corporate social responsibility is positively correlated with employee commitment SMEs and is expected to be positively correlated.

The experimental research paradigm displayed in Figure 1 is based on the hypothesis stated above, combined with qualitative research:

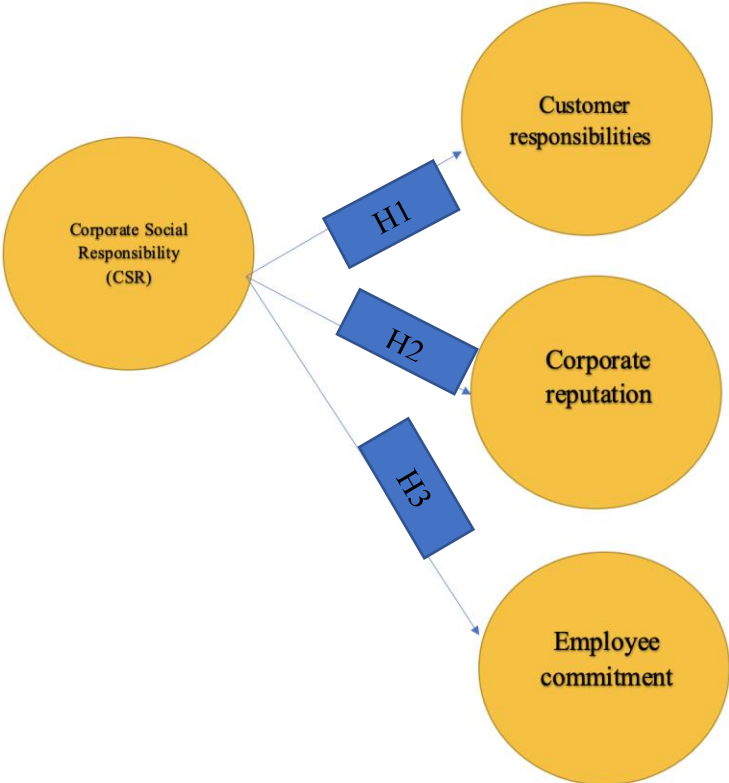


Figure 1. Research models

Source: Authors

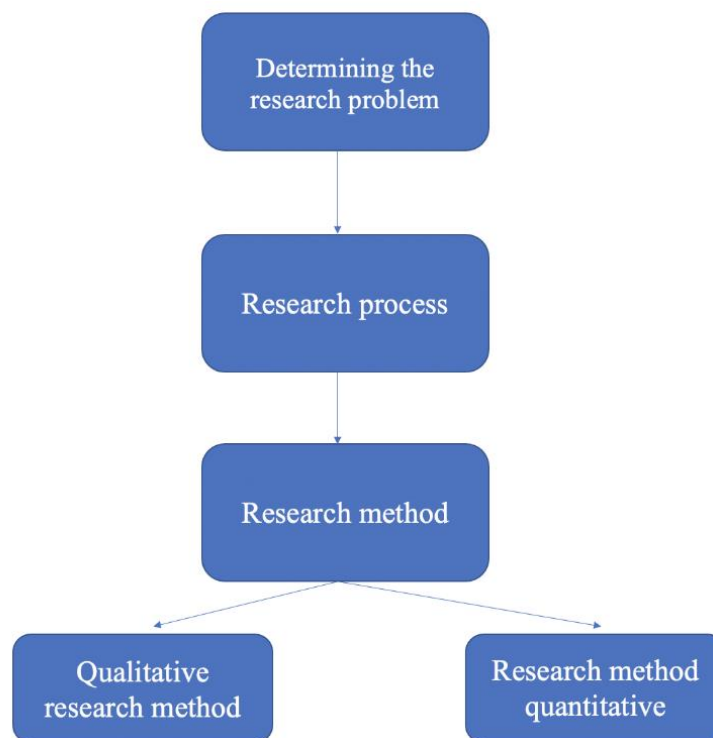
3. Method

3.1. Sample and data collection

To evaluate the performance of small and medium businesses, a questionnaire-based longitudinal research was done (SMEs). Systematic surveys allow for a large number of individuals to be reached, a vast geographic region to be covered, anonymity, and the prevention of influence on responder responses. A sample of 30 companies was used for this purpose.

Larger, more developed economies are seen to have a higher potential for invention, and good copyright policies assist to stimulate patents. As a result, the majority of tiny economies are significantly reliant on foreign innovation. CSR efforts are driven by innovation trends, particularly those that govern time estimations and include cross-border variances and the impact of patent activity trends. In the country, there is a linear patent application. The propensity factors here account for all inter-country differences in terms of innovation and change across time. Changes in intellectual property rules in individual nations can throw economies into disarray. The sum of all patents in a nation, excluding patents for energy, renewable energy, and other endogenous topics, is used to calculate this trend. Energy patents boost environmental CSR performance.

For three key reasons, determining the influence of environmental regulations on innovation is challenging as an endogenous source. First, corporations possessing cutting-edge technology may have government authorities enact regulations that encourage its usage. The second is a lack of difficult-to-control mutations that can contribute to prejudice (discussed in detail in the next section). To overcome innovation gaps or coordinate research initiatives across the innovation process, governments should minimize intermediate-stage investment on top of early-stage R&D financing programs. In this context, the available research suggests three ways for attracting public sector investment in clean energy technology promotion and development. In this chapter, the author will present research processes and methods to achieve the research objectives as well as test the hypotheses mentioned above. The main content of this chapter includes: (1) Determining the research problem, (2) Research process, (3) Research method (4) Qualitative research method and (5) Research method quantitative.



Source: Author

3.2. Defining the research problem

Human needs are, will be, and can be created, thus business is almost all about exploiting them. On Mars, you can't sell computers. Simply, because there is no need up there. As a result, customers are ultimately responsible for a company's prosperity. These clients - elderly, young, females, and boys - formed a community. And it is on the basis of this connection that the question of corporate social responsibility is raised. In reality, we are all suppliers and clients to one another. For example, "How many individuals can generate computer software at the same time?" Despite the fact that social ties are interwoven, and one person is often dependent on the other in this process. As a result, the social responsibility of enterprises is also their obligation. To achieve asymmetry between the two domains, the information gap should first be overcome to offer access to data and knowledge. This knowledge can aid in the development of investment plans aimed at closing innovation gaps and, as a result, lowering emissions and costs. Second, policies that move the focus away from technology and toward the market can assist close the innovation gap in these high-potential technology scenarios. Finally, public-private collaborations offer a lot of promise when it comes to investigating the innovation process. Finally, public-private collaborations offer a lot of promise when it comes to investigating the innovation process. Energy-related research and development, as well as government investment, contribute to the reduction.

3.3. Research method

The first dependent variable is corporate reputation, which consists of three projects (Rettab et al. 2009); the second dependent variable is employee commitment, which consists of three projects used in the study (Rettab et al. 2009); and the third dependent variable is employee commitment, which consists of three projects used in the study (Rettab et al. 2009). (Fombrun et al. 2000). The research looked at corporate social responsibility as a nine-item independent variable. The approaches of corporate social responsibility are examined in two aspects: social corporate social responsibility and environmental corporate social responsibility.

3.3.1. Qualitative method

Using a discussion sheet, line managers of multinational technology companies and experts in charge of talent development adjust the content of the proposed scale to suit the conditions of the technology market situation. In Vietnam, qualitative research results have helped to select and supplement scales from previous studies and form a quantitative questionnaire consisting of observed variables used to measure the influence of factors of corporate social responsibility on employee motivation and job performance.

3.3.2. Quantitative method

Qualitative research was carried out through a large-scale survey using an email questionnaire by an electronic questionnaire designed on Google forms to collect survey data with a sample size of 150. The sampling method was implemented. Is now a non-probability sampling method - convenient for survey respondents who are employees of big and prestigious, country multinational technology companies. Currently, the Vietnamese technology market is an extremely potential market with more than 30 multinational technology companies already

present. In this study, only ten multinational technology companies were selected because they have technology staff. These are also the top 10 companies with the highest revenue of multinational pharmaceutical companies in the Vietnamese market in 2020.

4. Result

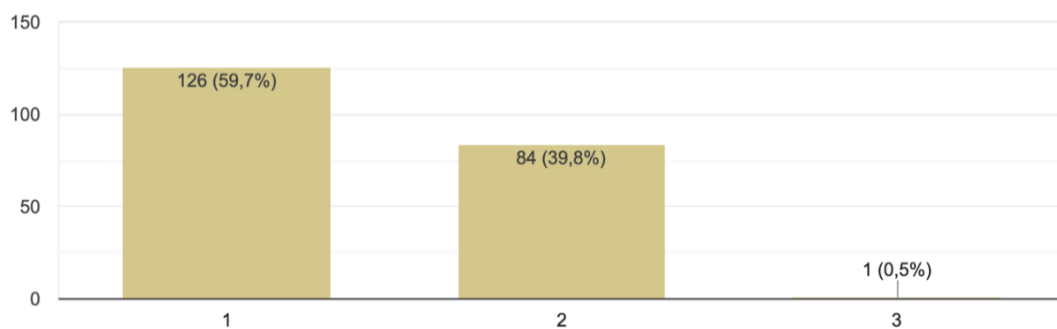
4.1. Data Analysis

Would you please tick (✓) on the scale from ① to ③:

① Female ② Male ③ Other

1. Your gender

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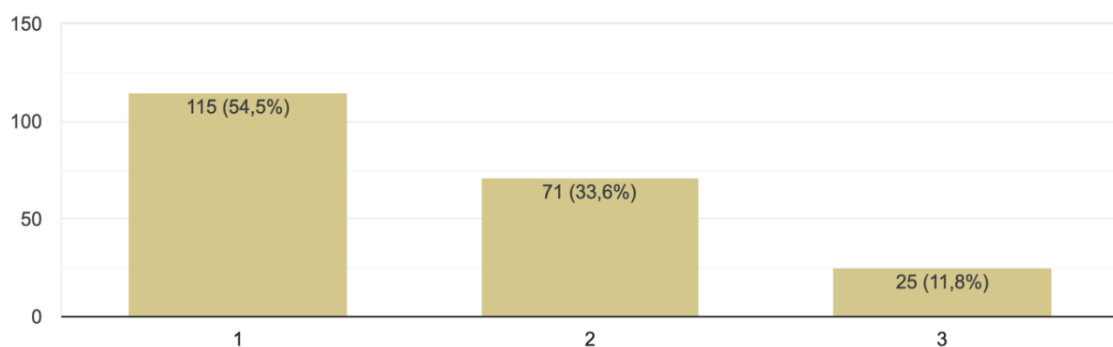
The first thing we want to categorize is the gender of the respondents. In this sample, 211 respondents (59.7% of whom were women) were interested in corporate social responsibility. On the financial success of technology companies in Hanoi. In addition, men accounted for 39.8% and other genders accounted for 0.5%. Hence Therefore, the proportion of women who are interested is greater than that of men and other genders.

Would you please tick (✓) on the scale from ① to ③:

① 25-30 ② 30-35 ③ 35-40

2. Your age from

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The second thing that we are interested in is the age that helps us to most accurately classify the age that is interested in the problem. This age group starts from 25-to 40. This age

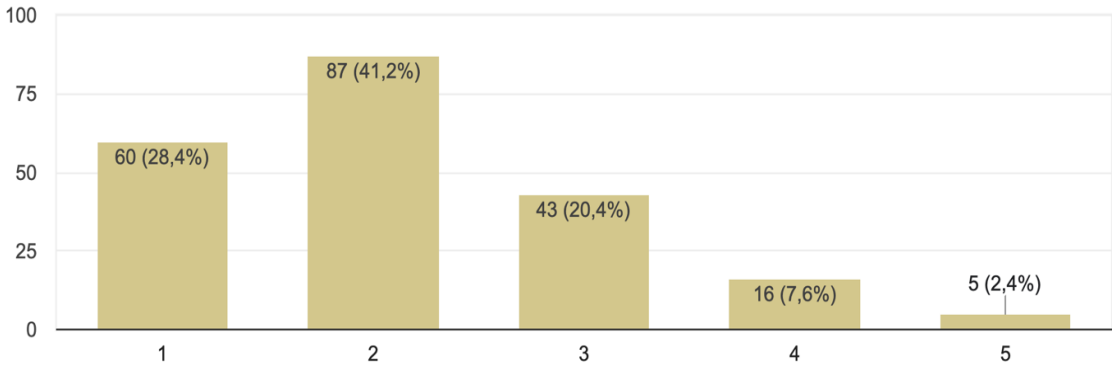
group is usually those who are working or have stable jobs. The first age group is from 25-30 years old. This age group accounts for 54.5% of the family members. The second age group is from 30 to 35 years old, accounting for 33.6% of this age group, which is the stage where job stability has begun. The last group is the age group from 35-40, accounting for 11.8%.

Would you please tick (√) on the scale from ① to ⑤:

- ① Less than 3 years
- ② 3-5 years
- ③ 6-8 years
- ④ More than 8 years
- ⑤ Other

Years in business

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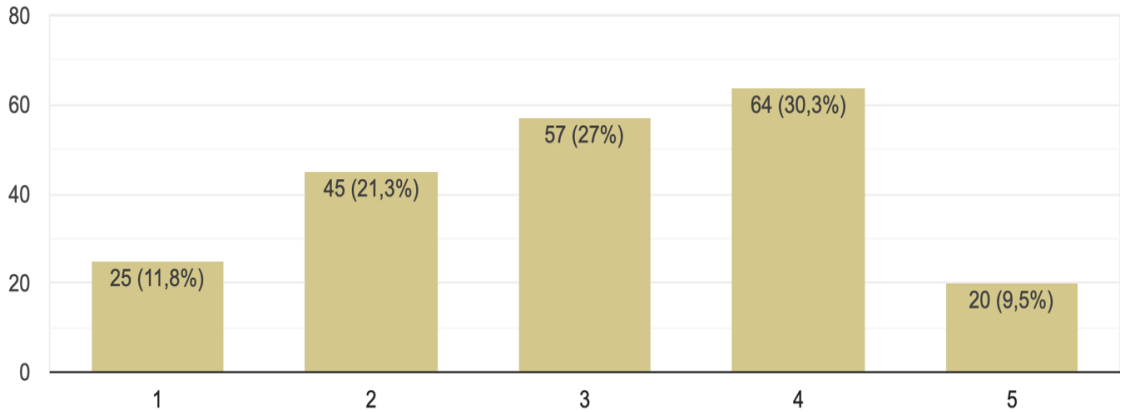
Third, we are interested in the number of years the business has been in operation. The first column is lesser than 3 years, accounting for 28.4%, the second column is from 3-5 years, accounting for 41.2%, the third column is from 6-8 years, accounting for 20.4%, and the 4th column accounts for 7.6% and the 5th column is 2.4%. According to the percentages seen in the columns, we can see that businesses with 3-5 business experience have many workers. Participants wanted to explore how corporate social responsibility affects corporate performance and how that influence varies between domestic and foreign firms.

Would you please tick (√) on the scale from ① to ⑤:

- ① Industrial
- ② Services
- ③ Construction
- ④ Trade
- ⑤ Agriculture

Industry are you working in

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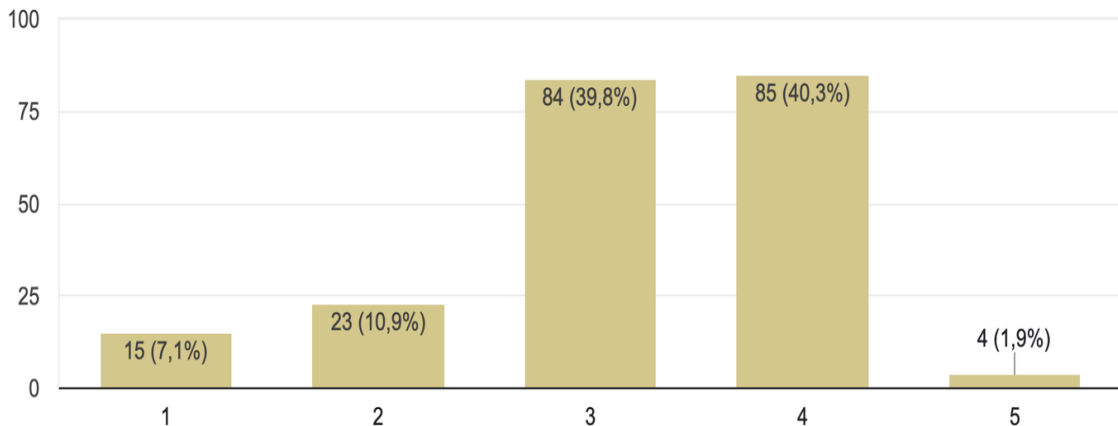
Fourth we are interested you are working in the industry. The five industries that I am interested in are: Industry (11.8%), service (21.3%), construction (27%), Trade (30.3%), Agriculture (9.5%).

Would you please tick (✓) on the scale from ① to ⑤:

① 1-9 ② 10-49 ③ 50-249 ④ 250 or more ⑤ Other

Number of employees

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And finally, I am interested in the number of employees. The number of employees is also divided by the level from low to high. Starting from a small business with only 1-9 employees and gradually increasing to a business with more than 250 employees or many times larger. The ratio of 1-9 employees accounts for 7.1%, 10-49 employees accounted for 10.9%, 50-249 employees accounted for 39.8%, 250 or more accounted for 40.3% and a larger number of employees accounted for 1.9%. Thus, the larger the enterprise, the more employees are concerned about how corporate social responsibility affects the company's operations and how that influence varies between domestic and foreign firms outside.

Through the instructions of the lecturer, the group summarized the model and adjusted the variables that were not suitable for the study. The relationship between the latent variables and the observed variables is determined by the measurement model between the variables, and it also provides insights into the measurable quality of the variables we observe, such as reliability, validity, etc.

Research hypotheses:

Hypothesis	Relationship
H1	CSR has a favorable impact on customer responsibilities.
H2	CSR has a positive relationship with a company's reputation.
H3	Corporate social responsibility is positively correlated with employee commitment SMEs and is expected to be positively correlated.

Variable	Items	Source	Scale
Customer responsibilities	Provide all customers with very highquality service	Fombrun et al. (2000)	Likert scale from 1 is absolutely no to 5 is yes and works very well
	Provide all customers with the information needed to make sound purchasing decisions		
	Satisfy the complaints of all customers about the company's products or services		
	Adapt products or services to enhance the level of customer satisfaction		
Corporate reputation	We are widely acknowledged as a trustworthy organization	Jaworski and Kohli (1993)	Likert scale from 1 is absolutely no to 5 is yes and works very well
	This organisation is known to sell high quality products and services		
	Our employees often go above and beyond their regular responsibilities to ensure theorganisation's well-being		
Employee commitment	The bonds between this organisation and its employees are very strong	Jaworski and Kohli (1993)	Likert scale from 1 is absolutely no to 5 is yes and works very well
	Our people are very committed to this organisation		

Factor	Symbol	Statement	Reference
Customer responsibilities	CRS1	Provide all customers with very highquality service	Fombrun et al. (2000)
	CRS2	Provide all customers with the information needed to make sound purchasing decisions	
	CRS3	Satisfy the complaints of all customers about the company's products or services	
	CRS4	Adapt products or services to enhance the level of customer satisfaction	
Corporate reputation	CR1	We are widely acknowledged as a trustworthy organization	Jaworski and Kohli (1993)
	CR2	This organisation is known to sell high quality products and services	
	CR3	Our employees often go above and beyond their regular responsibilities to ensure theorganisation's well-being	
Employee commitment	EC1	The bonds between this organisation and its employees are very strong	Jaworski and Kohli (1993)
	EC2	Our people are very committed to this organisation	

5. Discussion and Conclusion

After analyzing and evaluating the overview of international and domestic documents related to the research topic, the author can confirm that the studies on CSR are relatively diverse in terms of methods and contents. The author finds that there are very few empirical studies on CSR in technology enterprises that have been carried out; There have not been studies on the impact of CSR implementation on employee commitment, business reputation and customer satisfaction in technology enterprises. These are the research gaps in the theory and practice of CSR implementation in Vietnam.

Through synthesis, analysis of theoretical basis and previous studies, the article has proposed a model of the relationship between CSR for employees and employee's commitment to the organization. This model will be the premise for the author to build a theoretical framework of CSR for technology enterprises and use this theoretical framework to analyze and evaluate the current status of CSR implementation in technology enterprises in Vietnam.

At the same time, the author will actually survey about 211 Vietnamese technology enterprises and analyze the results of descriptive statistics. In future research, the author will test existing theoretical issues, then supplement and create a complete theoretical basis for CSR in the technology industry and test research hypotheses.

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BOARD OF DIRECTORS AND BUSINESS PERFORMANCE: A CASE STUDY IN THE REAL ESTATE AND CONSTRUCTION SECTOR

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Abstract

The objective of the study is to evaluate the impact of the board of directors on business performance in the construction and real estate industries. Using ordinary least squares analysis, random and fixed effects analysis and at the same time performing the model's defects tests, the research results confirm that the board of directors and liquidity has no impact on business performance. However, firm value has a positive effect on business performance whereas capital structure favoring debt is likely to reduce business performance. Finally, the study also discusses managerial implications for the construction and real estate industries.

Keywords: *Board of Directors, capital structure, efficiency, value, liquidity*

1. Introduction

In economic development in each country, businesses are increasingly making important contributions to job creation, productivity improvement and economic growth. To sustain economic growth, enterprises must always maintain business efficiency. When the business remains profitable, the business has the ability to expand and grow, and vice versa.

The construction and real estate industries are considered the main industries in each country. The construction and real estate industries play an important role in infrastructure construction, transport development and meeting housing needs and ultimately improving the quality of life. In Vietnam, the construction and real estate sectors are likely to contribute over 6% to the gross national product. Therefore, businesses in the construction and real estate industries to maintain growth, especially in joint-stock companies, the board of directors in joint-stock companies can express their voice and play an important role in decisions (Fuzi et al., 2016); Hillman & Dalziel, 2003).

Previous studies indicate that capital structure is also assessed to have an influence on business performance (Salim & Yadav, 2012). A business must always balance between equity and debt sources in order to maintain an optimal cost of capital and ultimately improve operational efficiency. Using debt has the ability to help businesses take advantage of tax shields, but conversely, businesses can run the risk of financial distress if the capital structure is too dependent on debt. Therefore, using more or less debt has an impact on the behavior of managers as well as their financial decisions, thereby affecting the performance of the business (Harris & Raviv, 1991; Graham & Harvey, 2000).

The objective of this study is to evaluate the impact of the board of directors on the business performance, especially to study the empirical evidence in the construction and real estate industries. The selected enterprises are large as well as have been listed for many years on the Ho Chi Minh Stock Exchange and the Hanoi Stock Exchange. In addition, the study also evaluates the influence of capital structure choice on business performance. Thereby, the study discusses some managerial implications to improve financial performance of construction and real estate enterprises.

In addition to part 1 explaining the reasons for choosing the research, part 2 discusses the theoretical basis and reviews previous studies. Sections 3 and 4 discuss research methods, data sources and regression results. Finally, the study discusses some governance implications.

2. Literature Review

Previous studies suggested that the characteristics of the board of directors can have an impact on business performance. Fuzi et al. (2016) argued that the board of directors has an important voice to implement for the interests of shareholders. The Board of Directors is established from the executive and non-executive groups in the enterprise with the aim of maximizing the benefits for shareholders. Hillman & Dalziel (2003) argued that the board of directors clearly shows in two functions of operating activities at the request of shareholders and coordinating resources in business activities at the company. In particular, effective supervision has the function of creating incentives for the board of directors.

Merendino & Melville (2019) in the study of board characteristics and business performance in Italy. The authors argued that the board of directors is the representative element of the business and according to the agency theory, indicating that there is a difference in interests between the principal and the agent, which ultimately affects the business value and business performance. Research in Italian companies in the period of 2003 - 2015, Merendino & Melville (2019) suggested that the selected director from minority shareholders has no impact on business performance, while the independent director can have a strong impact on business performance. In addition, small board size has a positive effect on business performance, while companies with large board size do not have this effect because small board size companies are easily managed. Based on the results of this study, the authors believe that Italian companies should orient the selection of independent directors to increase the benefits for the company and the interests of shareholders.

Research by Kanakriyah (2020) at Amman Stock Exchange, Jordan during the period from 2015 to 2019, the author studied based on 85 service and industrial companies. Research suggests that the age of the firm and the qualifications of the board members have a negative impact on business performance. Thereby showing that the old enterprises have lower business efficiency than the young ones, and the enterprises in which the board members have advanced degrees often have low efficiency, which is explained by Jordan's economy that is developing, the opportunity for individuals to start a business is high, so in the early stages of development the leadership class is not highly qualified. Expanding the study, Kanakriyah (2020) also confirmed that the number of board meetings, gender diversity, and board size have a positive impact on business performance, showing that if

the board of directors diversified and operated responsibly, the better business performance will be reached. Similarly, another study in the US, Pearce & Patel (2018) suggested that board stability, board resource provision and CEO influence have a negative impact on corporate performance, in contrast, the independence of the board of directors has no effect on business performance.

Firm-related theories also discuss the influence of capital structure on firms, typically the theory of Modigliani & Miller (1963). Assuming an ideal and tax-free environment, Modigliani & Miller (1958) argued that capital structure has no impact on firm value. However, the trade-off theory has discussed the financial difficulties and costs of firms, as discussed by Kraus & Litzenberger (1973), Jensen & Meckling (1976). The authors argued that there exists an optimal capital structure in which the benefits of the tax shield will best offset the losses from debt. Moreover, Frank et al. (2002) argued that the pecking order theory is also selective in capital structure. Asymmetric information between investors and managers can lead to adverse selection. People know about the real value and risks of enterprises as well as managers, therefore, Myers proposed the pecking order theory to explain the prioritization of capital sources when businesses need to raise capital. Firstly, enterprises prefer internal funding over external sources; second, dividends must be stable over the years; Finally, new businesses seek capital from outside.

3. Method

3.1. Methodology

In this study, the author uses regression analysis of balance panel data to assess the impact of the board of directors on business performance. The study used regression of pooled ordinary least squares (POLS), fixed effects method (FEM) and random effects method (REM). Through the F-test and Hausman test, the study chooses the best regression results. However, regression results according to POLS, FEM or REM often encounter autocorrelation and variable variance, then the feasible least squares method should be applied.

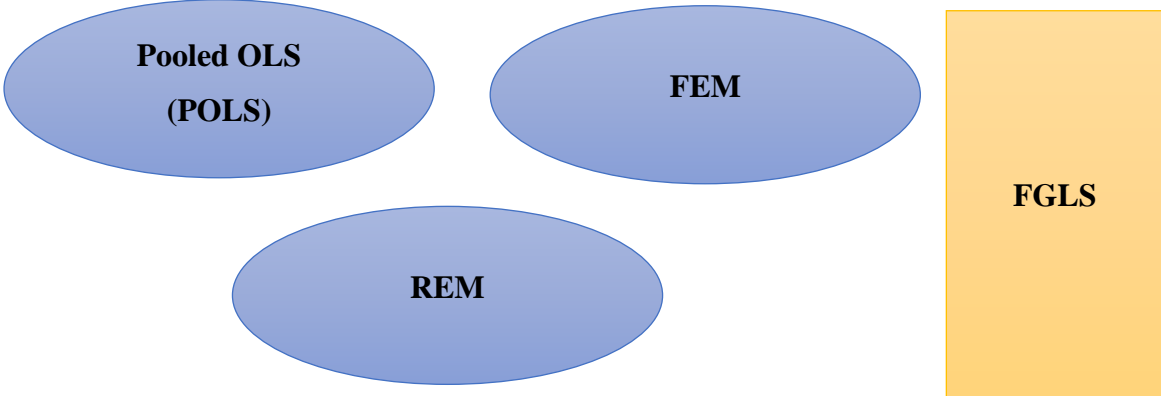


Figure 1. Steps of Analysis

3.2. Data

This study uses data from 52 real estate and construction companies listed on the Vietnamese stock exchange, including on the Ho Chi Minh Stock Exchange and the Hanoi Stock Exchange. The study was carried out over a period of 15 years, from 2006 to 2020.

The enterprises selected in this study are those with large market capitalization, long enough listing period and representative representation. representative for the real estate and construction industry.

3.3. Variables selection

Based on the analysis from previous studies, the selected variables in this research model are presented in the following Table 2:

Table 2. Variables used in the model

Variable	Abbreviation	Calculation	Previous studies
Dependent variable			
Return on total assets	ROA	Profit after tax/total assets	Hillman & Dalziel (2003), Merendino & Melville (2019), Kanakriyah (2020), García Martín & Herrero (2018).
Return on equity	ROE	Profit after tax/Equity	Fuzi et al. (2016), Merendino & Melville (2019), Kanakriyah (2020)
Earnings per share	EPS	(Net income – preferred stock dividend) / Average number of shares in circulation	Kanakriyah (2020)
Independent variables			
Board of Directors	BOARD	Number of board members	Hillman & Dalziel (2003), Merendino & Melville (2019), Kanakriyah (2020),
Firm value	VALUE	Total assets of the business	Graham & Harvey (2000)
Capital structure of the enterprise	LEV	Debt/total equity ratio	Salim & Yadav (2012), Graham & Harvey (2000)
Liquidity	LIQ	Current assets/current liabilities	Nguyen & Nguyen (2020)

Source: Author's compilation

4. Results

4.1. Descriptive Statistics

First, the study performs descriptive statistical analysis of variables to evaluate the data's parameters, including mean, standard deviation, minimum and maximum values, statistical analysis results. described in Table 3 below:

Table 3. Descriptive statistics of variables

Variable	Obs	Mean	Std.	Dev.	Min
ROA	780	3.087623	5.97552	-28.0502	83.9056
ROE	780	7.109202	22.04741	-175.5021	149.071
EPS	780	1424.668	3229.82	-19937	46762.7
BOARD	780	6.158974	4.137602	3	24
VALUE	780	10.56148	.8250055	6.429112	12.95517
LEV	780	.6635128	.1660605	.12	1
LIQ	780	1.018154	1.271214	.01	10.95

Source: Stata 15

Through descriptive statistical analysis, the average ROA and ROE of the construction and real estate industries reached 3.09% and 7.10%, while the average EPS reached 1424 VND/share. However, the business performance of enterprises is quite different, with some enterprises falling into losses, and others having high profits.

Regarding the board meetings, there are enterprises with only 3 times, but there are enterprises with 24 times. The average number of board members is 6.15 times. Regarding capital structure and liquidity, the construction and real estate industry currently uses an average of 66% debt capital and 34% equity capital, the average liquidity is 1.02, representing liquidity of firms is still low.

4.2. Correlation matrix

Correlation analysis aims to eliminate the possibility of multicollinearity of the variables that may occur in the estimated model. The results of the correlation analysis in Table 4 show that the largest correlation coefficient for the independent variables is only 0.4225 (occurs between LEV and ROA), confirming the unlikely possibility of multicollinearity. line.

Table 4. Correlation matrix

	roa	roe	eps	board	value	lev	liq
roa	1.0000						
roe	0.7567	1.0000					
eps	0.5262	0.5569	1.0000				
board	0.1819	0.0636	0.0317	1.0000			
value	0.0393	0.0212	0.1364	-0.0620	1.0000		
lev	-0.4225	-0.1969	-0.1950	-0.2425	0.1380	1.0000	
liq	0.1131	0.0671	0.0837	0.0364	-0.0040	-0.2882	1.0000

Source: Stata 15

4.3. Estimated results

The estimated results to assess the impact of board of directors on corporate performance are shown in Table 5 below:

Table 5. Regression coefficient and estimated P-value of POLS, FEM, REM

Variable	ROA			ROE			EPS		
	POLS	FEM	REM	POLS	FEM	REM	POLS	FEM	REM
BOARD	0.1259	0.0493	0.0728	0.0996	-0.214	-0.1507	-8.3856	2.3369	-5.0752
	0.009	0.394	0.170	0.606	0.318	0.460	0.764	0.943	0.868
VALUE	0.7421	0.0941	0.4024	1.3224	1.6748	1.5643	647.27	411.65	552.01
	0.002	0.807	0.198	0.164	0.242	0.214	0.000	0.061	0.002
LEV	-15.056	-14.525	-14.975	-26.069	-27.800	-27.910	-4157.7	-4745.5	-4667.4
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LIQ	-0.0484	-0.1064	-0.0788	0.1731	-0.712	-0.5239	58.882	-540.53	-310.44
	0.760	0.609	0.671	0.786	0.357	0.468	0.523	0.000	0.004
_cons	4.5134	11.535	8.4055	9.6499	9.9138	10.5691	-2661.0	761.46	-961.22
	0.082	0.004	0.012	0.355	0.509	0.432	0.078	0.000	0.619
Adj R - squared	0.4913			0.5366			0.5658		
Hausman test		3.88 (0.4228)			1.75 (0.7818)			20.60 (0.000)	
F-test (Prob > F)		4.28 (0.000)			7.48 (0.000)			5.10 (0.000)	
Prob.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Source: Stata 15

For the independent variable ROA, according to Hausman test, REM is better than FEM, according to F-test, FEM is better than POLS, so in the end REM is the best. Similarly, for the independent variable ROE, REM is also the best choice. For the independent variable EPS, the final result shows that FEM is the best. However, it shows that both REM or FEM models have autocorrelation and uniform variance, so the regression is performed according to FGLS, as shown in Table 6 below:

Table 6. Regression coefficient and P-value according to FGLS

Variable	Coefficient and P-value	ROA	ROE	EPS
BOARD	Coefficient	0.1259	0.0996	-8.3856
	P-value	0.009	0.605	0.764
VALUE	Coefficient	0.7421	1.3234	647.2754
	P-value	0.002	0.003	0.000
LEV	Coefficient	-15.0569	-26.0696	-4157.76
	P-value	0.000	0.000	0.000
LIQ	Coefficient	-0.0484	0.1731	58.8827
	P-value	0.759	0.785	0.522
_cons	Coefficient	4.5134	9.6499	-2661.093
	P-value	0.081	0.354	0.077
Prob.		0.000	0.000	0.000

Source: Stata 15

The results of Table 6 show that:

The coefficients of variable BOARD (number of board meetings) and the variable LIQ (liquidity) are not statistically significant. Thereby, it can be concluded that the number of board meetings has no impact on business performance in the enterprise. In addition, there is no evidence of the impact of liquidity on business performance.

The firm value (VALUE) has an impact on firm performance. The evidence finds that the regression coefficient has a positive sign, meaning that enterprise value has a positive effect on business performance. A business with higher corporate value will have better business performance, and vice versa.

The capital structure variable (LEV), the regression coefficient LEV has a negative sign and is statistically significant, which means that enterprises using more debt will have lower business efficiency, and vice versa, enterprises with more its equity have higher business efficiency. Through the research results, it can be explained that the construction and real estate enterprises use debt inefficiently, because the construction and real estate industry has a large demand for working capital, while the business situation is not very efficient. Macroeconomics has the ability to affect loan interest rates, if businesses depend on debt financing, they will be more affected by shocks occurring in the financial and monetary market, reducing business efficiency. in the business.

5. Discussion and Conclusion

Research on the impact of the board of directors on business performance in construction and real estate enterprises. Using regression analysis method of balance panel data for the period 2006 - 2020, business performance is measured by return on total assets, return on equity or earnings per share, the research results confirm that: board meetings and liquidity have no impact on business performance in the enterprise. The study finds evidence of a positive effect of firm value on business performance, while firms with a capital structure that favor debt have lower business performance.

Through the research results, some managerial implications are suggested: Firstly, construction and real estate enterprises should seek equity financing in order to limit operational risks and volatility. of macroeconomics on business performance of enterprises. Second, businesses improve their debt management capabilities. When businesses are able to use debt more effectively, it is possible to improve operational efficiency in the business. Third, enterprises in the construction and real estate industries need to implement appropriate business strategies in the short and long term, step by step improve their position, help them develop and grow, and enhance their firm values. When the enterprise value is higher, the enterprise has the advantage in the market and the advantage in the ability to withstand risks in the enterprise, the business efficiency is improved.

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THE IMPACT OF DEVELOPMENT INVESTMENT ON ENTREPRENEURSHIP PERFORMANCE IN GLOBAL VALUE CHAIN

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Abstract

The purpose of the paper is to evaluate the impact of development investment (with two main sectors are fixed asset investment and human resources) on business and production enterprises when they are participating in the global value chain in Vietnam based on corporate investigation department in 2020. This article uses data from the enterprise survey set of the General Statistics Office (GSO) to evaluate the relationship between the impact of investment capital of production and business enterprises with annual export turnover value to the performance of that enterprise through import and export value which is being used as a tool or scale for these firms' participation in global supply chains.

Keywords: *Development investment, Global value chain, Investment*

1. Introduction

Investment is the main activity that determines the development and growth ability of an enterprise. In investment activities, enterprises invest long-term capital in order to form and supplement necessary assets to realize business goals. This activity is carried out centrally through the implementation of investment projects. In order to meet the goal of maximizing the owner's asset value, enterprises need to have a strategy in finding and selecting the right investments. Without new ideas and new investment projects, businesses will not be able to survive and develop, especially in today's fiercely competitive environment. Businesses that want to stand firm in the market require careful market research and appropriate investment activities to increase the competitiveness of their products.

There have been many studies on investment and development activities in enterprises "Investment efficiency and solutions to improve the efficiency of state-owned enterprises' development investment" (Tu Quang Phuong 2003) is one of the first studies in Vietnam in-depth analysis of this problem.

Development investment plays a huge role in deciding the birth, existence and development of enterprises. It includes the following contents: Renewable investment in fixed assets; invest in research and implementation of science and technology; investment in human resource development; additional investment in inventory (current assets); invest in other intangible assets (for example, investment in purchasing copyrights, inventions,

investments in advertising activities...) and investments outside the enterprise. Research in the world considers investments in Enterprises from different angles: In the study “The influence of investment decisions on the performance of companies listed on the Nairobi Kemuma stock exchange (2014) and Grazzi et al. (2013) in the study : Investment dynamics and corporate performance: Comparative evidence from manufacturing industries Comparative evidence from manufacturing industries considers investment as replacing obsolete machinery with equipment state-of-the-art equipment (Enterprise-level investment does not involve annual routine repairs and maintenance). The studies mainly focus on clarifying the impact of investment on the bottom line of the company. Enterprise: Investment affects the results and performance of the business in many aspects, for example productivity and speed growth (Power, 1998; Huggett and Ospina, 2001; Nilsen, 2009; Shima, 2010), employment growth, sales growth and other factors of production (Sakellaris, 2004; Nilsen, 2009).

- Fixed asset investment affects the production and business results of enterprises:

There are many researchers around the world doing research on this topic. Aivaziana et al. (2005), Yuan and Kazuyuki (2008), Omet et al. (2009), Sung et al. (2008), Xiao (2009), Duchin et al (2010), Piris (2010), Umutlu (2010), Geng and N'Diaye (2012), and O'Reilly (2015) have researched and proven that fixed investment is a decisive factor for the solid development and growth of an enterprise. The study "Investment motivation and firm performance: Comparative evidence from manufacturing industries) by Grazzi et al (2013), is an article synthesizes the relationship between investment in tangible assets and the performance of firms in the French and Italian manufacturing industries. Research results show that enterprises with higher investment level, after a period of investment, will be more efficient and grow faster than other businesses. Investing in assets after an extended investment period, for example opening a new factory, will negatively affect profits but positively affect sales and employment: higher sales and higher levels of employment. Then businesses with rapid growth, profitability and high productivity will be more likely to invest. Thus, investment in fixed assets will essentially have a positive effect on corporate performance, and this effect is usually evident in the long term.

- Investment in human resources affects business results of enterprises.

Regarding the composition of costs that are considered investment in human resources, according to Marimuthu (2009); Ukenna et al (2010), human resource investment includes: skills, knowledge, education, experience and expertise of the organization's staff. Therefore, human capital investment should cover all costs incurred in enhancing the knowledge, education, expertise and skills of employees. This can involve salaries, training and development, payments for conferences, conventions, membership fees and registrations...

Enterprise and global value chain

A production and business enterprise not only conducts production and business in the country but also needs to move towards internationalization and this is growing strongly with the participation of enterprises in the global value chain “Using input–output tables from 10 OECD and four emerging market countries we calculate that vertical specialization

accounts for 21% of these countries' exports, and grew almost 30% between 1970 and 1990. We also find that growth in vertical specialization accounts for 30% of the growth in these countries' exports" (Hummel 2001). In some study, the author has shown that global value chain participation is measured by export value "Backward linkages - the share of foreign value-added in total exports of a country; Forward linkages is the domestic value-added embodied in intermediate exports that are further re-exported to third countries, expressed as a ratio of gross exports. (IMF working paper) or through FDI enterprises "GVC participation, mainly through the channel of foreign direct investment (FDI) for developing countries" (conferences paper 2018), "GVC participation, mainly through the channel of foreign direct investment (FDI) for developing countries" (Trung et al 2018). Most studies have emphasized the value added by firms exporting and importing inputs. This is considered as one of the important factors when determining the position of enterprises in the value chain or global production chain as many concepts are mentioned today.

2. Method

The article uses primary data collected from the enterprise census of the General Statistics Office in 2020.

Model variables:

- Development investment variable, including 2 component variables: Investment in fixed assets, Investment in human resources.
- Variable Import-Export results of enterprises
- Control variable: In this study, only the industry variable and specifically all production and business enterprises are used

Research hypotheses:

H1: Development investment has a positive impact on export performance of enterprises

H2: Investment in development has a negative impact on export performance of enterprises.

Estimate model :

$$\text{Export value} = \beta_0 + \beta_1 * fx + \beta_2 * hr + \varepsilon$$

H3: Investment in development has a positive impact on import performance of enterprises.

H4: Investment in development has a negative impact on import performance of enterprises.

$$\text{Import value} = \beta_0 + \beta_1 * fx + \beta_2 * hr + \varepsilon$$

Meanwhile:

Fxt: Fixed asset investment year t

Hrt: Human resource investment year t

This model is only a general model, reflecting the impact of the independent variables on the dependent variable in general, without taking into account the time factor and the purpose to have a view before the covid epidemic occurs. In fact, where is the import-export value of Vietnamese enterprises and that is also a premise for future comparative quantitative studies.

3. Results

Variables used in the model:

lnTrigiaXK: logarithm of export value of enterprise.

lnLD: Logarithm of average number of employees in the year

lnXDCB: Logarithm capital construction investment in the year

lnTSCD: Logarithm fixed asset investment capital of the enterprise during the year

OLS regression result:

```
. reg lnTrigiaXK lnLD lnXDCB lnTSCD
```

Source	SS	df	MS	Number of obs	=	397
Model	1038.50095	3	346.166983	F(3, 393)	=	102.52
Residual	1326.9675	393	3.37650764	Prob > F	=	0.0000
				R-squared	=	0.4390
				Adj R-squared	=	0.4347
Total	2365.46845	396	5.97340518	Root MSE	=	1.8375

lnTrigiaXK	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lnLD	.8302361	.0629632	13.19	0.000	.7064492 .954023
lnXDCB	.1256827	.0484457	2.59	0.010	.0304376 .2209278
lnTSCD	.1446595	.0548273	2.64	0.009	.036868 .2524509
_cons	1.13624	.50715	2.24	0.026	.1391733 2.133306

White test (detects the phenomenon of variable variance)

```
. estat imtest, white
```

White's test for Ho: homoskedasticity
against Ha: unrestricted heteroskedasticity

```
chi2(9) = 35.94
Prob > chi2 = 0.0000
```

Cameron & Trivedi's decomposition of IM-test

Source	chi2	df	p
Heteroskedasticity	35.94	9	0.0000
Skewness	9.02	3	0.0290
Kurtosis	6.31	1	0.0120
Total	51.27	13	0.0000

The results of the White test have $P_value = 0.000 < 0.05$. Therefore, with the significance level of 5%, it can be said that the model for assessing the impact of factors on the export value of enterprises has the phenomenon of variable variance.

To overcome the phenomenon of variance, the author uses the method of Estimation with standard errors or robust standard errors. The estimated results of the model are as follows:

```
. reg lnTrigiaXK lnLD lnXDCB lnTSCD, robust
```

```
Linear regression                Number of obs   =       397
                                F(3, 393)      =       79.48
                                Prob > F            =       0.0000
                                R-squared           =       0.4390
                                Root MSE        =       1.8375
```

lnTrigiaXK	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnLD	.8302361	.098382	8.44	0.000	.6368151	1.023657
lnXDCB	.1256827	.0660759	1.90	0.058	-.0042237	.2555892
lnTSCD	.1446595	.0630829	2.29	0.022	.0206374	.2686816
_cons	1.13624	.5390372	2.11	0.036	.0764826	2.195997

The model estimation results show that the factors Labor and fixed assets have statistical significance at the 5% level of significance ($P_value < 0.05$). Factor XDCB has statistical significance at 10% significance level ($P_value = 0.058 < 0.1$). The regression coefficients have positive values, proving that the factors have a positive impact on the Export Value of the Enterprise.

Example: Coef. Of lnLD = 0.83, reflecting that an increase of 1% in the number of employees of the enterprise will increase the export value of the enterprise by an average of 0.83%.

Factors affecting import

```
. reg lnTrigiaNK lnLD lnXDCB lnTSCD
```

Source	SS	df	MS	Number of obs	=	364
Model	690.203577	3	230.067859	F(3, 360)	=	49.84
Residual	1661.66064	360	4.61572401	Prob > F	=	0.0000
				R-squared	=	0.2935
				Adj R-squared	=	0.2876
Total	2351.86422	363	6.4789648	Root MSE	=	2.1484

lnTrigiaNK	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lnLD	.7339272	.0798529	9.19	0.000	.5768904	.890964
lnXDCB	.1161455	.0598657	1.94	0.053	-.0015849	.2338758
lnTSCD	.1121809	.0659154	1.70	0.090	-.0174467	.2418085
_cons	1.624205	.6289256	2.58	0.010	.3873755	2.861035

White test:

```
. estat imtest, white
```

```
White's test for Ho: homoskedasticity
against Ha: unrestricted heteroskedasticity
```

```
chi2(9) = 11.64
Prob > chi2 = 0.2342
```

```
Cameron & Trivedi's decomposition of IM-test
```

Source	chi2	df	p
Heteroskedasticity	11.64	9	0.2342
Skewness	9.32	3	0.0254
Kurtosis	3.99	1	0.0458
Total	24.95	13	0.0234

The results of the White test have $P_value = 0.2342 > 0.05$. Therefore, with the significance level of 5%, it can be said that the model assessing the impact of factors on the import value of enterprises does not appear the phenomenon of variance, the model's estimation results the above is the best.

4. Discussion and Conclusion

Based on the above test results, we accept hypothesis H1, H3 and reject H2, H4 with statistical significance of P value less than 0.05%. In the field of development investment, in addition to the direct investment items from the stage of construction, procurement of machinery and equipment, it is also necessary to mention the operation stage of investment results. During the operation phase, the factor is considered important and necessary for the long-term development of the business is investment in people. Because people will create long-term and sustainable value for businesses. In addition to manual labor, people also contribute to creativity in the production process of enterprises. With the experimental results from the enterprise survey in 2019 as above, it can be seen that the regression results for all domestic manufacturing enterprises today, the investment in labor as well as spending more annual fixed capital in fixed assets and capital construction are very necessary and one of the decisive factors in increasing the import-export value of enterprises.

As in previous studies, the global value chain is based on import and export value as a measure for enterprises' participation in the supply chain. With the results of this empirical study, the authors find that the development investment of each enterprise plays a very important role, especially capital and labor factors. To be able to quickly join and increase their participation in the global value chain, it is imperative for businesses to improve their value in the upstream position (Ana Fernandes 2020). As the investment capital increases every year, it means that the business turns around and reinvests and there will be an opportunity to increase the depth of investment for its business. In addition, labor will also contribute a large part to adding value in import and export and improving overall productivity for businesses. Vietnam is considered as one of the countries with abundant labor resources, the available workers are very suitable for company expansion from multinational corporations (companies with FDI capital or the parent company are in need. market expansion).

In summary, it cannot be denied the importance of development investment in each business and its contribution to the economy of each country. With the market open and Vietnam increasingly participating in international markets, standing on a free trade playing field like today, participating in the supply chain as well as improving its position is also one of the important tasks. With the above regression results, it is again confirmed that the trade value of Vietnam is assessed through the annual import and export value which depends and is heavily influenced by capital and labor factors.

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THE IMPACT OF CORPORATE SOCIAL RESPONSIBILITIES ON CUSTOMER ATTITUDE WITH CUSTOMER PERCEIVED VALUE AS MEDIATING VARIABLE

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Abstract

Research(es) on Corporate Social Responsibility (CSR) towards consumer purchasing behavior have received a lot of attention in recent years. However, the research on the impact of CSR on customer attitudes towards enterprises is quite meager. This study proposes and tests a model in which CSR is an independent variable, customer attitude is a dependent variable and perceived value is an intermediate variable. The data in this study is collected through the testing of the previously stated model with a sample of 337 random customers in the northern regions of Vietnam and the reviewing of 3 case studies about 3 businesses implementing CSR. The results of the research indicated that most Corporate Social Responsibility types positively influence the Vietnamese customers' attitudes, with the only exception being philanthropic CSR. Furthermore, the study revealed that CSR and customers' perceived value shares a positive relation and vice versa. Demographic factors such as gender and income do not affect consumers' perception of firms that commit CSR activities, however, the age and the field of occupation of a consumer does. The implications of the study are discussed, and this paper also provides recommendations for future research.

Keywords: *Corporate Social Responsibilities (CSR), customers' perceived value, customers attitude, demographic factors*

1. Introduction

1.1. Rationale of the study

The concept of Corporate Social Responsibility has had a long history of development, dating back to the second half of the 1800s. It initially started as a way for organizations to share their concerns about the welfare of workers during the boom of the industrial era. Over the years, the concept gradually matured into what we now know as the modern-day Corporate Social Responsibility, a collection of economic, legal, ethical, environmental, philanthropic responsibilities that businesses must uphold to better society (Thomas Insights, 2019).

Though CSR is extremely prevalent in the world, the term is still not well known in Vietnam. As far as the research team can understand, a lot of research concerning CSR activities in Vietnam tends to only focus on the exploration of the effects of CSR on customer loyalty or customer satisfaction, and not on the direct influence of CSR on the consumers' attitude to the firm or their products. Therefore, the author team of this research wishes to conduct this study to find out how CSR activities can directly affect consumers' attitudes toward companies that engage in CSR. This study also explores the effects of customers' perceived values (a mediating variable), and the effect of demographic factors, both of which also have an indirect influence on consumers' attitudes.

This research paper will review the theoretical background of CSR, customers' perceived values, demographic factors, and customers' attitudes to develop hypotheses. For research methodology, the research will use a mixed method, combining both qualitative and quantitative research methods. Empirical results will be presented and discussed along with other data gathered from case studies and in-depth interviews. Lastly, the paper will present a discussion of the research findings and some implications.

1.2. Theoretical backgrounds and hypotheses

1.2.1. Corporate Social Responsibilities

The responsibilities of corporates to society

Corporate social responsibility (CSR) is a popular research topic in the field of economic sciences, best described as the commitments of corporates to promote economic growth, contribute to the building of a better society, and maintain ethical standards in business (Le Minh Truong, 2021).

As mentioned previously, CSR is a collection of many different types of responsibilities. Research done by the Jaume I University (2020) revealed that the four common types of responsibilities in CSR include: economic, legal, philanthropic, and ethical responsibilities (Roig, Sánchez-García, Tena-Monferrer and Fiol, 2020). However, the study has failed to mention an equally important type of responsibility which is environmental responsibility.

Economic responsibilities

Economic responsibility (in CSR) is a combination of many different factors, economic CSR aims to create a balance between economic activities and social activities (such as environmental protection, charity, and ethical business).

Environmental responsibilities

Environmental corporate social responsibility (or ECSR) is best understood as actions taken by firms to reduce the impact of their business (or production) activities on the environment (NI BUSINESS INFO, n.d.), this means that besides exploiting resources to carry out production, businesses also must protect and restore the natural resources that they used (Anna Zelazna, Matylda Bojar, Ewa Bojar, 2020).

Legal responsibilities

Like all other activities, CSR activities must comply with the law as well (Barbara Bean Mellinger, 2018). Research by Roig, Juan & Sánchez-García, Javier & Tena-Monferrer, Sandra

& Callarisa Fiol, Luis (2020) supports the notion that CSR is subject to the laws and established rules in the area of a firm's operations. Only through the law can we achieve fairness for everyone further contributing to the stability and development of society (Toppr, n.d.).

Philanthropic responsibilities

Philanthropic responsibility is not an obligation, but a voluntary act, and businesses can organize the number of charitable activities how they see fit (Mai Nguyen Hoang Nam, 2021). Businesses can contribute either indirectly through charities (of national or international level charity organization) or donate directly to the needy through their own charity foundations, though the latter method is often met with much more rigorous regulations (Hai Yen, 2021).

Ethical responsibilities

Thieu Linh, a writer of *The Conversation on Vietnam Development* (2017) considers ethical responsibility as an extended concept of the previously mentioned concept of ethics, though applied to businesses. To have ethical responsibility (or business ethics) is to know what is right or wrong in the workplace and thereby one strives to do the right thing (Thieu Linh, 2017).

Customers' perceived value

In 1991, Sheth, Newman & Gross studied the concept of perceived value and concluded that it includes the five following components: functional value, intellectual value, social value, emotional value, and conditioned value. Their test results reveal that these 5 components are also the factors affecting the consumer's decision to purchase goods or services (Sheth, Newman & Gross, 1991).

1.2.2. Customer attitude

Solomon (2004) defines attitude as "a general, long-term evaluation of people (including themselves), objects or phenomena" (Solomon, 2004). A dive into the literature revealed that consumers' attitudes - and subsequently their purchasing behavior - are positively affected when they perceive that a business operates in a socially responsible manner (Pomering and Dolnicar, 2009), this means that companies with good social responsibility practices are more likely to resist boycotts (Cruz, 2017).

1.2.3. Demographic factors

This study will examine the influence of gender, income, and age on attitudes towards businesses implementing social responsibility.

1.2.4. Developing hypotheses

H1.1: There is a relationship between economic responsibility and consumer attitudes toward businesses.

H1.2: There is a positive relationship between environmental responsibility and the attitude of consumers to businesses.

H1.3: There is a positive relationship between legal responsibility and the attitude of consumers to businesses.

H1.4: There is a positive relationship between philanthropic responsibility and the attitude of consumers to businesses.

H1.5: There is a positive relationship between ethical responsibility and the attitude of consumers to businesses.

H2.1: Economic responsibility has a positive effect on the perceived value of a customer.

H2.2: Environmental responsibility positively affects the perceived value of a customer.

H2.3: Legal responsibility has a positive effect on the perceived value of customers.

H2.4: Philanthropic responsibility has a positive effect on the perceived value of a customer.

H2.5: Ethical responsibility positively affects the perceived value of customers.

H3: There is a relationship between perceived value and customers' attitudes towards enterprises that implement CSR.

1.3. Research model

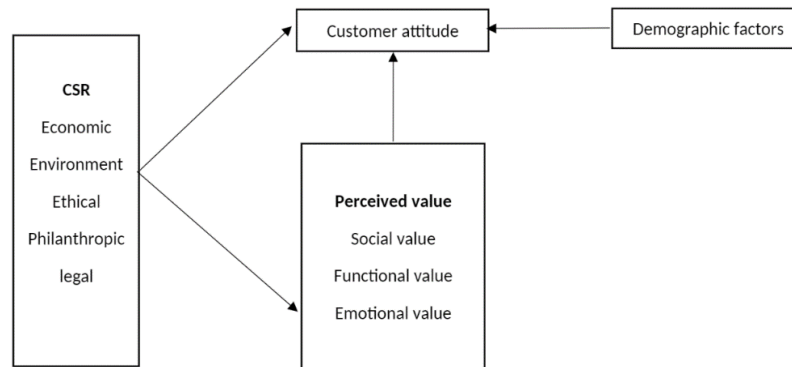


Figure 1. Research framework

Source: developed by author

2. Method

2.1. Research approach

This study was conducted using a mixed methodology: both qualitative and quantitative methods were conducted. The quantitative research was conducted through the use of questionnaires to evaluate the five types of CSR, customers' perceived value and their attitude toward the enterprises. The qualitative research uses the case study method - a method well suited for exploring and discovering concepts, finding similarities, trends, and the nature of socio-economic phenomena (Yin, 1994), the team also conducted in-depth interviews to enhance the richness of the information of the research.

2.2. Variables and measurements

The variable "Environmental responsibilities" is measured through questions regarding firms' activities related to environmental protection such as recycling waste, investing in energy conservation, producing environmentally friendly products, and setting up wastewater treatment plants as reported by Sandhu & Kapoor (2010). Meanwhile, the scale for the four remaining variables is referenced by Carroll & Shabana (2010).

In reference to the "perceived value" variable, specific questions were used in the questionnaire to measure the 3 values related to variable. Those values being the price and quality of the product, the value that the product brings to the customers, and their feelings when using the product as discussed in the Woo and Kim's report (2019).

Lastly, "Customer attitudes" is also measured on the basis of the scale provided by Shih and Fang's (2004) as a measurement of how customer attitudes towards the corporate and their level of support for the corporate social responsibility

Respondents were asked questions about the results of innovation and business results and scored on a five-point Likert scale, from 1 to 5 where 1 = totally disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = totally agree.

2.3. Sampling and Data collection

Data collecting target: The focus was on customer groups in Hanoi of Vietnam with different age groups as well as incomes, occupations, and genders.

According to Tleam, an organization specializing in statistics, the number of observed samples must be 5 times more than the total number of questions in the survey (variable). Our study has 46 variables, meaning our sample must be at least 230. Our research team has collected a total of 485 responses from the survey with 337 responses having valid answers, accounting for 69.4% of the total responses collected.

2.4. Data analysis

The Statistical Package for Social Science (SPSS) 25 was used to support the analysis. The research team decided to perform an Exploratory Factor Analysis (EFA), and Confirmatory Factor Analysis (CFA), followed by a SEM linear structural model to analyze the causal relationship between the concepts and measure their relationships. To test the influence of demographic variables on customer attitudes toward enterprises, the research team decided to perform a One-way Analysis of Variance (One-way ANOVA).

3. Results

3.1. Sample characteristics

Table 1. Sample structure

Characteristics	Quantity	Ratio (%)	Characteristics	Quantity	Ratio (%)		
Gender	Male	131	38.7	Income	0 - <5 mil VND	167	49.6
	Female	192	57.1		5 - <10 mil VND	26	7.7
	Other	14	4.2		10 - <20 mil VND	105	31.2
Age	<30	207	61.6		20 - <30 mil VND	16	4.7
	30 - 39	42	12.5		≥30 mil VND	23	6.8
	40 - 49	58	17.3	Know enterprises interested in CSR	Yes	177	52.5
	≥50	30	8.6		No	160	47.5
Occupation	Student	178	53.0	Ever used/purchased product of businesses/brands implementing CSR	Never	149	44.2
	Worker	38	11.3		Used to	188	55.8
	Office worker	44	13.1	Pay attention to corporate social responsibility	Yes	245	72.7
	Freelancer	52	15.2		No	92	27.3
	Other	25	7.4				
Have you known of the term CSR before	No	167	49.5				
	Yes	170	50.5				

The characteristics of the sample (Table 1) indicate that a large number of people are under the age of 30 (accounting for 61.6%). This is consistent with income ratios as well as occupations. There are 50.5% have known the term CSR before, 52.5% know of enterprises interested in CSR, 55.8% have used products/services of enterprises implementing CSR and 72.7% answered that it is important to pay attention to CSR.

3.2. Exploratory Factor Analysis (EFA) and Reliability of measurement scales

The results of EFA analysis indicate that, the coefficient KMO = 0.881 > 0.5 and Sig (Barlett test) = 0.000 < 0.05, showing that the EFA analysis is appropriate.

Table 2. Factor Loading of the Scale

Concepts and observed variables	Factor Loading
Ethical responsibilities (TN)	
TN1. Conduct all business activities in accordance with ethical and social standards.	0.594
TN2. Ensure that respect for ethical principles takes precedence over economic efficiency.	0.868
TN3. Avoid and prevent unethical behavior to achieve business goals.	0.565
TN4. Commitment and effort to take the lead in implementing clear ethical principles.	0.721
Legal responsibilities (PL)	
PL1. Comply with local regulations and state laws.	0.863
PL2. Ensure that their employees comply with legal requirements.	0.666
PL3. Do not ignore the legal obligations on the contract under the state regulations.	0.677
PL4. Avoid circumventing the law even if it improves business performance.	0.582
Environmental responsibilities (EV)	
EV1. Enterprise carry out recycling of pollutants and waste.	0.663
EV2. Enterprise invests in energy conservation.	0.824
EV3. Enterprise manufactures environmentally friendly products.	0.719
EV4. Enterprise sets up wastewater treatment plants.	0.640
Economic responsibilities (CE)	
CE1. Enterprise focuses on maximizing profits.	0.703
CE2. Enterprise develops in a sustainable direction.	0.731
CE3. Enterprise has a superior competitive position.	0.709
CE4. Enterprise looks for a profitable business.	0.656
Philanthropic responsibilities (ND)	
ND1. Support the cultural and artistic activities of the local community.	0.653
ND2. Participate in charitable activities, manage social works in the place where they live.	0.671
ND3. Contributing to society, not simply making a profit.	0.740
ND4. Support to improve quality of life in local communities.	0.753
Emotional value (CX)	
CX1. I love buying products from these enterprises.	0.795
CX2. I feel comfortable and satisfied after using the products/services of enterprises implementing CSR.	0.723
CX3. Using the products/services of these enterprises makes me feel insecure.	0.809
Social value (CV)	
CV1. Buying products from enterprises that implement CSR helps me have a good image in the eyes of others.	0.529
CV2. The product/service of this enterprise improves my quality of life.	0.824
CV3. Using the product/service of this enterprise helps me gain acceptance from others and society.	0.730
Functional value (BV)	
BV1. Products from these enterprises are reasonably priced.	0.745
BV2. Products of enterprises that implement CSR are well-made to minimize negative impacts on society.	0.799
BV3. Standard levels of these products are acceptable.	0.686
Customers attitude (TD)	
TD1. I have a positive attitude towards enterprises that implement good CSR.	0.677
TD2. I prefer to use products/services of enterprises implementing CSR.	0.735
TD3. I support enterprises that implement CSR because their activities help the community.	0.630
TD4. Experiencing CSR activities of the enterprise makes me feel that I am indirectly contributing good values to society.	0.618

Table 2 shows that the variables in the research model are extracted into 9 factors with total variance explained of 68.255% > 50%. The factor loading of the measured variables are all greater than 0.5 thus all variables have convergent values.

3.3. Confirmatory Factor Analysis (CFA)

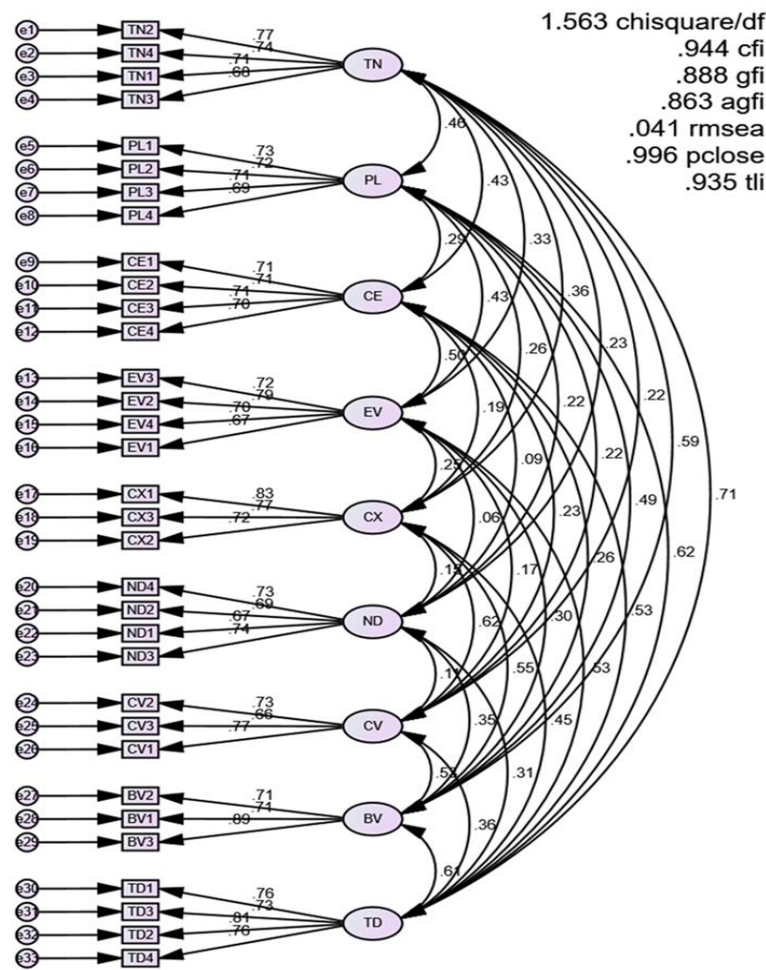


Figure 2. Critical CFA model (normalized)

The critical CFA model is used to evaluate all the concepts in the model. The results showed that this model was suitable for the market data (Chi-Square/DF = 1.563 <5; GFI = 0.888 <0.9; TLI = 0.935 > 0.9; CFI = 0.944 > 0.9 and RMSEA = 0.041 <0.08) (Kettinger and Lee, 1995). The standardized weights of the observation variables fluctuated from 0.656 - 0.893 which are all satisfactory (greater than 0.5) and the unstandardized coefficients have statistical significance (P = 0.00) with 95% reliability, so the observed variables used to measure concepts have convergent validity. In addition, the correlation coefficient of each pair of concepts is different from 1 with statistical significance, so the components achieve discriminant validity (Figure 2).

The reliability and variance explained results of the concepts show that the Cronbach's alpha reliability and the combined reliability of the components are greater than 0.6 and the variance explained is greater than 0.5 thus the scales are highly reliable.

3.4. Test Theoretical Model by SEM

Results of the theoretical model analysis (SEM) as shown in figure 3 have a P-value of 0,00 (< 0,05). These results are all suitable for the market data (Chi-square/df < 5; GFI < 0.9; CFI, TLI > 0.9, RMSEA < 0.8).

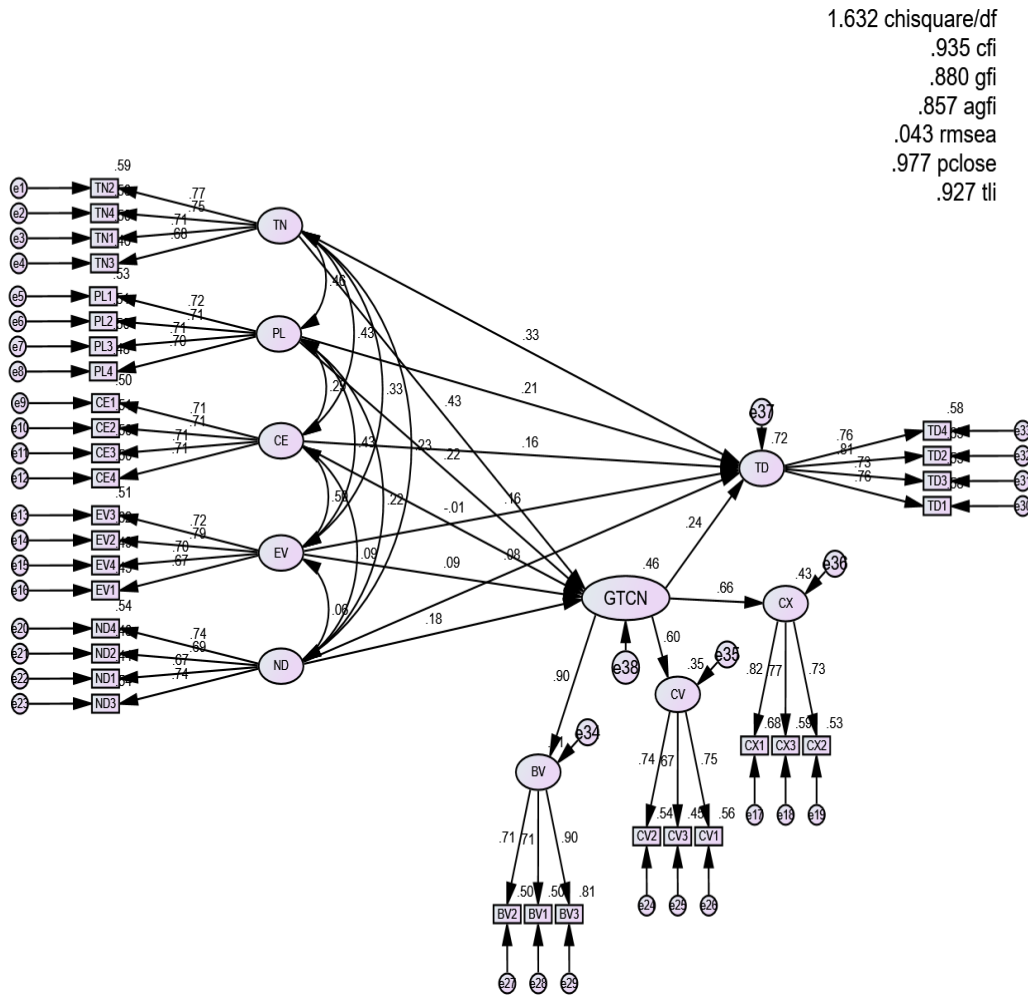


Figure 3. Results of theoretical model analysis SEM (standardized)

The estimated results of the main parameters of the model presented in Table 3 have revealed that the impact of philanthropic responsibilities to consumers attitude on enterprise has no statistical significance ($P = 0.098 > 0.05$ with significance $\alpha = 5\%$). Similarly, the impact of economic responsibilities and environmental responsibilities on the perceived value is not statistically significant with P value respectively equal to 0.868 and 0.23. The remaining relationships in the model are statistically significant with significance $\alpha = 5\%$. Therefore, hypotheses H1.1, H1.2, H1.3, H1.5, H2.3, H2.4, H2.5, and H3 are accepted.

Table 3. Regular regression coefficient of relationships in theoretical model

Hypothesis	Relationship	Estimate	Standardized Estimate	SE	CR	P-value
H1.1	Economic responsibilities -> Customers attitude	0.178	0.164	0.065	2.761	0.006
H1.2	Environmental responsibilities -> Customers attitude	0.194	0.161	0.072	2.704	0.007
H1.3	Legal responsibilities -> Customers attitude	0.262	0.211	0.076	3.445	0.000
H1.5	Ethical responsibilities -> Customers attitude	0.322	0.327	0.069	4.669	0.000
H2.3	Legal responsibilities -> Perceived value	0.146	0.221	0.053	2.739	0.006
H2.4	Philanthropic responsibilities -> Perceived value	0.113	0.184	0.04	2.8	0.005
H2.5	Ethical responsibilities -> Perceived value	0.225	0.429	0.048	4.631	0.000
H3	Perceived value -> Customers attitude	0.448	0.239	0.142	3.167	0.002

4. Discussion and Conclusion

4.1. Discussion

This study was conducted in order to support businesses with insights into the impact of CSR on customer attitudes.

The results show that corporate social responsibility is considered in five aspects (economic, environmental, ethical, legal, and philanthropic), in which economic, environmental, legal, and ethical responsibilities have a direct influence on customer attitudes. This result is consistent with the study of Van Doorn et al. (2017) which found that perceived CSR has an impact on customer attitude when considering brand success indicators. In addition, perceived value also directly affects customer attitudes, this is consistent with results of previous studies such as that of Woo and Kim (2019) which has tested and concluded that all substructures of green perceived value (i.e., functional value, conditional value, social value, and emotional value) is significant and has a positive effect on consumer attitudes towards green food product purchase. Finally, when considering the effects of gender and income level to the attitude of customers, the research team found no considerable differences in the relationship of these variables with customer attitude. On the other hand, when looking at age and occupation, we found a difference between the target groups. Students, office workers, freelancers, workers, and other occupations seem to have different attitudes along with different levels of awareness towards enterprises implementing CSR.

This study also shows that CSR and perceived value are related. Legal, philanthropic, and ethical responsibilities of a business all have a positive effect on perceived value. Once again, this result is relatively consistent with the study done by Green and Peloza (2011) which stated that corporate social responsibility includes charitable responsibility and responsibility for related products that affect perceived value (functional value, social value, and emotional value) in a good sense. At the same time, it is also reasonable to compare our results to the study conducted by Mohammed et al (2019) which affirmed that CSR activities are considered as a significant predictor of customer perceived value and level of customer interact on social networks.

4.2. Recommendations for businesses and policymakers

Currently, the implementation of social responsibility activities has received increasing attention from enterprises as the implementation of CSR can improve the efficiency of their business operations. However, it is worth noting that the implementation of CSR may not lead to positive business performance since the customers may not immediately recognize the importance of CSR and the benefits it provides. Thusly, the study of factors affecting customers' awareness and attitude towards CSR has an important role in both theory and (business) practice to improve customers' awareness and attitude towards CSR activities.

This study suggests that each enterprise should have a specialized department in charge of issues related to social responsibility. The role of this department is to work with the corporate governance board to determine issues such as: corporate vision on CSR activities, analysis of factors related to and affecting social responsibility. Furthermore,

enterprises should incorporate CSR into their set of standards of operations, thereby demonstrating the benefits of CSR activities to the community through their operations. The authors recommends that businesses should approach a number of specialized CSR standards systems that already exist and have international value such as SMETA, RBA, BSCI, etc. Enterprises should also implement policies to disseminate CSR right from within the enterprise, along with implementing policies towards popularizing CSR to customers through various means of marketing and communication, however, firms should be careful to not make CSR look too commercial.

The role of the government is also vital as it is considered as the main driver of CSR activities. In general, Vietnam's legal system has been developed with more detailed regulations for the fields of environmental protection over the years, however, these regulations have not yet been effective, and the responsibilities of the authorities are still vague (Nguyen Dinh Tai, 2010). In addition, there is a need for more attention of the government and social organizations in creating a legal corridor and a code of conduct to ensure that the implementation of CSR is necessary; the government should continue to develop more policies to improve people's quality of life, thereby promoting people's attention to the common interests of society and indirectly promoting people's attention to CSR.

4.3. Conclusion

This study explores customer groups in the Northern regions of Vietnam. The research results show that 4 out of 5 types of CSR responsibility: economic (CE), legal (PL), environmental (EV), and ethical responsibilities (TN) all have a positive influence on consumer attitude (TD) in the North of Vietnam. In which, ethical responsibilities have the most profound influence on consumer attitude (with Standardized Estimate = 0.327), while environmental responsibilities have the least influence (with Standardized Estimate = 0.161). In addition, the results of the study also indicate that the positive relation between re-perceived value and consumer attitude about enterprises implementing CSR is quite significant (with Standardized Estimate = 0.239). Through the process of research and field survey, the scientific research project has achieved the set goal of studying the impact of social responsibility activities on customer attitudes. The following outcomes have been achieved:

1. Conducted substantial literature review related to perceived value and impact of CSR on customer attitude.
2. Organized a theoretical basis, and some theoretical models related to customer's attitude towards enterprises implementing CSR.
3. Established a theoretical framework, a research model, and developed several research hypotheses on the relationship between the factors affecting customer attitude towards enterprises implementing CSR.
4. Researched the impact of social responsibility activities on customer attitudes and evaluated the influence of perceived value factors on consumer attitude.
5. Based on the results of this study, the research team have conducted extra case studies involving three enterprises and have proposed some recommendations for businesses and policy makers which would help these associated parties have a deeper understanding

of the impact of CSR on customer attitudes, therefore helping both firms and policymakers being able to better understand customer psychology, and better identify potential customer segments through perceived value and demographic factors.

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IMPACTS OF CORPORATE SOCIAL RESPONSIBILITY ON EMPLOYEE OUTCOMES IN COMMERCIAL BANK: PROPOSAL RESEARCH

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Abstract

The aim of this research was to see how corporate social responsibility affected employee outcomes. Businesses say that workers have a range of job expectations (developmental and ideological) and that CSR is a useful instrument for addressing these demands. Businesses have also observed that addressing employees' ideological and developmental employment expectations results in beneficial employee outcomes, such as work satisfaction and intention to reduce turnover. Finally, companies find that having a tight relationship with CSR improves CSR's positive impact on employee outcomes. This research uncovers substantial differences in employee demand for CSR and gives fresh light on the underlying processes that relate CSR to employee outcomes.

Keywords: *Employees outcomes, corporates social responsibility (CSR)*

1. Introduction

Businesses throughout the world are increasingly turning to CSR to acquire a competitive edge and achieve long-term and short-term success.

Employee morale and turnover are two of the most important methods for CSR to add value to a company (Bonini et al. 2009). Employees that are competent, skilled, and motivated are vital to an organization's long-term success.

As a consequence, understanding how and why employees react to CSR may aid firms in developing and managing CSR programs that meet employee demands while also optimizing profits. Employee reactions to CSR have been studied, and it has been found that it has a positive impact on a variety of employee outcomes, employee perceptions, organizational commitment, employee job satisfaction, and business commitment (Brammer et al. 2007). (2007, Brammer et al.) Bhattacharya et al. (2008) and Bhattacharya et al. (2011) are two papers by Bhattacharya et al.

Second, this study contributes to our knowledge of the processes that relate corporate social responsibility to employee outcomes. We show that in the CSR—employee outcome links, both developmental and ideological needs fulfillment play a role in mediation. Finally, active workers' awareness of their companies' CSR is a powerful lever that may strengthen or decrease the links between CSR, employee ideological and developmental job expectations, and employee results. This emphasizes the importance of organizations wanting higher employee-related advantages from CSR to actively incorporate internal customers in their CSR efforts.

2. Method

Previous researchers have shown that the relationship between CSR awareness has a positive impact on employee outcomes. They point out the urgency in properly and fully understanding the role of corporate social responsibility in enhancing competitiveness and sustainable development of enterprises. One of the key factors determining the success of businesses is understanding employees, motivating them to make decisions that make employees happier and more loyal. CSR is one of the factors, not only help promote the intention to meet the working needs of employees, but also help businesses increase employee satisfaction and loyalty. The study also points out the need to further study this relationship by uncovering mediating or regulatory factors through which to help scholars and managers have a better view of the relationship. this relationship.

There have been many scholars both at home and abroad taking time and effort to study these factors. For example, David's research shows that CSR affects employee outcomes through the intermediary variable of meeting development needs and meeting ideological needs. This helps businesses have a suitable approach to building and developing their CSR programs that are able to meet the needs of employees and maximize business profits.

Employee perceptions of and participation in their organization's CSR activities, or CSR can strengthen or weaken the relationship between the organization's CSR, employee fulfillments, ideologicals job demands, and employee development and outcomes (i.e. job satisfaction and intention to change) produce outcomes. Positive employee-related results, such as higher work satisfaction and a lower desire to leave the company.

CSR has a direct influence on employee outcomes, according to research, thanks to two mediating variables: addressing development requirements and meeting ideological needs. In general, the research looked at a wide range of businesses and industries.

Employee outcomes studies also show that employees are heterogeneous about their multifaceted job needs. Therefore, in order to contribute to corporate CSR-related knowledge, this study focuses on answering the following questions:

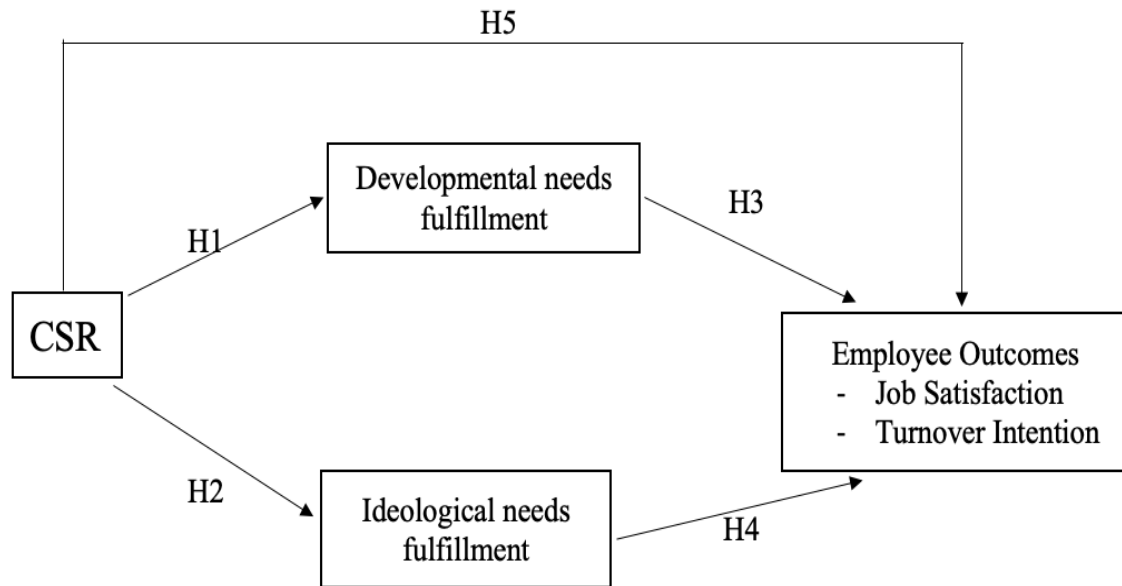
First, to what extent does CSR affect employee outcomes?

Second, CSR impacts on developmental needs fulfillment

Third, CSR impacts on ideological needs fulfillment

Fourth, how does the satisfaction of developmental and ideological requirements effect employee performance?

Below is the research model to easily see the relationships of the variables:



3. Proposal research

3.1. Corporate social responsibility (CSR)

Corporate social responsibility is a topic that has received the attention of managers and scholars in recent years because of its importance to businesses, in the context of fierce competition and the development of social media, current association. Therefore, up to now, the concept of social responsibility has not been unified among scholars and there are many different definitions.

For many years prior to the 1950s, corporate social responsibility (CSR) was referred to as social responsibility (SR). This might be due to the fact that there isn't a lot of agreement on the idea. Bowen's seminal work "Social Responsibilities of the Businessman" was released in 1953, marking the start of the subject's contemporary era. Bowen's study of CSR was based on the notion that hundreds of the world's most powerful entrepreneurs were the centers of power and significant decision-making at the time, and that their activities affected the lives of many businesses in a number of ways.

Frederick (1960) asserted that there are three core ideas in CSR:

- (1) activities of business managers as influencers in the interests of the community,
- (2) the idea of balancing the company's resources and
- (3) accept charity as an expression of business support for good causes.

By 1971, the Association for Committed to Economic Development (CED) promoted CSR and required businesses to assume a broader responsibility for society and serve more human values and obligations to society groups in society beyond shareholders and beyond the scope of the law (Jones, 1980).

In 1991, Carroll described economic responsibility as the expectation that a business will maximize profits for its shareholders and legal responsibility as a requirement for businesses to comply with the provisions of the law. Ethical responsibility means that a business must do what is ethically and ethically expected. Charity responsibility means that a business should have a charitable program to society. Agreeing, Lantos (2001) explains that CSR can become a strategy when it is part of a company's management plan to generate profits, which means that the company will engage in activities considered a social responsibility if it brings financial benefits to the company.

CSR is defined by the European Commission (2011, p.3) as "a voluntary concept in which enterprises incorporate social and environmental considerations in their commercial operations and relationships." CSR is a process in which businesses incorporate social, environmental, and ethical problems into their commercial operations and plans in close collaboration with stakeholders, extending beyond legal obligations and collective bargaining agreements.

3.2. Ideological needs fulfillment

The multiplicity of ways to use the term "ideology" is often acknowledged, if not bemoaned, in sociological debates of ideology (Eagleton 1991). Later Marxists frequently used it to denote conspiratorial ideational wool pulled over the eyes of the masses; political scientists use it to denote packages of positions, often believed to be unifiable in a single preferred optimal state; and, of course, many of us use it to denote the beliefs, attitudes, and opinions of those with whom we disagree.

Our nominalist epistemology, which assumes that broad theoretical concepts must be produced by the analyst and are heuristic devices employed to varying degrees of effectiveness in specific analyses, is a common response in sociology to these challenges. As a result, we presume that each investigator is essentially free to define his or her words as he or she sees fit, and the worst we can say about a given case is that the definitions were ineffective.

3.3. Developmental needs fulfillment

Individual needs should represent what people require to live and survive as humans. Human dispositions such as desires and drives are grounded in needs, and their definition can be based on individual opinion on the one hand and expert judgments on the other. The satisfaction of wants is necessary for a high quality of life and social well-being. If wants are not met, a sense of scarcity or deficit develops, which has severe effects for both individuals and society. Needs may have an important role in social development.

3.4. Employee Outcomes

It seems to reason that excellent human resource management might lead to a number of positive employee outcomes. Commitment to the organization, confidence in management, higher levels of collaboration, higher levels of effort and engagement, and a lesser likelihood of employees leaving the company are all possible results.

These beneficial results for the company's employees should result in improved operational and financial success. Operational performance refers to any type of

performance that stems from a company's operations, such as good quality or increased customer happiness. Profit or revenue growth are examples of financial performance measurements drawn straight from a company's financial statements.

Is it true that HR procedures result in favorable employee outcomes? According to the findings of this study, more usage of effective HR practices is linked to better levels of commitment to the firm, confidence in management, collaboration, effort, and engagement, as well as fewer inclinations to quit. Do great employee outcomes have an influence on a small business's operational and financial performance? The findings of this investigation show that this is actually the case. Various employee outcomes were shown to be significantly linked to various operational and financial performance parameters.

3.5. The impact of Developmental needs fulfillments and Ideological needs fulfillments on employee outcomes: Job satisfaction and turnover intention

Employees are expected to have a diverse set of developmental and ideological requirements. The importance of individual variances in employee labor requirements is emphasized (Bhattacharya et al. 2008). Employees' opinions on organizational obligations are similarly personal, self-constructed, and distinctive, according to the psychological contract literature (Raja et al. 2004). Employee expectations of business obligations have been connected to individual personality, gender, and cultural beliefs. Employee heterogeneity in employment demands will likely be mirrored in their unequal need for corporate CSR, according to our predictions. Employee support and openness to organizational CSR participation differs, according to a previous study. Rodrigo and Arenas (2008) defined three types of workers based on their CSR attitudes in their qualitative study: committed, indifferent, and dissident. Workers who are committed to social welfare and are enthusiastic about their employers' CSR policies; employees who are apathetic about whether or not their businesses participate in CSR; and employees who are dissatisfied with their employers' CSR. However, little is understood about why workers' attitudes toward and requests for CSR initiatives vary. Employees with higher ideological aspirations will naturally place greater weight and expectation on their organization's CSR since CSR symbolizes an organization's attempts to generate some societal benefit outside of the enterprise's interests. As a result, employees who have more developmental needs are more likely to demand that their employers engage in more CSR initiatives. As a result, we provide the following hypotheses,

H3, H4. Employees' multifaceted job requirements are quite heterogeneous (developmental, and ideological).

3.6. Relationship between CSR and Ideological needs fulfillment and 2.3. Relationship between CSR and Developmental needs fulfillment

CSR refers to a collection of business policies and practices that support an organization's long-term financial, cultural, and environmental goals. Sen and Bhattacharya (1997) and Brown and Dacin (1997) (2001). Socially responsible businesses between business and society in their operations (Scott 1987). As a consequence, a company's CSR

programs can help workers achieve their ideological goals of supporting social concerns and making a difference.

According to a recent study, CSR initiatives may benefit employees. Employees that participate in CSR activities learn abilities that will help them advance in their careers. Employees are being compelled to participate in CSR activities on the job as more firms integrate socially responsible initiatives into their core business plan. CSR encourages employees to participate in enhancing the company's social and environmental performance.

Moreover, CSR has become an increasingly important aspect of an organization's strategic planning, and employees are increasingly performing CSR tasks on the job. CSR has been shown to contribute to beneficial employee outcomes such as organizational commitment, work satisfaction, and loyalty in previous studies. To produce good stakeholder reactions, CSR must answer key stakeholder demands. We believe that the most significant strategy for CSR to achieve good employee behavior is to address workers' different employment demands.

It may provide employees with self-relevant benefits, and CSR broadens the range of benefits that a company may deliver to its employees. CSR may be used to satisfy higher-level ideological goals as well as employee professional development demands (Bhattacharya and Sen 2003). Surroca et al. 2010; Mirvis 2012). Employees express improved work satisfaction and loyalty as a result of better addressing ideological and developmental goals.

Finally, meeting employee work needs is a critical strategy for CSR to create positive employee outcomes. As a result, it's feasible that corporate CSR will enhance employee work demand fulfillment to a greater degree for employees who have a high CSR, resulting in better employees outcomes. Employees who are more connected to their company's CSR are more likely to feel successful and learn new skills, which leads to greater fulfillment of ideological and developmental employment demands, as well as increased employee satisfaction and loyalty.

As a result, CSR activities provide much-needed chances for workers to be empowered to effect change and polish critical business skills like leadership, problem-solving, and creative thinking outside the box (Kanter 2009). Therefore,

H1, H2 When all other factors are equal, firms that are praised for their CSR activities are better at meeting employee (a) ideologically job demands and (b) developmental job needs.

3.7. The impact of corporate social responsibility (CSR) on employee outcomes

Furthermore, I look at the role of corporate social responsibility (CSR) in the relationship between CSR and employee outcomes. The extent to which workers are aware of and actively engage in their company's CSR is referred to as CSR. Employees are frequently supportive of their companies' CSR initiatives, both in terms of awareness and engagement. Employees' lack of understanding of CSR continues to be a big challenge for organizations in their efforts to generate positive reactions, as knowledge of CSR is essential for any positive reactions to occur.

Employees also want to be a part of their employers' positive change-making CSR efforts (Cone 2008). Employees' active engagement or involvement in the company's CSR initiatives, in addition to their CSR education, expands their thinking about social issues and prepares them to be facilitators rather than observers of CSR programs. Employees who are aware of their company's CSR and actively participate in developing, promoting. In general, I believe that increasing CSR's effectiveness in delivering positive employee outcomes will boost CSR's efficacy.

H5 The association between CSR and employee outcomes

3.8. Research gap

The influence of CSR on employee results needs to be through two intermediate variables, development needs fulfillment and ideological needs fulfillment, because the whole business system has a CSR culture, so it affects gradually, gradually infiltrates. thinking of each employee and at the same time making them feel that they need to develop and improve to create outcome

s. When a repeated cultural system gradually affects human character. CSR is the whole business to follow, the business philosophy is like that, so everyone must follow it, it gradually forms the ideology, the whole development, it will push the actions. Therefore, it produces good outcomes.

4. Discussion and Conclusion

In this section, we will present the research process and methods to achieve the research objectives

The main content includes the Research model, Research process, Research gap, Qualitative research methods, and Quantitative research methods.

✚ Research model

The framework that drives this research is based on the development of research hypotheses shown in below. This study integrates the theoretical perspectives of stakeholders to examine the relationship between CSR and Employee outcomes to investigate the link between corporate social responsibility and employee outcomes through Ideological needs fulfillment and Developmental needs fulfillment.

✚ Research process

The research process explains step by step how to carry out the research as well as the steps to achieve the research objective. Specifically, there are 3 stages as follows:

- Stage 1: Theoretical overview

This stage begins to form research ideas on CSR and employee outcomes. We have researched and synthesized from many different sources, mainly reputable journals in the world. Then from that, looki

ng at businesses around the world, we realized that businesses began to have certain concerns about CSR in terms of employee results. From there, we found the research gap

and established the research objectives. The results of this process have formed the expected research model presented above.

- Stage 2: Preliminary research process

We use two research methods at the same time, qualitative research method and quantitative research method. In which, qualitative research is mainly to explore more factors that are the benefits of CSR and are the premise of financial performance. Qualitative research results are used for preliminary survey in order to complete the survey form and perform preliminary testing.

- Stage 3: Formal research process

At this stage, the author mainly uses quantitative research methods. The purpose of this phase is to test the research hypotheses. Using techniques to eliminate inappropriate scales, confirmatory factor analysis (CFA) - evaluate the measurement model to check the reasonableness of the model, determine convergent value, discriminant validity, and unidirectionality. Finally, the author analyzes the structural model (SEM) to check the fit of the model, test the hypotheses and test the degree of regulation of the relationship between CSR and employee outcomes through the modulating variable by Smart PLS 3.0 software.

- ✚ *Qualitative research methods*

The results of qualitative research serve as the foundation for quantitative research in the thesis, determining its applicability and feasibility. Because if the findings of qualitative research on consumer perceptions show that they are unaware of CSR, this study is ineffective. As a result, the

author employs qualitative research methods such as (1) study design and sample, (2) data collecting, and (3) data analysis to guarantee that the research model is placed in the proper and essential context./.

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**PART 3:
INFORMATION TECHNOLOGY
AND DIGITAL ECONOMY**

TOUCHLESS HOTEL - A POTENTIAL SUSTAINABLE MODEL FOR THE HOSPITALITY INDUSTRY IN THE POST-PANDEMIC PERIOD THE CASE IN HOTELS IN VUNG TAU, VIETNAM

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Abstract

The Covid-19 pandemic has severely affected the entire economy. In particular, the hotel service industry struggled with the decrease in revenue and affected the ability to develop according to the set goals. Realizing that the development of a touchless model for hotels still has a lot of potentials, the application of touchless hotels in the tourist city of Vung Tau is considered to analyze in the post-pandemic period. By reviewing papers and interviewing four managers in luxury hotels in Vung Tau, the study identifies the strengths, weaknesses, opportunities, and threats for applying touchless hotels in Vung Tau. The expert interviews also unveiled the difficulties in both human interaction and financial situations and hoped to orient safely and sustainably revitalizing tourism in Vietnam in general.

Keywords: *touchless hotels, post-pandemic, Covid-19, sustainable model, Vung Tau, Vietnam*

1. Introduction

Hotel is an essential accommodation service in tourists' travels and has been one of the thriving industries in Vietnam in recent years (Hoa & Huy, 2021). According to Do et al. (2020), the development of the hotel industry has required hotels to provide basic service and a more satisfying and personalized experience to customers. Therefore, to meet the requirements of customers, adapt, and aim for development in the post-Covid-19 context, the hotel industry needs to shift to a new trend of promoting technology application and application 4.0 to bring a new non-touch experience suitable to the situation of ensuring safety and enhancing modernity for customers (S.-H. Chen, Tzeng, Tham, & Chu, 2021). Under the impact of the pandemic, guests need new hotel service models to minimize contact. It means touchless hotel automation is expected to become part of the new normal in future travel trends (Hussain, Ahmad, & Kareem, 2020). The development of a touchless hotel can attract many returning customers, especially when health and safety are considered top priorities in the post-Covid-19 era (Lew, Cheer, Haywood, Brouder, & Salazar, 2020).

To control the Covid 19 epidemic, the Government has decided to temporarily suspend the reception of international tourists for the first six months of 2020 (Nhat Nam,

2020). Therefore, the number of domestic tourists to Ba Ria - Vung Tau is still limited due to the epidemic situation. It is urgent to stimulate demand to attract tourists during the low season (the last four months of the year). Through the Tourism Association, the Department of Tourism (2021) encourages resorts, tourist attractions, accommodation facilities, restaurants, etc., simultaneously to reduce prices from 10% to 30% of service charges for tourists from now until the end of 2020.

Vung Tau is a famous tourist city in the South of Vietnam with steady growth before the pandemic. According to the Department of Tourism of Ba Ria - Vung Tau (2021), In the first six months of 2019, the total number of tourists to Vung Tau has reached about 8.46 million, up 29.22% over the same period and reaching nearly 53% of the year plan. In 2019, Vung Tau's economic indicators exceeded the set plan. The tourism and service trade revenue is estimated at 229,400 billion VND, up 10.02 % over the same period. The total number of arrivals is over 6 million, and international visitors account for about 10%. However, the Department of Statistics (2021) shows that Vietnam's tourism was almost frozen in the first six months of 2021, and in Vung Tau, a series of hotels had to close without knowing when to reopen. Before and in the current complicated epidemic situation, tourism activities are almost stopped across the country in general and Vung Tau City in particular. Tourists must cancel approved or pre-ordered tours or hotels (Lê Vũ, 2021). The outbreak of the Covid-19 epidemic in May 2021 severely affected the hotel industry in Vung Tau. People follow Directive 16 to carry out the Government's call "Whoever stays where he is" to prevent the disease from spreading. Department of Tourism Ba Ria – Vung Tau (2021) emphasizes that in the last months of 2021, the Covid-19 pandemic significantly impacts the tourism industry in general and the hotel industry in particular, falling into difficulties and experiencing a severe decline. Along with that, the trend of tourists is also changing, forcing the hotel industry to be flexible to adapt by applying technology.

The proposed research fields are expected to expand the knowledge base and assist the hospitality industry by recovering from the COVID-19 crisis via digital transformation. AI and robotics are on the verge of a breakthrough that can revitalize hotels while restoring guests' faith in safe hotel operations. The proposed research areas will likely provide the hospitality industry with practical lessons on dealing with disruptive situations. Realizing the problem of post-epidemic recovery for the tourism industry, the author, through researching, reading, and referencing documents related to tourism trends and interviewing experts in luxury hotels in Vietnam, analyzes and proposes the potential to develop new tourism models. The study points out the strengths, weaknesses, opportunities, and threats for touchless tourism, typically in Vung Tau city, in a future new normal.

2. Literature Review

2.1. Protection Motivation Theory (PMT) explains customers' preferences in touchless hotels.

The protection motivation theory (PMT) is as a framework for understanding the impact of fear appeals (Prentice-Dunn & Rogers, 1986). The original purpose of protection motivation theory (PMT) was to understand individual human responses better to fear

appeals. Threat and a coping appraisal are two characteristics humans use to protect themselves. Threat appraisal evaluates the seriousness of the circumstance and its seriousness, whereas coping appraisal evaluates how one response to the situation. The perceived severity of a hazardous event and the perceived probability of its occurrence, or vulnerability, make up threat evaluation. Perceived response efficacy, or an individual's expectation that taking the advised action will eliminate the danger, and perceived self-efficacy, or confidence in one's ability to successfully carry out the recommended courses of action, are two components of the coping evaluation (Norman, Boer, Seydel, Mullan, & behavior, 2015).

Because so many people are exposed to the deadly COVID-19 disease worldwide, understanding the risk will encourage people to change their habits and stay in more protected and safer hotels. In the presence of a perceived health threat, people are motivated to adapt in a self-protective manner, referred to as PMT (Norman et al., 2015). The fear appeal, according to PMT, will initiate the cognitive mediating process, which will lead to protection motivation. A fear appeal can be triggered by severity, vulnerability, reaction effectiveness, and self-efficacy, leading to adopting technologies such as AI and robotics as a protective response to the worldwide pandemic (J. Kim, Yang, Min, & White, 2021). Individuals are persuaded to use practices that minimize human touch by using the fear appeal. Touchless methods such as a contactless fingerprint, face recognition, and contactless data entry can help to limit the virus's transmission.

2.2. Strengths and weaknesses of touchless hotels

The ongoing COVID-19 pandemic has provided ample opportunity for scientists to expand their knowledge of AI and robotics and contribute to the literature in this field. Because COVID-19 is so contagious, keeping a safe distance is critical. As a result, now is the ideal time for hoteliers to accelerate the deployment of AI and robotics in the hospitality business. The hotel service industry is shifting towards AI and robotics worldwide. Hospitality companies have gradually begun to use robots to provide front-line services to their customers. These frontline robots will improve customer service while lowering operational expenses for hospitality companies (Gaur, Afaq, Singh, & Dwivedi, 2021).

According to CDC Vietnam (2021), manual operations with hands that often have to touch and come into contact with surfaces are the main route to Covid-19 infection. Customers can be exposed to the virus everywhere, such as close contact with objects including reception, security, staff, and people staying within 2 meters with a total time of 15 minutes above. Therefore, contact restrictions have been noticed in recent times to limit infection. And tourism businesses are also following this trend. Awan, Shamim, and Ahn (2021) confirm that most of the current large enterprises that want to maintain and develop are applying technology to their business strategies. In particular, with the awareness of many leaders, deciding the direction and ability to increase operational efficiency in the hotel sector is now really necessary. The touchless hotel solves many customer concerns, creates a foundation for upgrading customer experience in the future, and can completely restore the operating status of the business before Covid-19 (Bharwani & Mathews, 2021).

Kinhdoanhnet (2021) also shows that 80% of the respondents are willing to download the hotel's app to check in or check out and receive all information without having direct contact with the staff. 73% of the respondents are willing to download the integrated app for room door opening. The most popular forms of check-in and check-out are through the hotel app (62%), hotel website (30%), or kiosk check-in/check-out (8%). It can be seen that touchless tourism is gradually becoming a basic need of tourists, and it is an entirely new hotel model in Vietnam. Tourists will experience a completely automatic procedure when arriving at the touchless hotel.

Gaur et al. (2021) also drew a graph about tourist responses before and after the pandemic using technologies in figure 1.

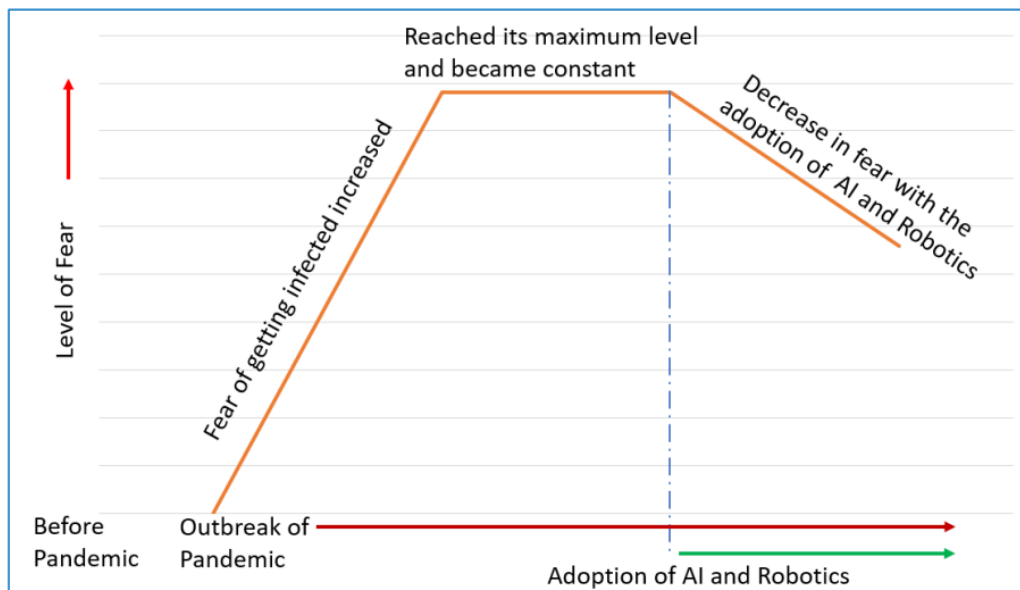


Figure 2. The level of fear among the hotel guests

Source: Gaur et al. (2021)

Pizam and Shani (2009) show that hospitality has stayed relatively static since human capital has always been more critical in hospitality than in other industries. This feature has remained relevant in an era of significant technological advancements. Although technology advancements have impacted the sector, many managers believe it is not as technologically advanced as other industries. However, technological advancements allow for a higher level of sophistication in service delivery, particularly when it comes to responding to the specific demands of individual customers. Customers have gotten more sophisticated, which necessitates a significant improvement in service quality, which is not always related to technology. Indeed, it was stated that the industry's service quality is continuously improving. The industry's advancement is also apparent in need to have one's finger on the pulse when it comes to contemporary trends that aren't always immediately tied to customers, such as environmentally responsible practices.

Moreover, applying new technology to the business can also create difficulties in working progress. According to S. Kim, Kim, Badu-Baiden, Giroux, and Choi (2021), The hotel must be equipped with the most modern and best equipment to optimize the customer

experience. It is not simply because of the investment in facilities, and it is about the training cost for staff. Although the awareness of the role of modern technology application brings efficiency to the management, the hotel staff is still low level. Therefore, applying a modern optimal platform requires a highly qualified and well-adapted human resource team to apply in touchless hotel services. Employees need to be trained and have a deep understanding of technology, proficiently use and guide customers most conveniently and quickly. They must have professional communication skills, attitude, and behavior, handling situations quickly and thoughtfully with customers. They all require high costs, threatening the business's profit (Subaramaniam, 2020). Touchless hotels will face many financial difficulties without a specific strategy due to adverse effects and impacts on profits (Park & Lehto, 2021).

In addition, the touchless hotel application needs to have extremely high security of customer information to prevent private information from being stolen (H. S. Chen & Fiscus, 2018). Businesses need to set up a system to keep customer information well, and hotels are forced to commit not to disclose guests' personal information. Investing in technology and cybersecurity will also be a financial burden for businesses, especially after the Covid-19 pandemic (C. Kim, Kang, Chung, & Choi, 2021). From the tourist's point of view, using high-tech services will cause difficulties for some people, typically the elderly, who are not proficient and have little access to modern equipment. Many customers are used to the traditional hotel service, so approaching the touchless hotel model will cause many obstacles (Liu & Hung, 2019). At the same time, customers must also meet the requirements for intelligent devices to enjoy all the hotel's services. If tourists rely heavily on phones, computers, or other forms of technology, connecting to a touchless accommodation will face many obstacles when a device breaks down or has problems (J. J. Kim & Han, 2020).

2.3. Potentials of touchless hotels in Vung Tau, Vietnam

According to the Department of Tourism Ba Ria Vung Tau (2021), Ba Ria - Vung Tau has advantages with many policies to stimulate tourism demand according to the policies of the State. Therefore, visitors traveling in Vung Tau will receive many benefits in terms of intensive investment in hotels, and visitors will have a feeling of comfort and closeness. With the timely introduction of the tourist police force, Vung Tau city has reduced the situation of begging, enticing tourists, or taxis. People have paid more attention to spiritual life through tourism and entertainment activities. Although there are many limitations on specific tourism products, tourism activities are still desirable to domestic tourists. Besides, the number of international tourists coming to Vung Tau is also very stable in number and diversity from many different countries worldwide.

With an average annual economic growth rate of 18% per year, Vung Tau city has constantly risen in all aspects to be worthy of its role as a provincial city, political, economic, culture, science, and technology center of the province. Vung Tau, in recent years, has not only achieved high growth but also ensured the requirements of sustainable development by the orientation and structure of local economic development. Vung Tau is a well-known, comprehensively developed city associated with the image of beautiful and charming

beaches. It is also one locality that promotes investment, attracting domestic and foreign capital. It is considered an advantage to develop a touchless hotel following the trend of ensuring the safety of visitors after the Covid-19 pandemic.

The development of science and technology has helped the resort tourism market in Ba Ria - Vung Tau gradually catch up with many regions worldwide. This factor is very dynamic, contains many opportunities for businesses, and directly influences the business strategy of fields and industries, including accommodation services. Hotels are gradually synchronizing their management systems and applying information technology in search, serving, and maintaining the number of guests staying and traveling in Vung Tau. The issue of technology application can also solve the problem of tourists who cannot stay because of concerns about contact with staff, contributing to accelerating the hotel industry's recovery after the pandemic.

According to Stadler (2015), in line with new travel trends, there is a dynamically growing demand for special offers dedicated to mass tourism, as conscious consumers expect personalized solutions that meet their individual needs. Consumer insights can be stored and tracked through a touchless system so that hotels can tailor customer service to their preferences. Thanks to various flexible tracking techniques such as customer databases (CRM) (Mohammed & Rashid, 2012). Cloud-based CRM customer database systems that generate offers by analyzing sales records and demographic data in the past have multiplied. Massive data sets can be analyzed using effective data analytics methods and scale cost-effectively and anonymously. Although considerable data research is based on working with large samples, it is the most effective method to reveal individual preferences (Gupta & Sahu, 2021).

Industrial revolution 4.0 is taking place firmly globally, creating breakthrough development opportunities. Ba Ria - Vung Tau Province, one of the leading tourist centers of the country, an attractive destination for tourists, is actively promoting its potential and developing effectively under the support of digital technology to develop intelligent, efficient through the touchless hotel model. The Covid-19 pandemic seems to be selective. It is necessary to have the development of the hotel industry at a rapid pace to be able to respond to society. Traditional models have been transformed from traditional to modern by combining both. Innovations in the hospitality industry in the post-Covid era necessitate a combination of (1) product change from physical to digital, (2) delivery change from centralized distribution to over-the-counter delivery, and (3) service changes from a passive service to active service (service personalization).

3. Method

The main objective of this study is to identify the potentials of touchless hotels in Vung Tau based on the preferences of guests via managerial perspectives. A qualitative method by in-depth interviews was adopted to carry on this study to achieve the target. Since this research was conducted during the pandemic Covid-19, the online discussions via GoogleMeet were utilized from January 15th to February 12th. Each discussion was taken place around 45 to 60 minutes.

3.1. Participants

Each participant was the manager of a luxury hotel in Vung Tau, Vietnam. There were four international hotels, including two 4-star and two 5-star properties. The respondents have been working in the hospitality industry for almost ten years. All respondents were anonymous and agreed to respond to this research thoroughly. Respondents were both foreigners and Vietnamese working in Vung Tau City, Vietnam. Due to the difficulties of the pandemic, the study could not contact a broader range of respondents. Still, with various industries and experience, the results showed interesting outcomes, besides expected results.

3.2. Measures and data collection

Since the issues mentioned in this study were relatively new, the interview questions were open-ended. The interview starts with five questions about the hotel situations before, during, and after the pandemic:

<i>Seq</i>	<i>Questions</i>
1	Can you share the financial situation before, during, and after the pandemic?
2	What are the solutions to survive during and after the pandemic?
3	Is there any procedure of your hotel is touchless? What is it? Can you further describe it?
4	What are the pros and cons of touchless hotels?
5	What can you predict about touchless hotels in the future?

After asking general questions, the discussion was extended to obtain further evaluations. The interview focused on the benefits and constraints in different perspectives: investment, human resources, maintenance, and security. The questions about personal points of view were also asked to enhance the validity of the responses.

4. Results

The common idea of all four managers is that they may "unlock" a new dimension in their hotel rooms and create a modern hospitality atmosphere with touchless services. Through innovative hotel technology that automates everyday tasks or allows guests to use their phones for crucial tasks such as check-in, a touchless hotel reduces or eliminates the need for guests to interact with germ, unsafe surfaces as much as possible. Four hotels admitted that they had applied an intelligent booking system and temperature check. Two hotels tried online check-in and a voice control TV. One is testing a chatbot system to control the room. All applied for contactless payment through cards. One is considering digital keys connected to mobile phones. This model helps save time, improve direct bookings and related services, gain access to statistics for audience analysis, and establish targeted marketing campaigns. Thanks to technology, innovative and touchless services are essential for each hotel to stay current and deliver all services to the public safely. In any case, technology can make complete procedures as simple as possible. The hotel business is no stranger to touchless services.

The interview results showed that managers in luxury hotels aimed to change the operational styles from traditional to modern. They preferred applying new technologies to enhance the management and operations. The managers did not mention the model they used to develop their operations, but Lewin's change model was reflected in their responses. The results are shown in Table 1.

Table 2. Lewin's Change Model in 4 luxury hotels

Stages	Touchless applications	Unfreeze	Changes	Refreeze
Hotel 1	-Booking system -Temperature check -Online check-in -A voice control TV -Online payment	-Require all remaining staff of the Front desk/ housekeeping/ finance department to update new apps during the pandemic	-Sales and Marketing department contacted guests about changes in terms of reservation and amendment.	Requiring all related departments to apply new applications simultaneously from August 2020
Hotel 2	-Booking system -Temperature check -Chatbot -Online payment	-Require all remaining staff of Front desk/ housekeeping/ financial department/ techniques to update new apps during the pandemic	Training during the pandemic time with the new working procedure	Requiring all related departments to apply new applications simultaneously from June 2020
Hotel 3	-Booking system -Temperature check -Digital keys -Online payment		Only training for reservation, front desk, housekeeping, and technique departments online	Requiring all related departments to apply new applications simultaneously from January 2021
Hotel 4	-Booking system -Temperature check -Online check-in -A voice control TV -Online payment		Training remaining staff to turn them into core employees	Requiring all related departments to apply new applications simultaneously from July 2020

Source: interviews (2022)

For several years, many hotels have relied on the safe and intelligent application of technology to improve their bottom line and improve their overall hospitality experience. Touchless scenarios now shape the future of the hotel industry and determine the quality of each traveler's hotel experience, following the pandemic that changed the way hotels operate.

Two four-star hotel managers admitted that they were lucky since their hotels had been changing fast based on the fast-paced changes of the external factors. They also stated that because the hotel was built to be upgraded, the installation of modern technologies was convenient. They only had to adapt to those changes only. The other two 5-star hotels were

ready for any changes because they had equipped their hotels with multi-functioned facilities to flexibly adapt to updated versions of technologies. Although all four hotels are not fully touchless because it takes time to change to this type, the managers said they would like to apply the unique model to operate during the turbulent environment, for instance, in the pandemic. One manager shared that the number of employees was cut half during the pandemic, and some of them resigned to changed jobs. Before the new normal, he decided not to hire all employees. He only trained the remaining personnel and guided them to use technology in checking and regulating the hotel's operations.

However, they must admit that they could not apply full touchless hotels because of the problems. Firstly, it's about the financial situation. Before the pandemic, the growth of each hotel was significant, and even in 2019, they rose quickly. However, after two difficult years of Covid-19, they only hoped to survive. Luxury hotels bear a considerable maintenance cost. Manager 1 said, *"My 5-star hotel has more than 300 rooms, and faces to the sea, the cleaning and maintaining aesthetic look and hygiene have been challenging. Sea breeze destroys our facilities, and mold appears when no one stays."* No revenue for almost 18 months was a devastating problem to them. They had to cut costs by reducing human resources and auxiliary bills. *"We have cut most of our augmented services and staff. We only keep 20% of our daily routine."* Manager 2 added. When the country reopened again, they re-operated with care when spending money. Investment for touchless hotels sounds promising but needs time to conduct gradually. Manager 3 also said, *"Each penny for investment needs discussing about ROI carefully. We don't simply spend money without any consideration. And we also need a synchronized system from the headquarter since we are an internationally recognized brand."* The expenditure of upgrading the existing system has been more favorable than the changed hotel from traditional to thoroughly modern. Manager 4 also added, *"We can't invest in a huge amount of money to turn everything into touchless because of our revenue and profit. It may take 2-3 years to do so."*

Furthermore, the hotel facilities of luxury hotels are pretty modern and well-designed to equip with new technologies, but another problem is dealing with people working in the hotels. Managers admit that their staff is excited about new technology, especially front desk agents and housekeeping, and raise concerns about their job stability. Manager 2 stated that the old staff was worried about their remuneration deducted if the machine had replaced their duties. Others mentioned that they were worried about their employments when the hotel was touchless, and they were afraid of losing their jobs. However, manager 3 said that although technologies may replace personal performance, skilled workers were still prioritized. His concern was training people to be familiar with that high-tech and control them effectively. Many staffs were not used to using that equipment. They had to be trained carefully, and it took time to do.

Another concern of hotel managers is about maintenance fees. Manager 1 said that it costs more than usual to keep a system working fluently. Furthermore, the rapid development of technologies asks them to keep updating their systems, and the cost for maintenance will be added. Besides, the upgrade of systems also relates to the security of

the databases. Since the guests will utilize the touchless hotel service via their innovative tools, each hotel must secure their data from cyber thieves. Manager 4 emphasized that cyber security is his hotel's top priority. He required the IT department to stay alert to ensure no problem with their guests' privacy and security through their systems.

They also said that touchless hotels would be a new model for their brands and images. It could help save expenditure and increase long-term profitability. All four hotels are half touchless, which means the workforce still operates another half. To apply the touchless hotel model, they had to apply it step-by-step. They also stated that the transformation from old-styled management to new-style hotels required a lot of time and money, and it also required many well-trained people. Employees working in touchless hotels will be flexible and adaptable to the changes. The number of staff would also be decreased, and technologies replaced some procedures. Although the investment was high at first, it was very convenient and practical for the long-term operation.

In addition, the result from the interview is quite similar to the discussion from previous publications on AI and robotics of Seyitoğlu and Ivanov (2020) and H. Chen, Huang, and Li (2022). They show how service robots in hospitality and tourism may save operating costs and improve services. As a result, the use of AI and robots looks to be a significant shift for hospitality professionals. Technological advancements can, in fact, lessen health hazards among visitors (Seyitoğlu & Ivanov, 2020). These data demonstrate that technical methods can help reduce COVID-19 transmission while still attracting visitors. For example, according to a few papers, service robots can operate as a technical barrier between hotel visitors and personnel, minimizing the risk of infection (H. Chen et al., 2022).

5. Discussion and Conclusion

5.1. Recommendations

5.1.1. For hotels

Touchless hotels will bring many benefits to businesses. First, this new model opens up a foundation in line with modern trends and is a necessary solution to restore and re-develop Vietnam's tourism sustainably after the negative impact of the Covid-19 pandemic. It is also a significant step forward from the traditional business of development to the potential hotel suitable for the context of the "new normal." Second, touchless hotels bridge the gap between departments in the hotel business. When applying this touchless model, the information link is consolidated, convenient in management, and effective employee control, so that it is easy to assess the work quality of each employee. In addition, the technology in the hotel's touchless application promptly solves arising problems and limits work overload. In addition, the touchless hotel helps businesses capture customer information quickly, bringing efficiency in transaction processing.

To preserve social distance, hotels must provide confidence about the efficiency of their safety measures by combining AI and robotics technology. Contactless services such as self-check-in and check-out, facial recognition systems, cleaning robots, and vital digital services should be prioritized. Advanced technology such as electrostatic sprayers, germ-killing robots, and ultraviolet light should be used wherever possible. Because the hotel

amenities are shared with other guests, disinfecting the various high-touch surfaces in the hotel properties is just as crucial as disinfecting the rooms.

Providing visitors with accurate information about the hotel's risk-reduction methods will reassure them of their safety while supporting them in their decision-making process. Accurate information offered by the firm might influence customers' decision-making. As a result, hotels must keep their hospitality clients aware of their health-protection initiatives. With the touchless model, hotels will focus on customer-centricity and improve competitiveness. If the business owns this model, it will deploy and operate an efficient and quality hotel. Businesses that focus on guest experience maintaining guest satisfaction throughout the experience have always been a top priority for hoteliers. The more satisfied customers are, the more they will spend and will keep returning to the hotel in the future. Touchless hotel technology innovation helps businesses seize good opportunities to measure strengths to promote and identify weaknesses to change and improve accordingly.

5.1.2. For tourists

For tourists, the dual psychological relief, including promoting safety and relieving the pressure of the epidemic season, will be the motivation to choose a touchless hotel. The model solves customers' concerns about health and safety issues such as limiting contact with staff or items in the hotel, easing guests' concerns in automatic booking, dedicated support for quick and timely feedback, and enabling customers to evaluate service quality. With the intelligent system, information will be stored in clouds. Customers will not waste time searching for the information again, which are outstanding features that touchless hotels can aim for. Using a touchless hotel brings a new experience, enjoys high-class service, and keeps up with trends. Tourists also save time and quickly find rooms, reservations, check-in, or online payment. These experiences not only help customers expand their vision of the touchless hotel experience, but they also trust and give new personal suggestions to help the business improve and develop more sustainably.

5.2. Conclusion

According to Sirait and Murdianingrum (2020), to overcome the challenge of increasing customer expectations, the hospitality industry needs to adopt touchless technology as quickly as possible. Investing in technology and the internet of things will allow hotel operators to stand out from their competitors, meet all guest expectations and attract new customers. Technology plays a vital role in improving the customer experience. With the initial impacts of the industrial revolution 4.0, the tourism and hotel industry in Vung Tau is facing the opportunity to innovate the development model. Stable financial source, the ability to invest from considerable social resources, many newly built hotels, and the ability to attract domestic tourists (the advantage near Ho Chi Minh City) and international (the airport project of Long Thanh). Taking advantage of this opportunity, Vung Tau tourism will have a revolutionary development, creating outstanding personalized services for customers. This high demand for hotels is a huge potential advantage for a hotel development that does not touch a new and different attraction exclusively for Vung Tau

tourism. The tourism potential has led to developing the touchless hotel business in Vung Tau, fertile land with an essential cradle for southern tourism development.

It can be said that Vung Tau is an ideal place to develop a touchless hotel model. Before the pandemic, sensing and automation technologies were inherently developed to enhance business capacity and efficiency. Since the epidemic outbreak, the need to apply advanced technologies has increased. The application of touchless technology at the hotel is a new development direction in the new reality context to keep a safe distance between staff and visitors. However, with the decrease in revenue due to the epidemic situation, business owners must prioritize applying certain technologies.

5.3. Limitations

This research was conducted in the hospitality industry to suggest recovering from the pandemic. The results were not significantly proven because they were only based on four experts' interviews. It requires more points of view from employees, guests, and stakeholders to ensure the possibility of a touchless hotel. It was only a foundation for the upcoming studies about the application of AI in the tourism and hospitality industry. Next, since the previous research data was not done widely, it needed time to discover this issue. And there was no hotel applying full touchless. The perspectives that managers shared were based on their experiences and some features. Therefore, it could not be generalized for the entire industry. It is recommended that this topic flourishes in a fully equipped touchless hotel, opening new dimensions for further research.

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THE PROSPECT OF PEER-TO-PEER ACCOMMODATION: A CASE STUDY OF AIRBNB IN HANOI

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Abstract

The study focuses on analyzing the impacts of social and cultural factors on the intention to use Airbnb as a form of accommodation sharing in Hanoi, Vietnam. This paper includes five key cultural factors namely Collectivism, Femininity, Low Uncertainty Avoidance, Long-term Orientation and Restraint. In addition to cultural factors, social factor represented by eWOM (electronic Word-of-Mouth) is also taken into consideration when measuring the intention to use Airbnb. Through an online questionnaire, data is collected from 401 participants in Hanoi, Vietnam. Implementing Structural Equation Modeling (SEM) approach, eight research hypotheses are tested and the degree of influences of each factor is clarified. The key findings are: (i) Collectivism has the strongest positive effects on consumers' Attitude and Behavioral intention to use Airbnb, followed by Low Uncertainty Avoidance and Long-term Orientation; (ii) only Restraint has negative effects on consumer's Attitude and Behavioral Intention to use Airbnb; (iii) eWOM has positive effects on Subjective norms and Behavioral Intention to use Airbnb; (iv) Attitude and Subjective norms both have positive effects on consumer's Intention to use Airbnb. From the findings, to promote the future use of Airbnb in Hanoi, Vietnam, recommendations for businesses and consumers are provided.

Key words: *Airbnb, peer-to-peer accommodation, socio-cultural factors, structural equation modelling.*

1. Introduction

In recent years, the growth of the new peer-to-peer sharing model has started to exert noticeable impacts on Vietnam tourism. In the first International Conference on Economics, Business and Tourism, Vietnam was listed in the top fifteen growing destinations for both regional and global travelers on Airbnb in the first half 2018. Particularly, in the upcoming years, the Generation Z plays the role of main consumers in Vietnam. Their characteristics such as internet savvy, adventurous, environmental conscious and price-sensitive are

especially fitted to the offerings of P2P accommodation services namely Airbnb. Although peer-to-peer accommodation sharing is still in its infancy in Vietnam, the predicted impacts of this form of sharing are considered to be significant.

The sharing economy is a new concept that involves maintaining consumers' access to goods and services without ownership, which is equivalent to individuals renting out or otherwise offering access to their underused assets (Belk, 2014; Botsman & Rogers 2010). The sharing economy model has influenced many business practices of the tourism sector, most significantly in the form of peer-to-peer (P2P) accommodation. Generally, P2P accommodation happens when a person rents an apartment or a room they own to another person, and this is typically enabled by digital platforms such as Airbnb (Tussyadiah & Pesonen, 2016).

Numerous studies have investigated common factors for consumers' participation in P2P accommodation such as economic appeal, social appeal, authentic local experiences, sustainability, home benefits and enjoyment. However, only a handful of researchers have taken cultural factors into consideration. The necessity to examine cultural factors was first revealed by Gupta, Esmailzadeh, Uz, & Tennant (2019). The findings illustrate that while both Collectivism and Masculinity positively affect individuals' intention to rent out and rent products; Uncertainty Avoidance significantly discourages individuals from renting out their products to others. On the other hand, Power Distance shows insignificant impact on both peer consumer and provider propensity. One limitation of this study is the exclusion of Long-term Orientation and Indulgence cultural dimension. Understanding the prior study limitation, Wallace (2020) continues to explore how individual cultural values influences attitudes and participation in sharing economy services by adding two cultural factors: Long-term Orientation and Indulgence. The study chooses Airbnb sharing accommodation service as a representative. Regards to its results, Long-term Orientation and Indulgence have a positive effect on both attitude and participation. One unique finding of Wallace (2020) is Low Power Distance has a positive effect on attitudes. In addition, high Uncertainty Avoidance positively affected both attitudes and participation. However, Collectivism and Masculinity showed insignificant effects on consumer's attitudes and participation in sharing economy services. Most recently, the influence of cultural and social factors on a consumer's participation in a sharing economy is examined by Lee, Erdogan, & Hong (2021). Findings provide evidence that all the cultural dimensions, excluding Masculinity, have a significant relationship with attitude towards booking on Airbnb. More specifically, Uncertainty Avoidance and Individualism had a negative effect on attitude, while Long-term Orientation and Indulgence showed an opposite association. On the other hand, Subjective norms have no significant effect on booking intention on Airbnb. Thus, the intention to use Airbnb to book accommodation, rather than being influenced by the acceptance or support of others, is more of an individual decision based on their own needs.

Based on the literature review, it could be summarized that only a handful of researchers have taken cultural into considerations while investigating factors for consumers' participation in P2P accommodation, in which our research attempts to fill up this gap. Secondly, additional cultural factors namely Long-term Orientation and Indulgence need to be included. Thirdly, by inheriting the similar approach yet focusing on Hanoi

consumers, this research closes the gap of previous research by understanding how Eastern cultural characteristics deter or encourage the acceptance of sharing accommodation. Finally, to overcome the limitation of findings with insignificant influences of subjective norms on behavioral intention to use Airbnb or other forms of accommodation sharing, the research would include additional measurement items to clarify the connection.

This research highlights its fundamental purpose as: examine socio-cultural factors and its impacts on consumer behavioral intention to predict the prospect of peer-to-peer accommodation in Hanoi, Vietnam. To achieve this primary objective, this paper aims to clarify the relationship between cultural factors and attitude towards using Airbnb and future intentions. In addition, social factors and its relationship with behavioral intention to use Airbnb would also be examined. Finally, recommendations on how to further develop peer-to-peer accommodation sharing is provided based on analysis results.

In order to achieve the research objectives, the study based its framework on two commonly used theories in analyzing the social and cultural factors influencing consumers' behavioral intentions towards using Airbnb namely Theory of Planned Behavior by Ajzen Icek and Theory of Cultural Dimensions by Hofstede. On the one hand, to achieve the goal of examining the impacts of cultural factors on the prospect of using Airbnb in the future, Hofstede's cultural dimensions are taken into consideration. This approach is supported by previous study of Sommestad (2015) and Wallace (2020), that culture affects attitude. As the research focuses on the Vietnamese consumers only, the cultural values are denoted as: Collectivism, Femininity, Low Uncertainty Avoidance, Long-term Orientation, Restraint. Notably, the high-low Power Distance dimension is omitted due to its insignificant effect on the attitude and future intention of consumers. In addition to cultural factors, social factors are also examined, represented by eWOM. eWOM is regarded as all Internet-based communications directed at consumers about the usage or characteristics of products and services and their sellers (Litvin, Goldsmith, & Pan, 2008). Importantly, Schepers & Wetzels (2007) found that eWOM is an antecedent of subjective norms in consumer behavior research. Thus, including eWOM as a determinant of subjective norms could help us understand the relationship between subjective norms and behavioral intention in the case of using Airbnb.

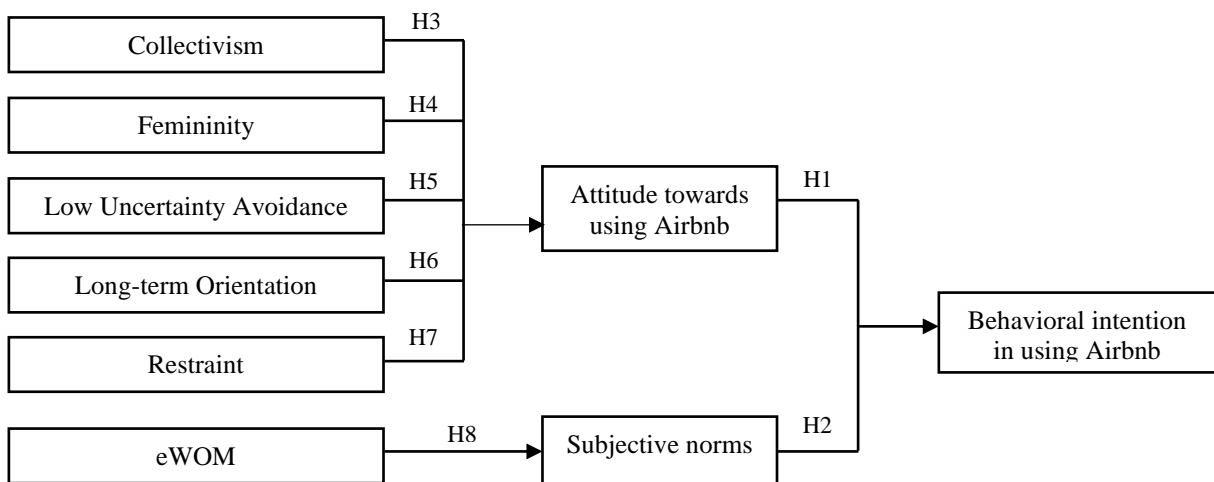


Figure 1. Research Framework (proposed)

Source: Authors' own work

The research hypotheses are based on reviewed literature and the research framework, which are presented as follows:

Hypothesis 1 (H1): Attitude has a positive effect on behavioral intention in using Airbnb.

Hypothesis 2 (H2): Subjective norm has a positive effect on behavioral intention in using Airbnb.

Hypothesis 3 (H3): Collectivism has a positive effect on attitude towards using Airbnb.

Hypothesis 4 (H4): Femininity has a positive effect on attitude towards using Airbnb.

Hypothesis 5 (H5): Low uncertainty avoidance has a positive effect on attitude towards using Airbnb.

Hypothesis 6 (H6): Long-term orientation has a positive effect on attitude towards using Airbnb.

Hypothesis 7 (H7): Restraint has a negative effect on attitude towards using Airbnb.

Hypothesis 8 (H8): eWOM has a positive effect on subjective norms.

The remainder of this paper is organized as followed: Section 2 mentions methodology; Section 3 presents the results; Section 4 will conclude the study.

2. Method

2.1. Data collection and measurements

The data was collected through the method of convenience sample by using online questionnaires on Google Form. The total number of received responses was 401. Invalid replies, which are defined with more than 10% of information absence or 100% homogeneous answers, are removed. As a result, the number of eligible questionnaires was 328.

Table 1 lists nine constructs that have been developed to test the research hypotheses. Measurement items are adapted from the related studies then modified to be more suitable with the current research. The measurement is based on five-point Likert, which ranges from one to five corresponding to these options: Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree. The survey is designed based on the proposed framework. All the factors own at least two measurement items.

Table 1. Measures and scales

Categories	Items	Sources
Femininity	I choose Airbnb because it partially supports the economic life of the locals.	Lee, Erdogan, & Hong, 2021; Authors' own work
	When traveling, I want to stay in an accommodation that supports me to experience the life of the locals as much as possible.	
	Being able to understand and sympathize more about the livelihood of the locals creates a more memorable traveling experience.	
	If choosing to stay at an Airbnb, I would be more responsible towards the (housing) facilities than when staying at a hotel.	
Collectivism	Choosing Airbnb is a way for me to catch the experience tourism trend.	Lee, Erdogan, & Hong, 2021;

Categories	Items	Sources
	If people in my social circle know and use Airbnb, I would be eager to try out this service.	Authors' own work
	If I choose to use Airbnb, I want to experience the service with my friends and family.	
Low Uncertainty Avoidance	I still choose Airbnb despite the risk that the housing facilities might differ from what I have expected.	Lee, Erdogan, & Hong, 2021; Authors' own work
	I am willing to try out Airbnb even though I am much more familiar with traditional booking methods and hotels' services.	
	I choose Airbnb since its booking procedures are more flexible and convenient than conventional ones.	
	I choose Airbnb despite miscellaneous comments about its services.	
	I tend to choose Airbnb based on positive feedback from KOLs or the general public, even without verification.	
Long Term Orientation	I choose Airbnb because I think it's much more cost-saving than other types of accommodation (e.g., hotels, resorts, etc).	Lee, Erdogan, & Hong, 2021; Authors' own work
	I choose Airbnb because it helps me to form relationships with new people (e.g., host, local people, etc).	
	I choose Airbnb because I think it's more environmentally friendly.	
Restraint	I don't choose Airbnb because I have high control over my desires to experience new accommodation alternatives.	Lee, Erdogan, & Hong, 2021; Authors' own work
	I don't choose Airbnb because it does not fit with Vietnamese's social norms.	
	The unique experiences with the locals that Airbnb offers are less important than the economical aspect of Airbnb.	
eWOM	Social media website was the first place that introduced me to information about Airbnb.	Lee, Erdogan, & Hong, 2021; Authors' own work
	If Airbnb information appears on my social media sites frequently, I would want to learn more about the service.	
	Reading positive reviews online will motivate me to try out Airbnb.	
	I am more eager to try out Airbnb when a KOL talks about it.	
Attitude	Using Airbnb is a wise idea.	Lee, Erdogan, & Hong, 2021
	Using Airbnb is an idea that I like.	
Subjective norms	People who influence my behavior would approve of my choice of using Airbnb.	Lee, Erdogan, & Hong, 2021
	People who are important to me would think that I should use Airbnb.	
Behavioral Intention	I am very likely to use Airbnb in the future.	Lee, Erdogan, & Hong, 2021
	I would recommend that others use Airbnb.	

Source: Summarized and modified by authors

2.2. Structural Equation Modeling

The research uses a quantitative approach of Structural Modeling Equation (SEM). SEM includes a wide range of statistical methods such as factor analysis, regression analysis or path analysis, and discriminant analysis, allowing researchers to examine structural relationships between important variables observation and latent variable (Chin & Marcoulides, 1998). The two-stage analysis method, which includes measurement model and structural model evaluation, is superior when compared to the one-stage evaluation (Sumacker & Lomax, 2004).

3. Results

3.1. Measurement model evaluation

Cronbach's alpha of all variables fell within the range of 0.715 to 0.795 which is higher than the proposed value of 0.6 by Robinson, Shaver, & Wrightsman (1991). All variables' Composite reliability except for RES3 was greater than the proposed value of 0.7 by Chin (2010). The trajectory is measured when all factor's outer loadings are greater than 0.5 (Wong, 2013) and AVE must also be greater than 0.5. The study eliminates indicators RES3 since its AVE and Composite reliability did not satisfy the proposed value. The results are shown in Table 2.

Table 2. Measurement model assessment

Latent variables	Indicators	Outer loadings	Construct reliability and validity		
			Cronbach's alpha	Composite reliability	AVE
Femininity	FEM1	0.777	0.753	0.850	0.589
	FEM2	0.813			
	FEM3	0.829			
	FEM4	0.637			
Collectivism	COL1	0.773	0.719	0.843	0.642
	COL2	0.808			
	COL3	0.821			
Low uncertainty avoidance	LUA1	0.702	0.772	0.844	0.520
	LUA2	0.753			
	LUA3	0.734			
	LUA4	0.776			
	LUA5	0.631			
Long term orientation	LTO2	0.870	0.755	0.890	0.803
	LTO3	0.921			
Restraint	RES1	0.868	0.760	0.891	0.804
	RES2	0.925			
eWOM	EWOM1	0.654	0.71	0.825	0.544
	EWOM2	0.860			

Latent variables	Indicators	Outer loadings	Construct reliability and validity		
			Cronbach's alpha	Composite reliability	AVE
Attitude	EWOM3	0.741	0.795	0.907	0.830
	EWOM4	0.676			
	ATT1	0.918			
	ATT2	0.904			
Subjective norm	SN1	0.904	0.761	0.893	0.807
	SN2	0.893			
Behavior intention	IN1	0.871	0.72	0.878	0.782
	IN2	0.898			

Source: Authors' calculation based on survey data

Table 3 illustrates the results of Heterotrait-Monotrait (HTMT) ratio. HTMT ratio is a widely known method for measuring discriminant validity. Henseler, Ringel, & Sarstede (2015) proposed that if this ratio is smaller than 0.9, the discriminant value is assured. HTMT ratios between all latent variables were smaller than 0.9, therefore, all variables satisfied the condition.

Table 3. Heterotrait - Monotrait (HTMT) ratios

	ATT	COL	EWOM	FEM	IN	LTO	LUA	RES	SN
ATT									
COL	0.636								
EWOM	0.523	0.754							
FEM	0.43	0.613	0.571						
IN	0.884	0.707	0.618	0.62					
LTO	0.416	0.552	0.493	0.872	0.423				
LUA	0.676	0.658	0.637	0.64	0.704	0.564			
RES	0.122	0.11	0.176	0.207	0.215	0.39	0.237		
SN	0.759	0.609	0.659	0.485	0.719	0.592	0.717	0.201	

Source: Authors' calculation based on survey data

3.2. Structural model evaluation

Firstly, all Variance Inflation Factor (VIF) ranging between 1.252 and 1.975, suitable with the range proposed by Hair Jr, Sarstedt, Hopkins, & Kuppelwieser (2014). This indicates that the collinearity among the predictor constructs is not an issue in the structural model.

Secondly, to assess the significance of path coefficients and test the research hypotheses, the study implements the PLS-SEM "bootstrapping" technique to generate t-values and p-values. The results confirm Attitude and Subjective norm have significant positive effects on Behavioral Intention. Additionally, Collectivism, Low Uncertainty Avoidance, Long-term Orientation exert positive effects on Attitude; and Restraint has a

negative impact on Attitude. However, hypothesis testing results of H4 to evaluate the effect of Femininity on Attitude is rejected due to unsatisfied t-value and p-value. Furthermore, eWOM has a positive effect on Subjective norms.

Thirdly, based on the R² value, Attitude and Subjective norms explain up to 48.1% of the variability in Behavioral Intention. Additionally, 39.2% of the variability in Attitude is explained by cultural factors namely Collectivism, Low Uncertainty Avoidance and Restraint. Moreover, 24.5% of the variability in Subjective Norms is explained by eWOM.

Fourthly, all the Q2 values were considerably greater than zero, which provided support for the model's predictive relevance concerning the reflective endogenous latent variables.

Table 4. Structural model examination

Hypothesis	Relation	Path coefficients	Std. dev	T – value	P – value	Status	R ²	Q ²	F ²
H1	Attitude → Behavioral intention	0.544	0.056	9.640	0.000	Yes	0.481	0.369	0.370
H2	Subjective norm → Behavioral intention	0.215	0.056	3.875	0.000	Yes			0.058
H3	Collectivism → Attitude	0.227	0.064	3.556	0.000	Yes	0.392	0.306	0.055
H4	Femininity → Attitude	- 0.043	0.065	0.665	0.506	No			0.002
H5	Low uncertainty avoidance → Attitude	0.425	0.049	8.618	0.000	Yes			0.187
H6	Long term orientation → Attitude	0.132	0.063	2.102	0.000	Yes			0.014
H7	Restraint → Attitude	- 0.174	0.060	2.920	0.000	Yes			0.043
H8	EWOM → Subjective norm	0.490	0.040	12.190	0.000	Yes	0.240	0.187	0.315

Source: Estimation results based on SEM

3.3. Summary of findings

- *Attitude has a positive effect on behavioral intention in using Airbnb*

Attitude has been tested and proven to have a fairly significant and positive effect on behavioral intention. Comparing the results with previous studies, this conclusion is consistent with the theory of TPB, TRA which has been proposed and proven (Ajzen, 1991).

- *Subjective norm has a positive effect on behavioral intention in using Airbnb*

Subjective norms have a beneficial effect, contributing positively to behavioral intention. The influence of subjective norms on behavioral intention, however, is quite

marginal compared to that of attitude. This conclusion is completely consistent with the TPB model researched and proven by Ajzen. However, the influence of subjective norm on the intention and behavior of consumption is not considerable when different types of products and services are scrutinized (Son, 2007).

- *Collectivism has a positive effect on attitude towards using Airbnb*

Collectivism is considered as the most powerful cultural driving force for friendly attitudes towards Airbnb as the development of collaborative services springs from a network of communalists rather than individualists. In comparison with previous research, this outcome is in agreement with Gupta, Esmaeilzadeh, Uz, & Tennant (2019) as regards the positive influence of collectivism on the tendency of sharing economy services providers and users.

- *Low uncertainty avoidance has a positive effect on attitude towards using Airbnb*

The paper can conclude that low uncertainty avoidance has a positive effect on attitude. When compared to other researches, this result is similar to Gupta, Esmaeilzadeh, Uz, & Tennant (2019) but contradicts the finding of Wallace (2020).

- *Long-term orientation have a positive effect on attitude towards using Airbnb*

The results show that long term orientation has a positive effect on attitude, however, its impact is the most negligible of all favorable factors. Compared to previous research, this conclusion is similar to Wallace (2020). Since cultures being high in long-term orientation focus on future rewards over immediate costs (Hofstede, 2001), they may prioritize consumption practices where environmental efforts are apparent, which is a driver of the sharing economy (Botsman & Rogers, 2010; Hamari, Sjöklint, & Ukkonen, 2016).

- *Restraint has a negative effect on attitude towards using Airbnb*

Results have shown that restraint has a negative impact towards attitude. Cultures high in this dimension tend to limit their wants and desires, not focusing consumption practices on hedonic leisure activity (Hofstede, 2001). Compared to previous research, this is considered to be a new finding to the results of Gupta, Esmaeilzadeh, Uz, & Tennant in 2019. Moreover, Wallace (2020) also had the same result, which further consolidates this finding of our research.

- *eWOM has a positive effect on subjective norms*

According to the results of our research, eWOM has a strong positive effect on subjective norms. This finding is a new discovery since there is no previous research that has come to the same conclusion. According to Schepers & Wetzels (2007), eWOM is an antecedent of subjective norms in consumer behavior research. With the collectivist characteristics, Vietnamese consumers' behavioral intention and actual consumption behaviors would rely significantly on the influences of other people's opinions and recommendations. eWOM, which measures the appearance frequency of Airbnb information on social media sites, will encourage individuals to try out the platform.

4. Discussion and Conclusion

The paper successfully determined the influences of cultural and social factors on the customer's behavioral intention to use Airbnb in Hanoi, Vietnam. Significantly, this research filled previous research gaps. The research added and examined two more factors: long-term orientation and restraint, which were not studied due to questionnaire length and participant weariness in Western countries. In addition, the research proposed a new variable (eWOM) that is related to Subjective norms and investigated its impact on the consumer's inclination to use P2P accommodation services.

Implementing the SEM approach, the key findings are: (i) Collectivism has the strongest positive effects on consumers' Attitude and Behavioral intention to use Airbnb, followed by Low Uncertainty Avoidance, Long-term Orientation; (ii) only Restraint has negative effects on consumer's Attitude and Behavioral Intention to use Airbnb; (iii) eWOM has positive effects on Subjective norms and Behavioral Intention to use Airbnb; (iv) Attitude and Subjective norms both have positive effects on consumer's Intention to use Airbnb.

Recommendations for consumers and businesses are provided to demonstrate the practical significance of the research. As for consumers, especially Gen Z, they are advised to raise awareness towards green consumption and change their traveling habits into eco-friendly ones by participating more in local tourism, taking Airbnb as a representative example. As for businesses, it is essential that they constantly enhance the quality of housing infrastructure and complement useful features so that a new platform like Airbnb would gain more trust and popularity among consumers and offer them a competitive advantage compared to traditional accommodation services.

The study still has several limitations that opens opportunities for future research. The first limitation of this research is the sample size. Moreover, this paper focused on only five out of six cultural dimensions by Hofstede, which excluded the power distance dimension. Collecting answers in only five cultural criteria makes it possible to reduce the length of the survey and minimize participant fatigue considerably. Nevertheless, future research could include the power distance dimension to gain more comprehensive and insightful results.

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FACTORS INFLUENCING GENERATION Z INTENTION IN USING FINTECH DIGITAL PAYMENT SERVICES - EMPIRICAL STUDY IN VIETNAM

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Abstract

The study investigates the key factors including performance expectancy, effort expectancy, social influence, facilitating conditions, trust, security and COVID-19 perceived risk that affect Gen Z's intention in using FinTech digital payment services. Research data was collected from 568 Gen Z people who have already used or have not yet used FinTech payment services. By using regression analysis with the support of SPSS 25 and AMOS 24 software, the research outcomes indicate that simultaneously these seven factors had a significant positive impact on Gen Z's intention to use FinTech payment services. Especially, performance expectancy has the strongest impact on intention to use. On this basis, the study gives some recommendations for governmental authorities and FinTech companies to develop FinTech payment applications suitable for Gen Z as well as improved business efficiency.

Keywords: *FinTech; payment services; intention to use; COVID-19, Gen Z.*

1. Introduction

In the 4.0 technology revolution, the application of technology to create comprehensive breakthroughs is an inevitable trend, especially in the financial and banking industry. One of the breakthroughs in technology that can be said to have had a significant influence is financial technology or which is widely known as FinTech. Basically, FinTech is understood as a combination of financial products and services with technology (Kutler,

1993). FinTech focuses on four main segments: asset management, financing, payments, and other types of FinTech including technology solutions for insurance, searching and comparison, etc. (Dorfleitner et al., 2017). Among these segments, payments are the earliest to be researched and developed; it is also the segment that receives the priority and concentration of FinTech companies. FinTech payment service is defined as a general term that applies to FinTech whose applications and services are related to national and international payment transactions.

Although FinTech was first mentioned by Citigroup in 1990, it was not until 2009 that FinTech really exploded, and only after 2014 did it attract the attention of regulators and customers. FinTech has become a global phenomenon with international companies from Silicon Valley to London, Israel, Singapore, and Sydney. Especially in the US, FinTech has rapidly grown as a major industry of this country. Vietnam is considered one of the most potentially profitable markets for FinTech. In recent years, FinTech in Vietnam has made remarkable developments. This is explained by the fact that Vietnam is a country with a young and tech-savvy population, high rates of mobile phone and Internet usage with a relatively low level of financial inclusion. According to We Are Social (2021), Vietnam has a total of 68.7 million Internet users, accounting for more than 70% of the total population. The report also showed that up to 97% of people in the age group of 16 to 64 have a smartphone with nearly 7 hours of Internet use on average per day. Therefore, the trend towards using FinTech payment services is almost certain. The introduction of FinTech payment services has brought many benefits, flexibility, convenience, meeting all needs regardless of location and time, contributing to saving resources significantly.

There have been many studies investigating the main driver of the adoption of FinTech services. A lot of research on this topic has been becoming more and more diverse and complex with the scope being continuously expanded. Studies have shown that different variables have an impact on the adoption of new technology (Madan & Yadav, 2018; Ramos de Luna et al., 2019). Perceived usefulness, perceived ease of use, security, trust, perceived risk, perceived benefit, social influence are variables mentioned in many previous studies (Wang et al., 2018). The results of studies can be contradictory, depending on the research contexts, theoretical basis, sample size, research methods, and respondents.

Most of the previous studies on FinTech services acceptance have focused more on technological factors but paid less attention to social precursor factors while the adoption of FinTech services is mainly influenced by external factors such as social influence, risk, and trust (Al-Nawayseh, 2020). Moreover, although there have been many studies related to FinTech, especially studies about its payment services, not many of them focus on researching the intention to use FinTech payment services of Generation Z - the generation leading the trend in all aspects, especially in technology. Moreover, there are few studies conducted in the context of the COVID-19 pandemic. Thus, this study is conducted to achieve the overall research objectives of identifying and examining the factors influencing the intention in using FinTech payment services of Gen Z in the context of COVID-19.

2. Method

2.1. Data collection

The authors collected data from 568 Gen Z people within the age group of 15 to 27 living in Hanoi via online questionnaires on popular social media platforms such as Facebook, Instagram, etc. as well as some forums for young people by removing heterogeneous elements. Finally, SPSS 25 and AMOS 24 software were exploited for descriptive statistics and regression analysis.

2.2. Proposed model

The authors propose a research model based on UTAUT to measure the FinTech payment services' usage intention. UTAUT is a theory that has recently been applied by many researchers for their research model because this model unifies the main theories of information technology acceptance and can better explain the intention to use technology services than most other models (Lu & Lee, 2011). Basically, the model preserves the key variables while expanding to investigate the impact of other factors relevant to the research context.

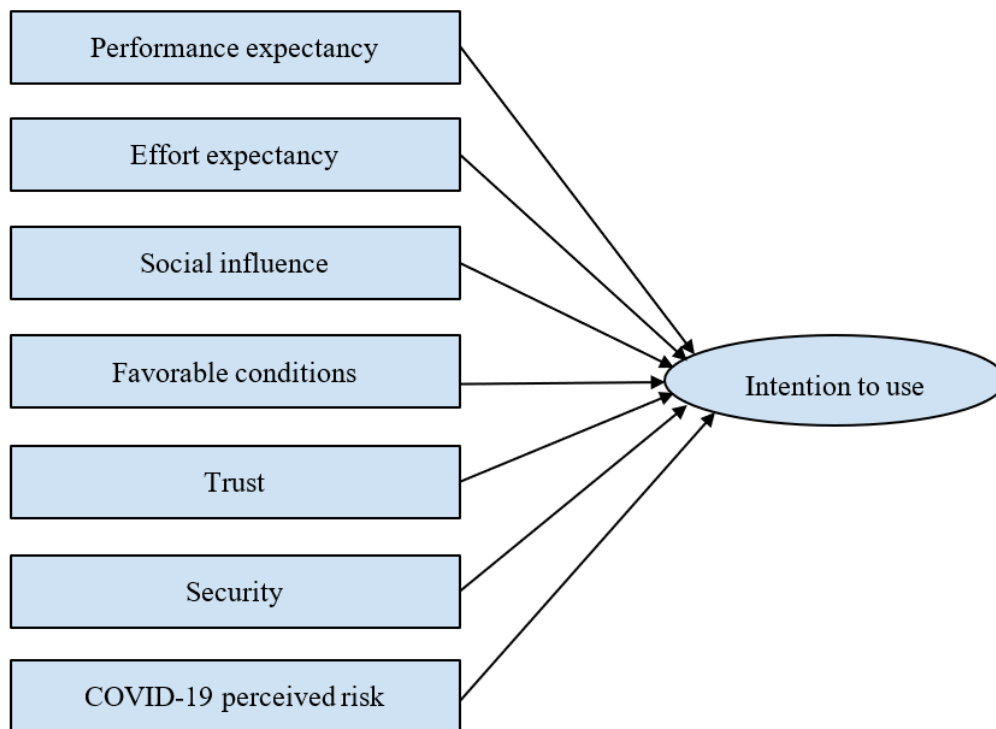


Figure 1. The research model

Most of the regarded studies indicated that performance expectancy is an important factor affecting the decision to use the technology of users (Chuang et al., 2016; Oliveira et al., 2016; Ramos, 2017; Aseng, 2020). Performance expectancy is defined as the degree to which an individual believes that using the system will help him or her to attain gains in job performance (Venkatesh et al., 2003). This factor bears a resemblance to perceived usefulness in TAM/TAM2 model. Other studies by Kim et al. (2017), Le et al. (2019), Lien et al. (2020), Alswaigh & Aloud (2021) showed that an increase in perceived usefulness would lead to a higher level of usage intention. Accordingly, we propose the following hypothesis:

H1: Performance expectancy has a positive influence on Intention to use FinTech payment services.

Effort expectancy is defined as the degree of ease associated with the use of the system (Venkatesh et al., 2003). A series of research showed a positive relationship between effort expectancy and the intention to use FinTech payment services (Aseng, 2020; Alswaigh & Aloud, 2021; Lien et al., 2020). However, there are a few studies that cannot affirm the effect of expected effort on intention to use FinTech payment services (Ramos, 2017), or if so, the impact of it on usage intention is negligible (Daragmeh et al., 2021). We propose the following hypothesis:

H2: Effort expectancy has a positive influence on Intention to use FinTech payment services.

Users often behave in a certain way to meet the expectations of their family, friends, and relatives. (Liébana-Cabanillas et al., 2018). Chong et al. (2010) found that users will consider the opinions of their family and friends before using new technology and will refuse to use it if the opinions of others are unfavorable. Many Indian studies have indicated that social influence is a key factor that has a positive relationship with the behavioral intention of users (Singh, 2016). Thus, we propose the following hypothesis:

H3: Social influence has a positive influence on Intention to use FinTech payment services.

According to Teo et al. (2008), facilitating conditions refer to factors present in the environment that affect an individual's desire to perform a task. Many studies have revealed that there is a positive relationship between facilitating conditions and intention to use electronic payment services (Chawla & Joshi, 2019; Gupta & Arora, 2019; Moorthy et al., 2020; Khatun & Tamanna, 2020). The results from a study by Chawla & Joshi (2019) have shown that facilitation conditions have a significant positive effect on users' intention to use e-wallet services. Hence, we propose the following hypothesis:

H4: Facilitating conditions have a positive influence on Intention to use FinTech payment services.

Trust is defined as the willingness of subject A to be vulnerable to the actions of subject B based on the expectation that subject B will perform a specific action that is important to subject A, regardless of subject A's ability to monitor or control subject B (Davis, 2020). Many studies have proved a positive relationship between trust and intention to use FinTech payment services (Al-Nawayseh, 2020; Alkhowaiter, 2020; Chawla & Joshi, 2019; Singh & Sinha, 2020; Chawla & Joshi, 2020). We propose the following hypothesis:

H5: Trust has a positive influence on Intention to use FinTech payment services.

Security refers to the extent to which customers believe it is safe to use FinTech payment services (Chawla & Joshi, 2019). Ensuring the confidentiality of information when conducting financial transactions is an important factor in driving the growth of FinTech payment services (Alswaigh & Aloud, 2021). Many previous studies have shown the importance of security for the intention to use FinTech payment services (Tan & Teo, 2000; Black et al., 2002). Thus, we propose the following hypothesis:

H6: Security has a positive influence on Intention to use FinTech payment services.

There have been very few previous studies that have examined perceived risk from the perspective of risk stemming from diseases. Aji et al. (2020) found that the COVID-19 outbreak had a negative impact on the intention to use cash of Malaysian and Indonesian consumers, which leads to a significant increase in the use of e-wallets. The use of mobile payment services is also considered as a preventive measure against the possibility of spreading the virus (Sreelakshmi & Prathap, 2020). Hence, we propose the following hypothesis:

H7: COVID-19 perceived risk has a positive influence on Intention to use FinTech payment services.

2.3. Scale of variables

The authors designed a questionnaire with 29 observations including 7 independent variables and 1 dependent variable, using 5-level Likert scale ranging from (1) - strongly disagree to (5) - strongly agree based on previous studies by Venkatesh et al. (2012), Ajzen (1991), Pavlou (2002), Aji et al. (2020), Davis et al. (1989). Specifically, independent variables are measured by observed variables as follows: performance expectancy with 4 observations, effort expectancy with 4 observations, social influence with 3 observations, facilitating conditions with 4 observations, trust with 4 observations, security with 4 observations and COVID-19 perceived risk with 3 observations. The dependent variable of Gen Z' intention to use FinTech payment services is measured by 3 observed variables.

3. Results

3.1. Descriptive analysis

Data is collected from a survey conducted on the Internet and 568 out of 600 responses (95%) are valid. 192 respondents have never used any Fintech services (or 33.8%) and 376 respondents have used such services (or 66.2%). The main reason is that they have never known or heard about FinTech payment services and users' concern about security is another reason. The demographic results are summarized in Table 1:

Table 1. Descriptive statistics

	Frequency	Percentage
Gender		
Male	159	28
Female	409	72
Education level		
Undergraduate	509	89.6
Postgraduate	25	4.4
Highschool	28	4.9
Others	6	1.1
Monthly earning		
Below 3 million VND	364	64.1
03 – 05 million VND	111	19.5
05 – 10 million VND	53	9.3
Over 10 million VND	40	7

Source: Authors

3.2. Reliability analysis

Cronbach's Alpha coefficient is used to test the reliability of the data. All the observed variables gave the values of Cronbach's Alpha ranging from 0.6 to 0.95, which means that they were reliable for testing in the model. In addition, the total correlation coefficients are greater than 0.3. The reliability of the scale according to Cronbach's Alpha coefficient is presented in Table 2:

Table 2. The result of Cronbach's Alpha

	Cronbach's Alpha	Cronbach's Alpha if item deleted	Corrected item - Total Correlation
PE	0.806	0.75~0.77	~0.6
EE	0.802	0.73~0.8	~0.6
SI	0.749	0.63~0.7	~0.6
FC	0.795	0.74~0.75	~0.6
TR	0.850	0.79~0.82	~0.7
SEC	0.837	0.79~0.80	~0.7
C19PR	0.751	0.65~0.69	~0.6
UI	0.887	0.79~0.88	~0.8

Source: Aggregated from analysis

3.3. Exploratory Factor Analysis (EFA)

The Barlett test has the sig value = 0.000 (< 0.05), which ensures that the factor analysis is suitable. Moreover, the KMO (Kaiser-Meyer-Olkin) coefficient is equal to 0.875, which is greater than 0.5 and smaller than 1 and the Eigenvalue is 1.207 (> 1). Therefore, the observed variables have a strong correlation and are accepted for further analysis.

Table 3. The result of KMO and Bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.875
Bartlett's Test of Sphericity	Approx. Chi-Square	6765.844
	df	406
	Sig.	.000

Source: Aggregated from analysis

The results of EFA analysis for the independent variables of the rotated factor matrix indicate that the loading factors of all the indicators are greater than 0.5, revealing that 29 observed variables are all qualified and belong to 8 groups. With total variance extracted = 55.833% ($> 50\%$), we also can say that these variables can explain 55.833% of the variability of the data. Since there are not any new groups formed and any changes, the authors keep all the original research hypotheses.

3.4. Confirmatory factor analysis (CFA)

The authors continue to measure the suitability of the research model by applying confirmatory factor analysis (CFA) through AMOS software.

The CFA result shows that $CMIN/df = 1.278 < 3$, $p = 0.000$, $TLI = 0.983$, $GFI = 0.949$, and $CFI = 0.985$. These indicators imply that the theoretical model and the realistic model have no differences. Other indicators: RMSEA index < 0.06 and PCLOSE index > 0.05 show that the model has a proper fit to the market data collected.

Table 4. Model Fit Indexes

	CMIN/df	CFI	GFI	TLI	RMSEA	PCLOSE	P value
Estimate	1.278	0.985	0.49	0.983	0.022	1.000	0.000
Condition	≤ 3	≥ 0.9	≥ 0.9	≥ 0.9	≤ 0.06	≥ 0.05	< 0.05
Result	Good	Very good	Good	Good	Good	Good	Accepted

Source: Aggregated from analysis

3.5. Structural equation modeling (SEM)

The purpose of structural equation modeling (SEM) is to define the relationship between observed and latent variables and examine the linear relationships between these variables.

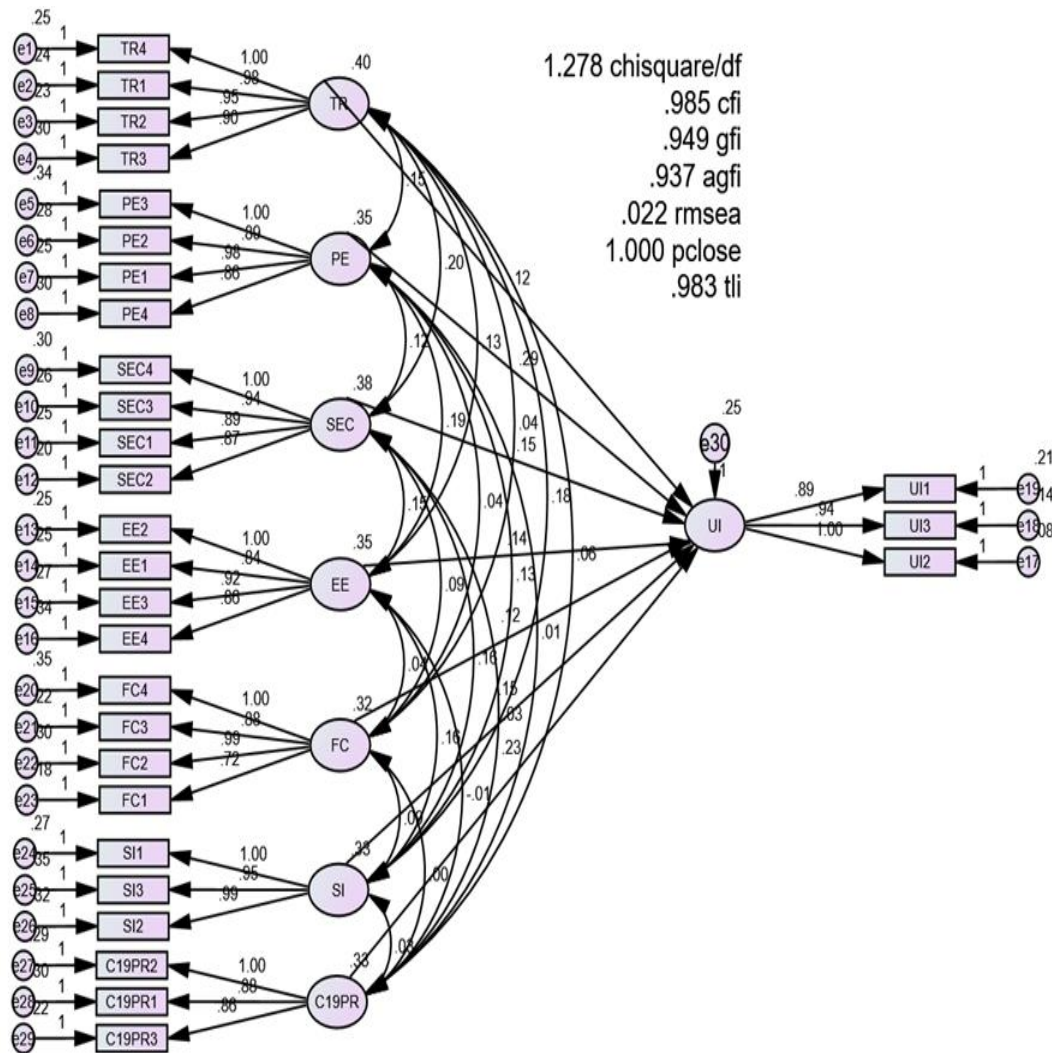


Figure 2. Standardized Structural Equation Model

The results suggest that the model achieves compatibility with the market data (Chi – squared / df = 1.278 (< 3), GFI = 0.949 (> 0.8), CFI = 0.985 (> 0.9), RMSEA = 0.022 (< 0.06)).

Table 5. Unstandardized Coefficients

	Unstandardized Coefficients				Standardized Coefficients
	Estimate	S.E	C.R	P	Estimate
UI <--- PE	0.287	0.061	4.748	***	0.113
UI <--- EE	0.14	0.065	2.168	.030	0.257
UI <--- TR	0.119	0.057	2.099	.036	0.142
UI <--- SEC	0.153	0.056	2.718	.007	0.124
UI <--- FC	0.12	0.051	2.345	.019	0.103
UI <--- SI	0.154	0.069	2.216	.027	0.133
UI <-- C19PR	0.231	0.051	4.573	***	0.199
R2 = 0.426					

Source: Aggregated from analysis

Table 5 shows that the p-value of all the indicators is smaller than 0.05. Accordingly, all the independent variables have an impact on the dependent variable “Usage Intention”, and we accept all the hypotheses. In addition, it can be seen that they all have a positive relationship with the intention to use FinTech payment services because unstandardized coefficient estimates are greater than 0. Observing the standardized coefficient estimates, “Performance Expectancy” has the most significant effect on “Usage Intention” ($\beta = 0.257$), followed by “COVID-19 Perceived Risk” ($\beta = 0.199$) and finally “Facilitating Conditions” ($\beta = 0.103$). The coefficient $R^2 = 0.426$ infers that 42.6% of the variability of the dependent variable is explained by the independent indicators.

4. Discussion and Recommendation

4.1. Discussion

The purpose of this research is to identify factors affecting Gen Z's intention to use FinTech payment services; thereby, suggest solutions for Vietnam FinTech companies to develop FinTech payment applications suitable for the target customers as well as improved business efficiency. The authors extend the Unified Theory of Acceptance and Use of Technology model (UTAUT) by adding other elements relevant to the research context. From the above research results, it can be said that a significant positive relationship can be seen in the impact of seven proposed independent variables on Gen Z's intention to use FinTech payment services. Specifically:

Performance expectancy: Among the factors affecting Fintech payment services usage intention, the performance expectancy (PE) has the strongest influence. Customers, especially Gen Z, appreciated benefits when using FinTech payment services rather than traditional payment services. This result was consistent with other previous studies (Venkatesh et al., 2012; Chuang et al., 2016; Oliveira et al., 2016; Ramos, 2017; Aseng, 2020; Alswaigh & Aloud, 2021, ...).

COVID-19 perceived risk: Subsequently, COVID-19 perceived risk is the second impactful factor affecting intention to use. This can be predicted because in the context of the escalating COVID epidemic around the world, the virus constantly mutates and records new variants such as Alpha, Delta, Omicron as well as new sub-variants (Vietnam Ministry of Health, 2022). Those who are aware of the FinTech payment benefits believed that using this service would limit the spread of viruses by replacing traditional cash payments or banking services (Sreelakshmi & Prathap, 2020). This finding reinforces the work of Daragmeh (2021), Al-Nawayseh (2020), Sreelakshmi & Prathap (2020), Aji et al. (2020), etc.

Security: The third impactful factor affecting the FinTech payment services usage intention of Gen Z is security. Security has a correlation with the risks that customers perceive in the process of using FinTech payment services (Al-Nawayseh, 2020). According to descriptive statistics, the secondary reason for not using FinTech payment services among Gen Z is being worried about services security. The result matched with research by Alswaigh & Aloud (2021), Sathye (1999), Tan & Teo (2000) and contradicting the findings of Kim et al. (2017) and Al-Nawayseh (2020) (during COVID-19 pandemic).

Social influence: The next element influence on Gen Z's intention to use is the social influence. Customers tend to consider family and friends' opinions before using services and may refuse to experience new technology if the opinions of others are not positive. This result matches with other studies all over the world (Yang et al., 2015, Liébana-Cabanillas et al., 2018).

Effort expectancy: Effort expectancy has the fifth strongest influence affecting intention to use FinTech payment services. Gen Z users will continue using FinTech payment services if these services are easy to manipulate. Effort expectancy is also the biggest motivation for non-users. This result reinforces the findings of many other studies such as Chuang et al. (2016), Giao & Chau (2020), Aseng (2020), Alswaigh & Aloud (2021), Lien et al. (2020) but disagree with the views of Ramos (2017) and Daragmeh et al. (2021).

Trust: Another factor affecting Gen Z's intention to use is trust with the sixth strongest impact out of seven factors. This implies that customers will prefer using FinTech payment services when customers trust that FinTech payment services are responsible and honest. This study once confirmed the importance of trust for intention to use (Alkhowaiter, 2020; Singh & Sinha, 2020; Chawla & Joshi, 2020).

Facilitating conditions: Facilitating conditions is the factor that has lowest effect on usage intention of Gen Z. This result is consistent with the research context in Vietnam when the technical infrastructure and support for the use of the technology system are not adequate to reduce barriers to service utilization. This finding reinforces the work of Gupta & Arora (2019), Chawla & Joshi (2019), Moorthy et al. (2020), Alswaigh & Aloud (2021).

4.2. Recommendation

For government agencies: Continuously completing legal framework to regulate FinTech payment services and other forms of non-cash payment; at the same time, enforcing mechanisms and policies to support and encourage FinTech startups, especially those provide innovative payment services. Thus, the government has better invest in technology

and network infrastructure, ensuring information security as well as improving the quality of system management and supervision and encouraging start-up FinTech to cooperate with Bank institutions.

For FinTech companies in Vietnam: Raising customers' awareness of the usefulness of using FinTech payment services by developing communication strategies, marketing online and promoting products to consumers. At the same time, Fintech companies should construct a diversified FinTech payment ecosystem, integrating many payment features to suit Gen Z consumer needs. In addition, it's necessary for FinTech firms to take advantage of technology infrastructure to minimize risks of connection when making transactions, together with ensuring securities when making transactions. Gen Z prefers to use fast and convenient services, hence, FinTech companies should construct an app that has friendly interface, simple transactions with good customer services.

For customers: Gen Z people need to actively change and increase their awareness in using FinTech payment services as well as personal information safety while using these services.

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THE PERCEIVED SECURITY OF CUSTOMERS WHEN DECIDING TO USE E-COMMERCE SERVICES IN VIETNAM

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Abstract

In the context that the world economy has transformed from the industrial economy to the digital economy under the strong impact of the scientific and technical revolution, Vietnam has focused on building foundations and policies for digital economic business models, including e-commerce business models. E-commerce is growing strongly and plays a significant role in daily life and the digital economy in Vietnam. Security has been one of the essential issues in business-to-consumer e-commerce in recent years, as internet crime has increased exponentially. The security issues that are most important to consumers and the interrelationships between these issues are recognized as part of evaluating what online firms may do to improve users' overall secure feeling when shopping. The authors conducted research using qualitative and quantitative methods, surveying more than 215 subjects who were eCommerce customers in Hanoi city, the research aims to show the relationship between perceived security and customers' confirmation – expectations. Customers' confirmation – expectations are influenced by three other factors: privacy security, payment security, and incident reception and response. The study draws out solutions to improve customers' perceived security when deciding to use e-commerce services in Vietnam in the digital economy.

Key words: *perceived security, digital economy, ecommerce*

1. Introduction

Over the years, Vietnam's digital economy has continuously grown in terms of both infrastructure and business market. According to the Center for Global Business at Tufts University, USA, Vietnam ranks 48th out of 60 countries with the fastest digital economic

transformation in the world and 22nd in terms of economic growth. Among them, the most prominent is the popularity and increasing use of e-commerce platforms in Vietnam (Tran Anh Thu & Luong Thi Minh Phuong, 2022).

According to the Vietnam Information Technology White Paper (2020), for the e-commerce sector, both market size and revenue have grown, reaching \$13.2 billion in 2020. In the same year, the number of people participating in online shopping on e-commerce platforms skyrocketed, more than 41%. Among the 10 e-commerce platforms with the most website traffic in Southeast Asia, five are from Vietnamese businesses - including Tiki, Sendo, Thegioididong, Dien May Xanh and FPT Shop. In addition, other companies are also increasingly focusing on developing social media platforms to increase their competitiveness. Thus, it can be seen that Vietnam's e-commerce market is growing and has now become a popular business method used by companies to reach larger customer segments.

However, e-commerce in Vietnam still has many limitations. Including fraud, false advertising, poor quality goods, delivery and transportation of goods that cause damage or loss; personal data security issues, consumer rights violations ... are common problems in e-commerce activities. In addition, many consumers worry about using credit cards when making payments, causing them to invade their privacy when disturbed by revealing personal information such as phone numbers, citizen identification numbers, etc ... Customer confidence in buying products on e-commerce platforms is still low. It can be seen that trust in the environment of e-commerce and digital economy is an important factor in e-commerce transactions and the importance of studying online trust has also been emphasized by many recent studies (Hoffman et al., 1999; Jarvenpaa, 2000). Moreover, in Vietnam, the current legal system to protect consumers' interests is not strong enough. The sanctions to punish criminals in cyberspace are still flawed, causing fear and apprehension in the Vietnamese community consumers when participating in transactions on e-commerce platforms.

E-commerce is on the rise, demonstrating its role and contribution to daily life and to the digital economy in Vietnam. However, with such a great potential and role, the important factors that directly affect e-commerce and consumers have not been properly concerned by the state when there is a lack of laws related to services. E-commerce has not been properly and fully understood by sellers and suppliers. Among the factors affecting customer satisfaction and customer trust, perhaps perceived security is the most important factor, but it is still underestimated. The number of studies on perceived security and factors affecting perceived security are very few in Vietnam. Therefore, the authors conducted a study to identify and evaluate the factors affecting the customer's perceived security when using e-commerce services in Vietnam in the future digital economic era.

2. Literature Review

2.1. Perceived Security

Perceived security is described as the degree to which customers believe they are protected from threats of unauthorized use of personal information on e-commerce platforms (Yousafzai et al., 2003).

Suh and Han (2003) argue that Perceived security is a basic concern of customers who want to shop over the internet. The sense of security is divided into 5 aspects: authenticity, non-repudiation, security, privacy protection and data integrity that affect the experience of using e-commerce platforms.

In addition, perceived security is understood as the degree to which customers trust the security of their personal payment information of e-commerce platforms during the payment process (Shin, 2009). A high sense of security can increase customers' trust in that platform, thereby forming long-term buying habits on e-commerce platforms (Yenisey et al., 2007).

With the synthesis and drawing from the above studies, the research team draws out the most common concept for perceived security which is the level of awareness and evaluation of users about personal information security, product quality, and actual products compared to expectations when using e-commerce services.

2.2. Factors affecting the perceived security of customers when using e-commerce services in Vietnam in the context of the digital economy

+ Product Quality

According to Babakus and Boller (1992), the quality of products and services has long been a concern of many people. Product quality is the customer's assessment of the transcendental and general greatness of an entity, it is a form of attitude and consequences from an event comparison between what is expected and the perception of what is received (Parasuraman et al., 1988). However, according to data from the Ministry of Industry and Trade in 2021, because the policies and product qualities are not as advertised by powerful e-commerce platforms in Vietnam such as Lazada, Shopee, have caused several consumers complained to the Department of Competition and Consumer Protection reached to over 13,000 responses, increase 17.6% compared to 2020 which made the Department make recommendations to users. It can be seen that the product quality of current e-commerce platforms has not yet created customer satisfaction. Therefore, the authors hypothesized:

H1: Product quality has a positive (+) influence on incident reception and response.

+ Privacy security

For the purchase of goods, privacy, pricing mechanism, transactability, and speed of operation can all affect customer satisfaction. Compared with traditional purchases, online shoppers are more aware of the need for privacy/security (Culnan, 1999; Yianakos, 2002; Grewal et al., 2004; Park and Kim, 2003). Issues such as insecure infrastructure, loss of customer trust, and customer concerns about privacy can lead to reduced merchant revenue (Yianakos, 2002; Friedman et al., 2000; Grabner-Kraeuter, 2002; Liu et al., 2008). So, if the level of security perceived by consumers meets their expectations, they may be willing to disclose their personal information and try to buy. From there, the authors hypothesized:

H2: Privacy security has a positive (+) positive effect on customers' confirmation - expectations.

+ Payment security

Payment security is defined as keeping information of transactions and customers from being misused. Security remains one of the most important and well-studied areas for a payment system (Abrazhevich, 2004). Customers' interest in security within the transaction network

suggests that there are additional improvements inside electronic transactions that can enhance trust in online payments. Due to the growth of financial institution mergers and acquisitions, customers have doubts about the security of online invoices (Abrazhevich, 2004). Customers often expect easy, convenient checkout procedures offered by online shopping websites, which also instills confidence in the e-retailer. Therefore, the study hypothesized that:

H3: Payment security has a positive (+) positive influence on customers' confirmation – expectations.

✚ Receiving and responding to incidents

Policies about receiving and responding to incidents for customers consists of mechanisms, policies and rules of sellers or e-commerce service providers to commit and assure their obligations and responsibilities to the customers in a timely manner. Policies about incident reception and response related to customer support services, compensation, refund or exchange goods policies, handling complaints for customers. Customer service and support policies contribute positively to building customer experience or increasing the rate of good perception of a seller's services from the customers (Antinoja & Scherling 2019). From there, the research made the following hypothesis:

H4: Incident reception and response has a positive (+) influence on customers' confirmation - expectations.

✚ Customers' confirmation – expectations

Based on Oliver's (1980) model of Confirmation - Expectation, Customers' confirmation – expectations in this study can be understood as the assumptions in consumers' purchasing decisions at e-commerce platforms in Vietnam. In other words, Customer expectation is what customers want when using ecommerce services. Satisfied customers are an important factor for long-term success in business and appropriate business strategies to attract and retain customers (Zeithaml et al., 1996). So, customers' confirmation – expectations play an essential role in creating perceived security among consumers towards e-commerce platforms. From there, the authors hypothesized that:

H5: Customers' confirmation – expectations has a positive (+) influence on perceived security

The research model of the article is proposed based on the above synthesis studies, specifically as follows:

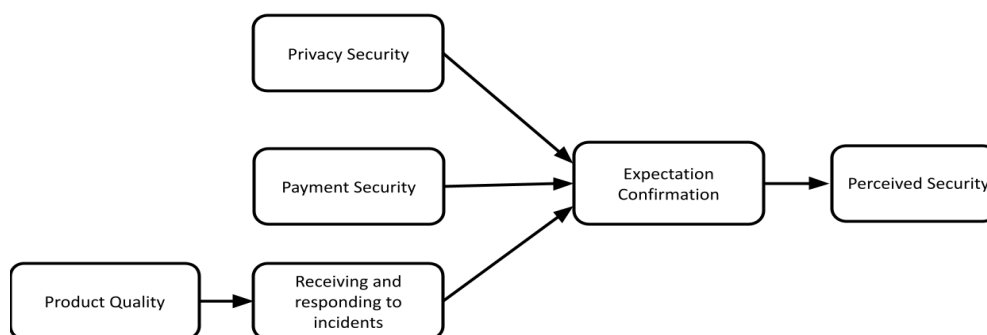


Figure 1. Model of factors affecting customers' perceived security when using e-commerce services in Vietnam in the context of digital economy

3. Method

The research objective is to give an overall picture of the factors affecting the feeling of safety of Vietnamese consumers when using e-commerce services, thereby proposing solutions to help suppliers' products and services enhance the sense of security for consumers and create trust and loyalty of consumers in using e-commerce services. The authors have carried out research processes to serve the following purposes:

First, the team provides a research overview to clarify the concept of sense of security and influencing factors based on secondary data sources that are reputable information sites such as national and international scientific journals, previous scientific studies and seminars on related topics, reports from the Ministry of Science and Technology, the Ministry of Industry and Trade,... Next, based on the collected theories, the authors propose a suitable research model. Finally, in order to collect objective data on the factors that affect the sense of wholeness, analyze and make comments on the importance of each factor, thereby making appropriate conclusions and solutions, The research team used a combination of qualitative and quantitative methods. To ensure objectivity about the necessity of the research, the author conducted a survey to collect opinions by in-depth interview method. The author conducted interviews with 10 people who have been using e-commerce services in Vietnam. The interviews focused on addressing research questions such as:

- What is perceived security? What factors affect customers' perceived security when using e-commerce platforms in Vietnam in the digital economy?
- What solutions should be given to improve perceived security of consumers in Vietnam when buying goods on e-commerce platforms?

Based on the opinions given, the official questionnaire was completed to survey the subjects who have used e-commerce services in Vietnam. Due to the impact of the epidemic, the authors decided to conduct an online survey (via email addresses, Facebook groups...).

This study was conducted based on convenience sampling (non-probability), in terms of sample size, according to Bentler & Chou (1987), for scale analysis in exploratory factor analysis (EFA) and analysis confirmatory factor (CFA) is reliable enough, the sample size is at least five times the number of observed variables in the measurement model. Therefore, the sample size in this study at least 175 (35×5) is reliable enough for factor analysis. After the online survey ended, the research team collected 235 votes. After excluding the unsuitable votes, there are 215 votes that can be analyzed (91.5% valid). The study sample will have 215 observations. Therefore, the sample size in this study is appropriate.

To measure the respondents' attitudes and feelings about the importance of factors affecting perceived security, observed variables are measured using a 5-level Likert scale: (1) Completely disagree; (2) Disagree; (3) No comments; (4) Agree; (5) Totally agree. All data related to valid samples were processed using SPSS 20.0 and AMOS 24.0 to perform the following steps: reliability analysis, correlation analysis, factor analysis, regression analysis, and mock validation theory.

4. Results

4.1. Cronbach's Alpha reliability analysis

Table 1. Cronbach's Alpha coefficient analysis results

No.	Factors	Cronbach's Alpha
1	PQ	0.912
2	PriSe	0.930
3	PaySe	0.896
4	RRI	0.914
5	EC	0.909
6	PS	0.889

Source: Data analysis results of the research team

Reliability analysis results for the independent variables "Product quality" and the dependent variable "Privacy Security", "Payment Security", "Receiving and responding to incidents", "Expectation Confirmation" and "Perceived Security" all have Cronbach's Alpha coefficient $\geq 0,6$, so all have satisfactory reliability (Hoang Trong et al., 2008).

4.2. Exploratory Factor Analysis (EFA)

Table 2. KMO and Bartlett's Test of Independent Variables

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.922
Bartlett's Test of Sphericity	Approx. Chi-Square	3661.942
	df	231

Source: Data analysis results of the research team

The standard of the factor analysis method is that the KMO index must be greater than 0.5 (Garson, 2003) and Bartlett's test has the sig significance level < 0.05 to show that the data used for factor analysis is appropriate and between the variables are correlated with each other. The results of the research team gave KMO = 0.922, sig. BaPriSelett's Test $0.000 < 0.5$, shows that in the same factor, there is a correlation between observed variables, so the data used for factor analysis is completely appropriate.

Table 3. The result of the total variance extracted from the independent variable

Total Variance Explained							
Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total
1	10.694	48.609	48.609	10.362	47.099	47.099	8.212
2	2.373	10.787	59.396	2.043	9.288	56.388	6.510

Total Variance Explained							
Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total
3	1.402	6.373	65.769	1.147	5.215	61.603	7.193
4	1.147	5.213	70.982	.826	3.753	65.356	8.368
5	.866	3.935	74.916				
6	.673	3.060	77.977				
7	.537	2.439	80.416				
8	.512	2.327	82.743				
9	.495	2.252	84.994				
10	.472	2.145	87.140				
11	.355	1.612	88.752				
12	.348	1.583	90.335				
13	.339	1.539	91.874				
14	.303	1.376	93.250				
15	.278	1.264	94.515				
16	.230	1.047	95.562				
17	.219	.995	96.556				
18	.197	.898	97.454				
19	.176	.801	98.255				
20	.156	.709	98.964				
21	.129	.588	99.552				
22	.099	.448	100.000				
Extraction Method: Principal Axis Factoring.							
a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.							

(Source: Data analysis results of the research team)

The total variance extracted is 65.356% \geq 50%, the EFA model is completely suitable (Hair et al, 2009). 4 groups of factors are extracted to summarize 65.356% of the variation of observed variables:

Table 4. Rotation matrix of independent variables

Pattern Matrix^a				
	Factor			
	1	2	3	4
PQ7	.813			
PQ1	.806			
PQ5	.748			
PQ9	.737			
PQ2	.712			
PQ6	.709			
PQ4	.704			
PQ3	.671			
PQ8	.505			
RRI3		.891		
RRI4		.880		
RRI2		.788		
RRI1		.716		
PriSe3			.962	
PriSe2			.949	
PriSe1			.789	
PriSe4			.607	
PaySe2				.972
PaySe1				.815
PaySe3				.666
PaySe4				.630
PaySe5				.611
Extraction Method: Principal Axis Factoring.				
Rotation Method: Promax with Kaiser Normalization.				
a. Rotation converged in 6 iterations.				

Source: Data analysis results of the research team

With sample sizes from 120-349, the load factor 0.5 is usually taken as the standard level. According to Hair & colleagues (2009,116), Multivariate Data Analysis, 7th Edition then:

- Factor Loading at ± 0.3 : Minimum condition for the observed variable to be retained.
- Factor Loading at ± 0.5 : The observed variable has good statistical significance.
- Factor Loading at ± 0.7 : The observed variable has very good statistical significance.

From Table 4.4, we can see that all variables meet the requirements and are kept.

After analysis, the independent variables converge into 3 groups and are created as representative variables as follows:

- The first factor: includes observed variables PQ1 to PQ9 representing the factor "Product quality". The representative variable is PQ.

- The second factor: includes the observed variables PaySe1 to PaySe5, representing the factor "Payment security". The representative variable is PaySe.

- The third factor: includes the observable variables PriSe1 to PriSe4, representing the "Privacy Security" factor. The representative variable is PriSe.

- The fourth factor: includes the observed variables RRI1 to RRI4, representing the factor "Receiving and responding to incidents". The representative variable is the RRI.

4.3. Confirmatory factor analysis CFA

Table 5. Model Fit Index CFA analysis

CMIN	Model	NPAR	CMIN	DF	P	CMIN/DF
	Default model	41	277.336	130	.000	2.133
	Saturated model	171	.000	0		
	Independence model	18	2938.806	153	.000	19.208
RMR, GFI	Model	RMR	GFI	AGFI	PGFI	
	Default model	.038	.875	.836	.666	
	Saturated model	.000	1.000			
	Independence model	.365	.195	.100	.174	
Baseline Comparisons	Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
	Default model	.906	.889	.948	.938	.947
	Saturated model	1.000		1.000		1.000
	Independence model	.000	.000	.000	.000	.000
RMSEA	Model	RMSEA	LO 90	HI 90	PCLOSE	
	Default model	.073	.061	.085	.001	
	Independence model	.292	.283	.301	.000	

Source: Data analysis results of the research team

Performing CFA analysis, we get the results according to table 4.5, the model has Chi-square/df = 2,133 < 3 with p = 0.000; CFI=0.947 > 0.9, GFI=0.875 > 0.8, TLI=0.938 > 0.9, RMSEA=0.073 < 0.8 so the model fits the research data.

4.4. Test the research model by Structural Model SEM

Table 6. Standardized Coefficients (SEM)

			Estimate
RRI	←	PQ	.554
EC	←	PriSe	.280
EC	←	PaySe	
EC	←	RRI	.501
PS	←	EC	.793

Source: Data analysis results of the research team

The Standardized Coefficients are all positive, so the effects of the factors are all in the same direction.

Standardized Linear Regression:

$$EC = 0.280 * PriSe + 0.280 * PaySe + 0.501 * RRI$$

$$PS = 0.793 * EC$$

Table 7. R-squared coefficient adjusted for dependent variables

	Adjusted R Square
Receiving and Responding to Incidents	.307
Expectation Confirmation	.728
Perceived Security	.629

Source: Data analysis results of the research team

The adjusted R square indicates the degree of influence of the independent variables on the dependent variable. Specifically, the adjusted R square of Receiving and responding to incidents is 0.307, corresponding to the independent variable "Product quality" which explains 30.7% of the change of " Receiving and Responding to Incidents ". "Privacy security", "Payment security" and "Receiving and Responding to Incidents" explain 72.8% of "Expectation Confirmation". And finally, "Expectation Confirmation" explains 62.9% of the change in "Perceived Security".

5. Discussion and Conclusion

5.1. Discussion

From the results of testing the research model with the SEM linear structural model, the impact of the variables in the condition that other factors remain constant is as follows: Receiving and Responding to Incidents will increase (decrease) 0.554 units when product quality increases (decreases) by 1 unit; Expectation Confirmation increases (decrease) by 0.280 units when privacy security increases (decrease) by 1 unit; Expectation Confirmation will increase (decrease) 0.280 units when payment security increases (decreases) by 1 unit; Expectation Confirmation will increase (decrease) by 0.501 units when Receiving and Responding to Incidents increases (decrease) by 1 unit; Perceived Security will increase (fall) 0.793 units upon Expectation Confirmation increase (decrease) by 1 unit.

The study has new points compared to previous research. Specifically, the factor "Product quality" has shown that in addition to the products sold on the e-commerce platform needing to be guaranteed in terms of quality, users also need to be able to easily use that e-commerce platform, while that is the study of Florian N. Egger (2001). This research has shown that when potential customers can easily use and learn much information on the Web, it helps them feel safe and confident. L. Chen et al. (2004) research on the technology acceptance model (TAM) also shows that the ease of use of the Web plays an important role that influences the feeling of usefulness and attitude. Customers' platform usage for e-commerce services. Liang and Lai (2002) also showed similar results. Research also shows differences in feelings of security by income. Accordingly, when consumers' incomes reach over 20 million VND, their sense of security decreases.

Thus, according to the research results, to increase Perceived Security, it is necessary to have solutions to improve Expectation Confirmation, in which Expectation Confirmation is affected by other factors. That factors (in decreasing order of impact) are Receiving and Responding to Incidents, privacy security, and payment security. Receiving and responding to incidents is also affected by product quality.

5.2. Conclusion

In summary, this study builds a model of the factors that affect consumers' sense of security when deciding to use e-commerce platforms in Vietnam in the digital economy. After proposing the model, we analyze and evaluate the reliability of the factors and the model's suitability. The results provide a quantitative analysis of the impact level and direction of the elements, thereby helping product and service providers to improve the sense of security for consumers, create trust and consumer loyalty to the use of e-commerce services. Some of the solutions the research team came up with:

Solution 1: Enterprises and e-commerce platforms need to develop a clear and specific information security policy to protect the interests of consumers.

Develop an easy-to-understand, specific and explicit information security policy for a separate group of customers and employees of the company. If information is disclosed, businesses need to have scripts and documents prepared when customer information is disclosed.

Solution 2: Have a transparent, clear, and easy-to-implement process for receiving and responding to incidents.

One must have a detailed, easy-to-implement, and clear incident receipt and response policy and procedure. Second, there should be a policy of checking goods before receiving goods. Third, the e-commerce platform needs to be an intermediary to ensure fairness between sellers and buyers.

Solution 3: Improve and tighten input standards of items to be sold and displayed on e-commerce platforms.

E-commerce platforms need a specific product and goods traceability. Do not import products that do not match the images and information posted on the system. In addition, businesses should use quality management and inventory management software.

Solution 4: Have a warranty policy, check goods before receiving and return goods clearly and transparently.

Online stores need a simple and effective check-in, refund and return policy, clear warranty policy to impress customers, and turn that policy into a brand differentiator.

Solution 5: The e-commerce platform needs to improve, closely monitor the supplier's commitments and evaluate the actual situation, the level, and how the supplier fulfills the promise.

E-commerce platforms need to have clear and transparent policies for checking goods and returning poor-quality goods. When consumers have problems with their order, they can contact the responsible party quickly until the issue is resolved.

Besides the contributions, the study still has some limitations. Firstly, the sample size is still small (215 observations), so it is impossible to accurately assess the impact of demographic factors on the research results like income, education level. In addition, because the research topic is new and there is little reference material, several other factors still affect the feeling of security. Hopefully, the research will be the premise and theoretical basis for future studies on e-commerce in general and the sense of security in particular.

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A RESEARCH ON FACTORS AFFECTING PURCHASE INTENTION OF ORGANIC AGRICULTURAL PRODUCTS ONLINE AMONG NORTHERN CONSUMERS

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Abstract

This study aims to examine the influence of factors on the purchase intention of organic agricultural products online among consumers in the North, through a survey of 612 participants. The Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB) are used and adjusted accordingly. Besides, the Cronbachs Alpha reliability analysis method, Exploratory Factor Analysis (EFA), and linear regression analysis using SPSS 26.0 are applied as well.

The obtained results show that there are 6 factors affecting consumers' purchase intention of organic agricultural products online, including Price expectation, Food safety awareness, Product quality, Social influence, Trust, and Quality of Logistics. Consequently, the authors propose a few recommendations to businesses, consumers, and management agencies, helping them to take a broader view of organic agricultural products, thereby improving production, selling capacity, and proper decision-making.

Keywords: *online shopping, organic agricultural products, purchase intention.*

1. Introduction

The global market for organic agricultural products is growing. In 2016, the Research Institute of Organic Agriculture (FiBL) and the International Federation of Organic Agriculture Movements (IFOAM) announced the results of a survey that by the end of 2014, there were a total of 172 countries doing organic farming with a cultivated area of 43.7 million hectares. In 2016 alone, the world's consumption of organic agricultural products reached \$80 billion USD and is expected to grow in the coming time.

Not out of the world development, the market for organic agricultural products in Vietnam has experienced strong growth in recent years. The proof is that, by the end of 2016, the number of vegetable and fruit production facilities with VietGap certification was 599 and 706, respectively, with an area of over 3,700 hectares for growing vegetables and more than 12,000 hectares for growing fruit. Up to now, regarding vegetable production facilities alone, this number has increased to 1500 facilities with an area of over 12,000 hectares. Moreover, there are 180 countries importing organic agricultural products from Vietnam, so the cultivated area of Vietnam has increased from 50,000 hectares in 2016 to 24,000 hectares in 2020.

With the new trend, there are more health-conscious consumers who tend to use safe products, typically "organic" products. From that, it can be easily seen that, when consumers are gradually worried about the problems of preservatives and antibiotics that can lead to food poisoning, the market for organic agricultural products is a potential one.

In Vietnam, according to information from Vietnam E-commerce White book by the Ministry of Industry and Trade published in 2021, the percentage of Internet users participating in online shopping has increased from approximately 80% in 2019 to nearly 90% in 2020. In 2021, the impact of the Covid-19 epidemic has paved the way for the birth of online shopping services of e-commerce sites. With the trend of organic consumption as well as the emergence of online shopping, organic agricultural products are increasingly popular, attracting many consumers to shop on e-commerce sites.

The topic will delve into the survey to find out about the real situation of purchasing organic agricultural products online as well as clarify the factors affecting the intention of consumers. Finally, the research will come up with some recommendations and practical solutions, which help businesses supplying organic agricultural products to improve their efficiency on online selling sites.

2. Literature Review

2.1. What is organic agricultural product?

In Vietnam, according to Clause 7, Article 3 of Decree 57/2018/ND-CP, "Agricultural products are products generated by the agriculture, forestry, aquaculture, and salt industries"

According to J. I Rodale - who is regarded as the father of organic production in the US, agricultural products that do not use herbicides, pesticides, and inorganic fertilizers are organic foods.

From that, the authors define organic agricultural products as products generated by agriculture, forestry, aquaculture, and salt industries grown by methods without the use of inorganic fertilizers, herbicides, and pesticides.

2.2. What is online shopping?

According to Kotler & Armstrong (2004), the exchange of goods between buyers and sellers through an electronic connection is called online shopping. The act of consumers purchasing goods through an online store or using an online shopping transaction through a website is online shopping (Monuwe et al., 2004).

2.3. Consumers' purchase intention of organic agricultural products online.

Behavioral intention shows an individual's willingness to perform a behavior, and this is also a prerequisite for an individual to perform a predetermined behavior. Behavioral intention mentions "a person's subjective probability that he or she will perform some behaviors" (Fishbein and Ajzen, 1975). Intention to purchase organic agricultural products refers to motivational factors that encourage consumers to consume organic agricultural products, which represents the efforts of individuals in purchasing organic agricultural products.

Theory of Planned Behavior (TPB) (Ajzen, 1991) was improved and extended, based on the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975). TPB assumes that the core factor to explain behavior is behavioral intention. There are 3 factors affecting behavioral intention, namely "attitude", "subjective norm" and "perceived behavioral control".

Technology Acceptance Model (TAM) (Davis, 1989) assumes that the intention to use information technology is affected by usage attitude. Besides, the usage attitude of users is influenced by 2 factors, which are perceived usefulness and perceived ease of use.

2.4. Research models and hypotheses

Based on the review of previous studies in the world and Vietnam as well as TPB, the authors have built a research model with the following hypotheses:

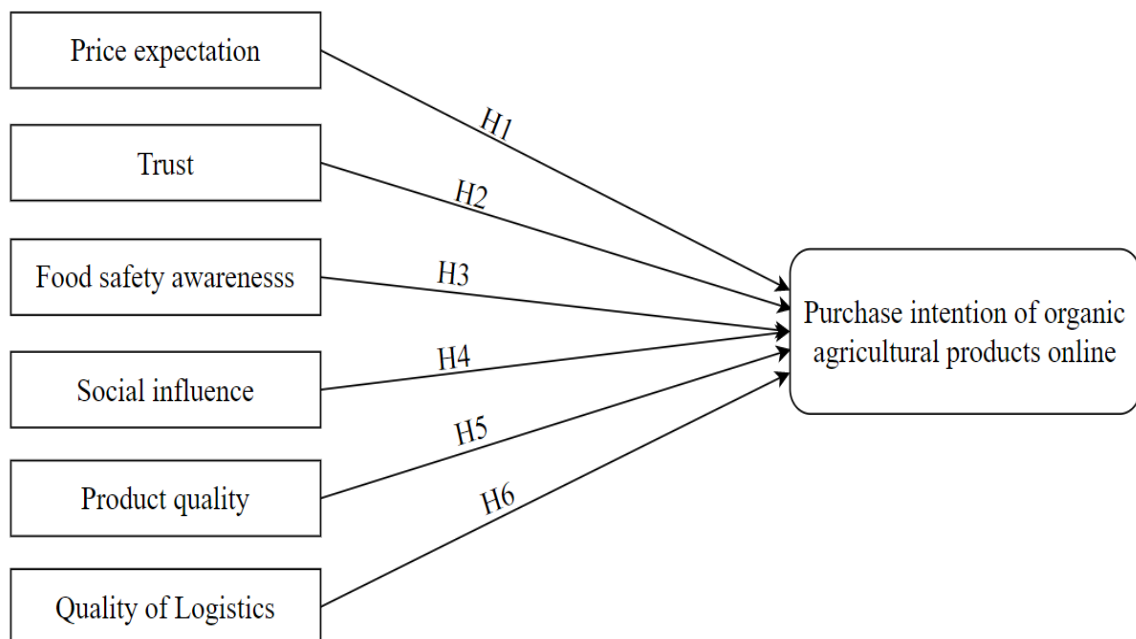


Figure 1. Research Model

Source: Created by the authors (2022).

3. Results

3.1. Descriptive statistics

Survey participants are consumers in 3 provinces of Hanoi, Bac Ninh, and Hung Yen - 3 provinces with basic features of the North. 730 questionnaires were distributed by the research team, of which 612 valid questionnaires were collected, reaching the rate of 83.84%.

Table 1. Sample's Description

Sample		Number of People	Ratio (%)
Gender	Male	259	42,3
	Female	353	57,7
Age	Under 25 years old	249	40,7
	25 - 35 years old	205	33,5
	36 - 50 years old	106	17,3
	Over 50 years old	52	8,5
Residential area	City	362	59,1
	Countryside	211	34,5
	Others	39	6,4
Income	Under 3 million VND	102	16,7
	3 - 10 million VND	275	45
	11 - 20 million VND	153	25
	Over 20 million VND	82	13,3
Frequency of food shopping	Once a day	148	24,2
	2 -3 times a day	270	44,1
	Once a week	95	15,5
	Less than once a week	99	16,2

3.2. Reliability analysis using Cronbach's Alpha

Table 2 shows that the scales used by the research team all have a high Cronbach's Alpha coefficient (>0.4). All observed variables of these scales have the Corrected Item – Total Correlation greater than 0.3. Therefore, these scales are reliable and appropriate to use in this research.

Table 2. Cronbach's Alpha

Number	Variables	Symbol	N of Items	Cronbach's Alpha	Smallest Corrected Item – Total Correlation
1	Price expectation	PE	3	0,714	0,554
2	Trust	TR	4	0,827	0,604
3	Food safety awareness	FS	4	0,749	0,534
4	Product quality	PQ	5	0,862	0,629
5	Social influence	SI	5	0,808	0,480
6	Quality of Logistics	QL	3	0,782	0,592
7	Purchase intention of organic agricultural products online	PI	3	0,791	0,495

Source: Created by the authors (2022).

3.3. Exploratory Factor Analysis

The research team used the exploratory factor analysis method (EFA) for 6 independent variables – 24 observed variables. The Principal Component Analysis method is used, along with Varimax rotation and breakpoint when extracting factors with Eigenvalues of 1. The results show that the KMO value is $0.926 > 0.5$, which is satisfactory. This means the size of the sample is suitable for the analysis. Barlett coefficient has $\text{Sig.} = 0.000 < 0.05$, meaning that observed variables are correlated with each other in the factor.

Then, the results show that there are 6 factors extracted with the criterion of Eigenvalue coefficient greater than 1, with a Total Variance Explained of 65,852% (>50%), which is satisfactory. In other words, 24 observed variables proposed by the research team explained 65.852% of the variation of the observed variables. At the same time, the scales for the 6 factors all reached the convergent validity and all had a load factor greater than 0.3 (which is satisfactory with the sample size $N = 612$).

Table 3. Results Factor Analysis - Independent

Items	Factor					
	1	2	3	4	5	6
PQ4	0,775					
PQ5	0,756					
PQ3	0,736					
PQ2	0,668					
PQ1	0,649					
SI2		0,787				
SI1		0,739				
SI3		0,711				
SI4		0,580				
SI5		0,478				
TR3			0,747			
TR1			0,733			
TR2			0,720			
TR4			0,670			
FS2				0,724		
FS1				0,692		
FS4				0,545		
FS3				0,513		
QL2					0,795	
QL3					0,785	

Items	Factor					
	1	2	3	4	5	6
QL1					0,563	
PE1						0,703
PE3						0,675
PE2						0,507
Eigenvalues	9,018	2,137	1,365	1,154	1,127	1,004
Comulative %	37,574%	46,480%	52,165%	56,974%	61,670%	65,852%

Source: Created by the authors (2022).

Next, the research team conducted an Exploratory Factor Analysis of the dependent variable “Purchase intention of organic agricultural products online” with 6 independent variables. The result shows that KMO value=0.548, the result of the Bartlett test is 175,906 with Sig = 0.000 and the test result of Eigenvalue coefficient is 1,580 (greater than 1). In addition, the Average Variance Extracted of the dependent variable reached 52.680%.

Thus, through the scale test, the factor "Purchase intention of organic agricultural products online" includes 6 independent variables: Price expectation, Food safety awareness, Product quality, Social influence, Trust, and Quality of Logistics.

3.4. Correlation test

The results of correlation analysis through the Pearson correlation matrix show that all the independent variables are strongly correlated with the dependent variable and are correlated with each other at the 5% significance level.

3.5. Regression analysis

First of all, the results of the linear regression analysis show that the Adjusted R-squared is 0.520, indicating that the factors assumed by the research team in this model contribute to 52.0% of the change in the dependent variable “Purchase intention of organic agricultural products online”. The ANOVA results show that the F-statistic of the model = 111,147, Sig = 0.000, meaning that the multiple linear regression model is suitable for the data set of the research team.

Next, Table 4 shows that all 6 variables have statistical significance with Sig < 0.05. In other words, all 6 hypotheses are accepted. Specifically, the factor “Price expectation” has a 21.0% impact on “consumers’ purchase intention of organic agricultural products online”. The factors “Trust”, “Food safety awareness”, “Product quality”, “Social influence”, “Quality of Logistics” affect the “Purchase intention of organic agricultural products online” at the rate of 14%; 19,3%; 15,4%, 14,2% và 9,2% respectively.

The multiple linear regression equation is concluded as follows:

$$PI = 0,156 + 0,19*PE + 0,123*TR + 0,183*FS + 0,138*PQ + 0,141*SI + 0,092 * QL$$

Table 4. Results Regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0,156	0,125		1,241	0,215		
PE	0,190	0,034	0,210	5,567	0,000	0,552	1,811
TR	0,123	0,034	0,140	3,672	0,000	0,544	1,839
PS	0,183	0,038	0,193	4,823	0,000	0,490	2,042
PQ	0,138	0,035	0,154	3,913	0,000	0,505	1,981
SI	0,141	0,038	0,142	3,678	0,000	0,530	1,887
QL	0,082	0,032	0,092	2,542	0,011	0,607	1,648
Adjusted R Square: 0,520							
Durbin-Watson: 1,934							
F (ANOVA): F = 111,147							
Sig. (ANOVA): 0,000							

Source: Created by the authors (2022).

3.6. T-test

The research team used the Tests of Homogeneity of Variances to find the difference in purchase intention of qualitative variables. The results show that there are differences in purchase intention, depending on occupations, living areas, and the number of people in the family of consumers. At the same time, there was no difference between the sex groups.

4. Discussion and Conclusion

4.1. Managerial implications

Price expectation: From the research results, price expectation is the factor that has the biggest impact on consumers' purchase intention of organic agricultural products online. Businesses should have policies to minimize costs and unimportant steps. At the same time, there should be promotional programs to attract consumers' attention and stimulate shopping.

Food safety awareness: It can be said that one of the biggest reasons why consumers decide to purchase organic agricultural products is that they are concerned about the health of their families and themselves, especially in an alarmingly poor situation of food hygiene and safety. Therefore, businesses should be transparent and clear in the safety certifications of organic agricultural products so that consumers can trust and make the most accurate choice.

Product quality: When consumers perceive organic agricultural products to be of good quality and organic agricultural products sold online also obtain certificates such as VietGap, GlobalGap, etc just like the ones sold in supermarkets, their purchase intention will

increase because of the convenience of this method of shopping. This is also a remarkable point for businesses when selling organic agricultural products online: balancing between quality and price of the product.

Social influence: Consumers have the tendency to purchase organic agricultural products online if they are influenced by relatives, friends, good reviews, and advertisements on social media. Hence, businesses should enhance the building of prestigious brands, good images, and at the same time investing heavily in marketing communications so that organic agricultural products are popularized and create more trust for consumers.

Trust: Trust in the online shopping method or in the quality of organic agricultural products will also change consumers' purchase intentions. In the 4.0 era, consumers tend to use the online shopping method more because they trust the commitment and quality safety certification of organic agricultural products rather than purchasing organic agricultural products at traditional markets. Businesses need to focus on building trust among customers through their own products, online stores, and consulting & customer care services.

Quality of logistics: Through the research, the team found that the faster the delivery time, the higher the consumers' purchase intention for organic agricultural products online. In addition, they are also very concerned about after-sales services as well as the fact that organic agricultural products may be degraded or even damaged during transportation. Therefore, businesses need to focus on their logistics to attract customers with this new method of shopping.

4.2. Limitations of the study and suggestions for further research

The study still has some limitations as follows. Firstly, the research sample is only limited to the northern provinces, so it has not had comprehensive generality for the whole Vietnam. Secondly, the research team only mentioned 6 factors affecting purchase intention while there are other influential factors, such as risk perception, shopping habits, etc. This will be an open direction for future research topics that can be exploited.

4.3. Conclusion

The objective of the study is to examine the factors affecting the purchase intention of organic agricultural products online of consumers in the North. The research was carried out through two steps: qualitative and quantitative. Quantitative research results with a valid sample size of 612 have shown that the scales have guaranteed reliability, and all 6 hypotheses are accepted. Specifically, there are 6 factors that positively affect the purchase intention of organic agricultural products online of consumers in the North, ranked in descending order of impact: Price expectation (Beta = 0.21); Food safety awareness (Beta = 0.193); Product quality (0.154); Social influence (0.142); Trust (0.140) and Quality of Logistics (0.092). At the same time, the research results show that there is a difference in the purchase intention of organic agricultural products online, depending on occupations, living areas, and the number of people in the family.

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A RELATIONSHIP BETWEEN EWOM, CONSUMER PERCEIVED VALUES AND BEHAVIORAL INTENTION TO BUY ORGANIC AGRICULTURAL PRODUCTS ON E-MARKETPLACE: A CASE STUDY IN HANOI, VIETNAM

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Abstract

Over the past decade, consumers are more and more aware of the harmful effects of abusing chemicals in agricultural production on their health and the sustainability of the environment. It is gradually becoming popular in many countries. In Vietnam, organic agricultural products have been put on e-commerce platforms to get closer to consumers, but still face many difficulties in consumption. From that fact, this study applies the Theory of consumer perceived values developed by Sweeney and Soutar (2001) and the Theory of Planning Behaviour (TPB) of Ajzen (1991) to analyze the relation between EWOM, customer perceived value, and behavioral intention to buy organic agricultural products on e-marketplace in Hanoi market. Through the survey, the research team collected data from 398 consumers in Hanoi and processed it using SPSS 20.0 and AMOS 24.0 software. The results show the moderating effect of consumer perceived value between EWOM and intention. Moreover, they also prove that quality value, emotional value, social value, and electronic word of mouth have a positive relationship with the intention to buy organic agricultural products on e-commerce platforms. Implications, limitations, and future research directions will be discussed in the following article

Keywords: *consumer perceived values, electronic Word of mouth (EWOM), organic agricultural products, e-marketplace.*

1. Introduction

According to the World Health Organization (WHO), organic agricultural products are "products created from organic agriculture in which the production process uses only organic fertilizers, manual or mechanical weeding, and pest control by biological methods, creating products that meet food hygiene and safety requirements, while at the same time ensuring a sustainable production system in terms of environment, society, economy, protecting the living environment for both present and future". The spread of the COVID-19 pandemic has changed the shopping behavior and eating habits of consumers related to food. They tend to switch to healthier diets, increase their consumption of organic products due to food safety concerns, and change the way they buy food with the rise of online grocery shopping (Lin et al., 2020). The skyrocketing demand for organic food has prompted food manufacturers to offer more products and ramp up their marketing activities to the public. In particular, customer perceived value is considered by many to be the main source of competitive advantage in the 21st century. The theory of customer perceived value has been used in many fields, especially in the field of marketing, to predict consumer preferences and willingness to make transactions in the future. Furthermore, customer perceived value influences and is dependent on behavioral intentions such as loyalty and word of mouth (Johnson et al., 2006). Although there have been many studies exploring perceived value, the research related to technological advances is still limited, especially in the context of online purchases (Zauner et al., 2015). In Vietnam, 86% of Vietnamese consumers prefer to use organic products for their daily meals because of their safety, nutrition, and delicious taste (Nielsen, 2017). However, the real customers of organic agriculture in Vietnam today are quite modest. According to data from FiBL-IFOAM (2021), the per capita consumption of organic products in Vietnam is only about 2 euros. The reason is that consumers currently do not have enough economic conditions to go along with worries about the true value of organic products, which makes consumers afraid to choose this type of product. With theoretical and practical implications, this study was conducted to understand the factors affecting consumers' intentions to buy organic agricultural products, thereby proposing implications to promote the purchase of organic agricultural products consumers this item on the e-marketplace.

2. Theoretical Framework

2.1. Theoretical Basis

2.1.1. Theory of consumer perceived value

The study of Sheth et al, 1991, the authors assumed that customer choice influenced by consumption values is equivalent to 5 aspects of value: (1) functional value (2) epistemic value (3) conditional value (4) social value and (5) emotional value. These factors are considered independent of each other, which means that consumption decisions can be influenced by any or all aspects, depending on the situation as well as the product or service in question.

However, Sweeney and Soutar (2001) suggest that aspects of value may not be independent because groups of factors related to the enjoyment and practicality of attitudes may be related. Then, the authors have developed a customer perceived value model with a scale to measure consumers' perceptions of the value of durable goods based on 4 value

dimensions (emotional, social, quality, value/performance, and price/value for money). In this theory, price and quality are assumed to be sub-factors of functional value proposed by Sheth et al. (1991) and these aspects contribute exclusively to perceived value. The social and emotional aspects are represented by the set of intangible factors that affect the relationship. The scale is proven to be valid and reliable in both pre-purchase and post-purchase situations. This has also been demonstrated when applied to different product categories such as organic food (Al Waseti, 2020; Finch, 2006), education (Stafford, 1994), e-commerce (Peng et al., 2013).

2.1.2. Theory of Planned Behavior

The proposed behavioral theory is the development and improvement of the Theory of Reasoned Action by Ajzen and Fishbein (1975) and is the commonly used theory when it comes to predicting a particular behavior of any individual, maybe the act of choosing to buy products or services; elective behavior, ... According to the TPB model, motivation and intention are the fundamental factors leading to consumer behavior. Therefore, motivation is affected by 3 fundamental premises: (i) the personal factor or the attitude towards intention, which is the positive or negative attitude towards performing the behavior; (ii) subjective norm and (iii) the decisive factor of self-perception and ability to perform the behavior, which is called perceived behavioral control. The TPB model has been shown to be compatible, suitable when applying a theoretical framework to evaluate online purchasing behavior (Joey F. George, 2004). For the field of organic products, many studies have integrated additional variables into the TPB model to conduct a survey on purchase intentions such as adding new factors such as perception of quality, environment and health in consumer decision making (Rahmawati et al, 2018, Akbar et al, 2019).

2.2. Determinants influencing the intention

2.2.1. Electronic word of mouth

EWOM become important to marketers because they are referred to by potential customers during their buying process. According to a study by Levy et al (2020), the participation of customers in the exchange of price information in the online environment will benefit both buyers and sellers because it will enhance the customer's experience of purchase by consumers and thereby help increase customer perceived value. Consumers can trust the product value propositions described by the manufacturer by accessing reviews posted by other consumers in online shopping communities where consumers can find and get answers to the uncertainties they have (Hidayat and Astiti, 2019). Sun (2012) found that when the quality of book reviews on Amazon differs markedly, in particular, the degree of high or low rating significantly affects the perceived level of product quality and sales. In a study on the intention to buy organic food on social networks, Lin et al (2019) showed that social commerce characteristics (interaction, recommendation, and feedback) had positive effects on emotional value. The reason may be that these platforms provide all the necessary information to help consumers reduce fatigue and stress caused by information overload during the shopping process. This opinion is also supported by Jihad Mohammad et al (2020) when it is found that the quality of user-generated content such as content, images, video, audio, has a positive impact on emotional value. From that, the authors put forward the following hypotheses:

H1: *Electronic word of mouth has a positive effect on functional value - quality.*

H2: *Electronic word of mouth has a positive effect on functional value - price.*

H3: *Electronic word of mouth has a positive effect on emotional value.*

H4: *Electronic word of mouth has a positive impact on social values.*

By extension, with the quick development of the Internet, EWOM has become an important factor in product evaluation because of its scalability and rapid spread of social networks. Accordingly, EWOM is a collection of negative and positive opinions and evaluations about products and services of old, current, and potential customers in the future (Hennig-Thurau et al. associates, 2004). When considering the relationship between EWOM and behavioral intention, previous studies have suggested that there is a positive relationship between these two factors in many fields. For organic food, J Lin et al (2020) examined the correlation between social network characteristics (interactivity, recommendations, feedback) and consumer purchase intention. The results indicate that these characteristics have a positive impact on the functional value and emotional value, play an important role in enhancing consumers' perceived value, and indirectly promote purchase intention. From there, the authors hypothesized:

H9: *Electronic word of mouth has a positive effect on intention to buy organic agricultural products on e-marketplace.*

2.2.2. Consumer perceived value

Functional value is explained as the benefit and advantage the consumer gets due to the functional attributes of the demanded product (Waseti et al., 2022). According to Sweeny and Soutar (2001), functional value-quality is measured performance/quality. Specifically, it is the consumer's assessment of the utility that the market provides through its expected performance and perceived quality. Some studies have also demonstrated the role of this factor in promoting the value perceived by customers (Wang et al., 2004; Lin et al., 2012; Suki et al., 2015). In the food sector, especially the organic product market, functional value related to the biological characteristics of organic foods is often of interest to consumers. They pay special attention to the quality of organic products in terms of health protection such as no chemicals and pesticides, all natural and healthy for conventional foods (Rahnama, 2017). Based on that, the authors propose the following hypothesis:

H5: *Functional value-quality has a positive effect on intention to buy organic agricultural products on e-marketplace.*

The functional value-price is able to improve the customer's perception of the value of the product or service and is also considered as one of the factors that consumers evaluate most closely before deciding to buy green products (Akbar et al., 2019). And they are also willing to pay higher prices for products that are said to be environmentally friendly (Lin and Huang, 2012). In terms of the relationship between functional value - price on green product consumption behavior, several studies have demonstrated that it has a positive impact on the sustainable consumption behavior of customers (Akabar et al, 2019). Research by Waseem Shahzad et al (2011) also suggests that price competition will motivate consumers to use green products more often instead of traditional products. Applying these findings to the current study, the study proposes and tests hypothesis that:

H6: *Functional value-price has a positive effect on intention to buy organic agricultural products on e-marketplace.*

Emotional value measures the perceived usefulness of a product or service by a consumer when arousing a feeling or emotional state (Sheth et al., 1991). From that, it can be understood that emotional value is the sum of feelings of disappointment, joy, happiness, ... of customers and consumers when buying and using that product or service. In the study of the intention to buy organic food on social networks, Lin et al (2020) showed that emotional value is identified as important mediating variables in the impact of product attributes. and services on consumer purchase intention in social commerce. This result is also supported by Lin and Huang (2012) when considering factors affecting green product selection behavior based on consumer value theory. Based on these arguments, a hypothesis is proposed by the authors to test that:

H7: *Emotional value has a positive effect on intention to buy organic agricultural products on e-marketplace.*

Sheth et al. (1991) suggested that social value is a measure to measure the level of usefulness received by-products or services related to specific social, demographic, socioeconomic, cultural groups. It can be understood that social value is the value derived from the product's ability to increase individuality in society, through which consumers can express pride or enhance the status and prestige of the product itself. Especially for developing countries, social values are a more noticeable factor as collectivism is given more importance in these countries (Hofstede, 1984). When Suki et al (2015) studied organic food consumer behavior in Pakistan, the authors found that social value is an important factor that has a positive impact on intention. This contrasts with the results of a recent study by Waseti et al (2022) which found that social value has a significant negative impact on the intention to buy organic food. Applying these findings to the current study, the study proposes and tests a hypothesis that:

H8: *Social value has a positive effect on intention to buy organic agricultural products on e-marketplace*

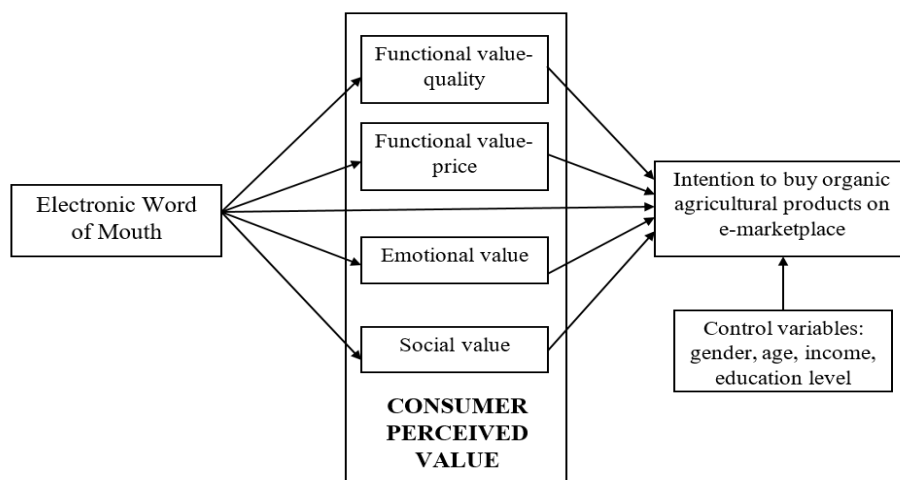


Figure 1. Research Model

Source: Authors' calculation

3. Method

Qualitative research was carried out through 03 depth interviews with 5 experts and 20 survey subjects (consumers in Hanoi city) of different age groups, education levels, and incomes. Qualitative research results show that 24 observed variables used to measure 6 groups of factors have been formed (*see the result in the appendix*). After collecting data from 398 respondents, the data was analyzed using Cronbach's Alpha reliability analysis tool, EFA exploratory factor analysis, and CFA confirmatory factor analysis. Then, all hypotheses were tested by Structural Equation Modeling (SEM), and the model reliability was re-evaluated by the Bootstrap method.

4. Results

4.1. Descriptive statistics

The study considered survey participants according to criteria including gender, age, education level, and income. In particular, about gender, statistical data shows that survey respondents are mainly female with 55.8% higher than 44.2% of men. In terms of age, the group of people between the ages of 18 and 25 accounted for nearly 60%; from 26 to 35 years old accounted for 19.1%; from 36 to 45 years old accounts for 13.6% and over 45 years old is 7.5%. In terms of educational attainment, upper secondary education accounts for about 12.1%; College/intermediate accounted for the lowest proportion with 7.3%, while the number of people with university degree accounted for 71.4% and graduate degree accounted for 9.3%. Regarding income, more than half of the respondents have an income of less than 5 million VND; the group with income from 5 to 10 million VND accounts for 17.1%; the group with income from 10 to 20 million VND accounted for 12.6% and finally the group with income over 20 million VND accounted for 9.0% of the total.

4.2. EFA and CFA results

Cronbach's alpha value for each measure ensures the reliability of all variables. The results show that all of them are greater than 0.7 and corrected item-total correlation greater than 0.5 (*see the result in the appendix*). The scale of variables meets the reliability needed to perform further analysis.

The authors conducted an exploratory factor analysis EFA for the variables. The results show that the KMO coefficient is $0.910 > 0.5$ and $\text{sig.} < 0.05$, equivalent to a high level of significance. In addition, the rotation matrix table shows that 24 observed variables are extracted into 6 groups of factors with high Eigenvalues of all factors (>1). Total Variance Explained is $63.823\% \geq 50\%$, showing that the EFA model is suitable. In addition, the observed variables in the factor groups all have Factor Loading coefficients (Factor Loading) > 0.5 , showing that these observed variables have good statistical significance (Hair et al, 2010).

Table 1. The result of EFA

	Component					
	1	2	3	4	5	6
EWOM2	0.909					
EWOM3	0.805					
EWOM4	0.762					
EWOM1	0.751					
XH2		0.902				
XH1		0.886				
XH3		0.744				
XH4		0.674				
CL2			0.911			
CL1			0.722			
CL3			0.684			
CL4			0.656			
YD2				0.861		
YD3				0.851		
YD1				0.739		
YD4				0.736		
CX2					0.822	
CX3					0.716	
CX1					0.693	
CX4					0.675	
GC1						0.876
GC4						0.73
GC5						0.633
GC2						0.609
Eigenvalue	9.457	2.389	1.659	1.488	1.367	1.088
Cumulative (%)	37.919	46.512	51.898	56.536	60.756	63.823
Sig. = 0.000; KMO = 0.910						

Source: Authors' calculation

CFA result (*see the result in the appendix*) shows that the standardized regression weight of all variables is greater than 0.5, showing the model reaches a convergent validity, the common criteria used for assessing the model's compatibility with market information including: χ^2 (Chi-square), χ^2 - adjusted by degrees of freedom (Chi-square/df), GFI, CFI,

TLI and RMSEA are considered. The result show that the value χ^2 has the corresponding P-value <0.05 ; $CMIN/df = 2.623 \leq 5$; $CFI = 0.934$, $GFI = 0.886$ and $TLI = 0.922$ are close to 0.9; $RMSEA$ is $0.064 \leq 0.08$, showing that the model's compatibility with data is very good. Correlation coefficients of the variables are all smaller than the unit value, so the scale achieves distinct value (Steenkamp & Van Trijp, 1991)

4.3. Structural Equation Model (SEM) analysis

The goodness-of-fit indices of the structural model is shown in Figure 2. It can be concluded that the structural model demonstrated a good fit to the sample data, with $\chi^2/df = 3.286 < 5$; $GFI = 0.852$ ranges from 0.8 to 0.9; $CFI = 0.905$; $TLI = 0.890$ are close to 0.9, and $RMSEA = 0.076 < 0.08$. The model explained a significant 62,8% ($R^2 = 0.628$) of the intention to buy organic agricultural products on e-marketplace.

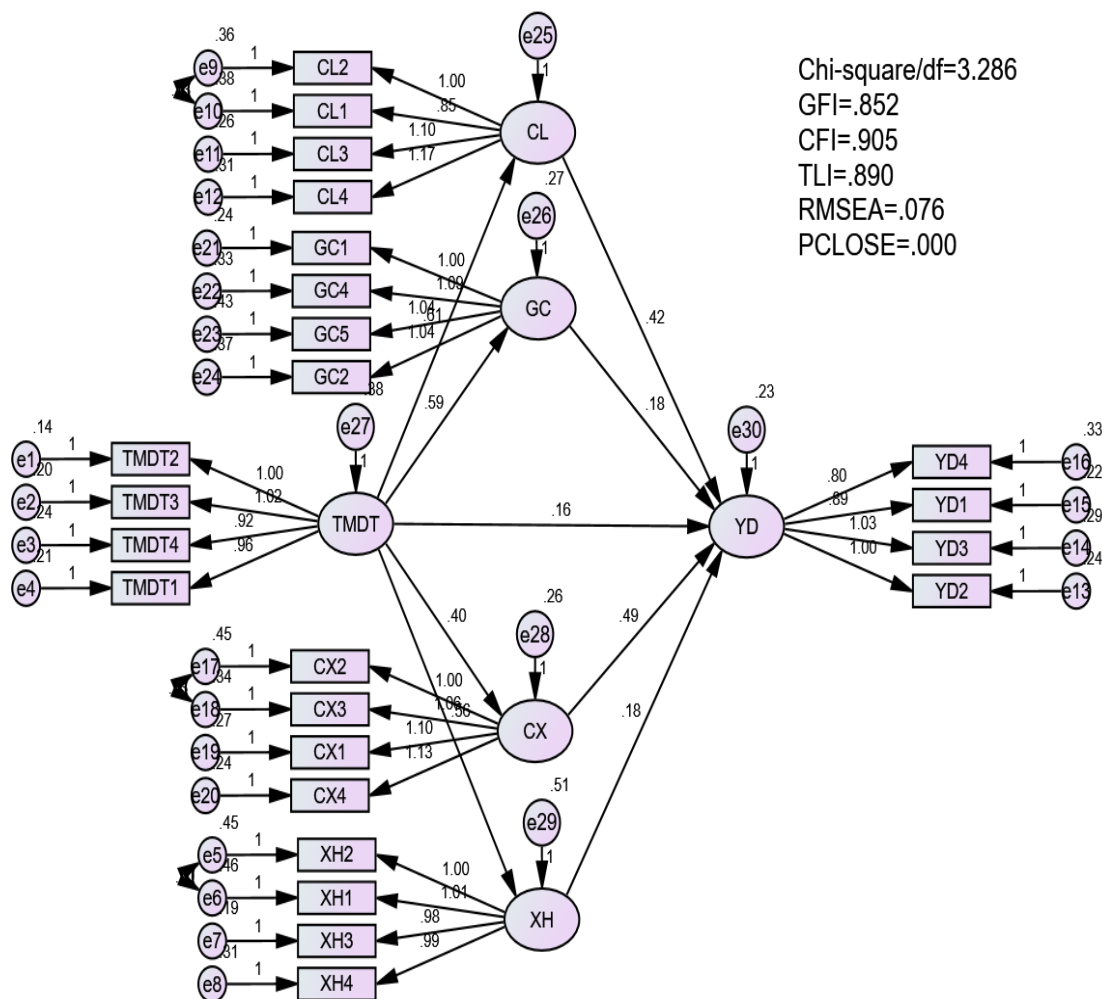


Figure 2. Results of testing the models (SEM)

Source: Authors' calculation

Based on the analysis results of the linear structural mode, the authors found that 8 out of 9 proposed hypotheses are supported with P-value < 0.05 . The result shows that the model proposed by the research team has been effective in explaining the relationship between the variables. Among the hypotheses, only hypothesis H9 is rejected because P-value = $0.082 > 0.05$ (Table 2)

Table 2. Analysis of regression weight

	Estimate	S.E.	C.R.	P
GC <--- EWOM	0.586	0.059	9.971	***
CX <--- EWOM	0.401	0.057	7.007	***
XH <--- EWOM	0.562	0.074	7.631	***
CL <--- EWOM	0.608	0.061	9.946	***
YD <--- GC	0.18	0.066	2.73	0.006
YD <--- CL	0.421	0.076	5.522	***
YD <--- CX	0.485	0.074	6.522	***
YD <--- XH	0.177	0.045	3.904	***
YD <--- EWOM	0.162	0.093	1.74	0.082

Source: Authors' calculation

From the table of standardized regression coefficients, the authors based the Estimate regression coefficient to assess the impact of Electronic Word of mouth on the groups of value factors. Accordingly, Electronic word of mouth has a positive impact on all 4 groups of factors including Functional value-quality, Functional value-price, Emotional value, Social value with standardized regression coefficients are 0.613, 0.573, 0.439, 0.436, respectively. Thus, it can be seen that online forms of word of mouth have the strongest influence on Functional value-quality and the lowest on Social Value.

The authors also consider hypotheses about the relationship between independent variables and dependent variables. Observing 4 groups of factors of consumption value including Functional value of quality, Functional value of price, Social value, Emotional value, the authors found that the estimated coefficient of these factors has a positive sign (+), showing a positive relationship with the intention to buy organic agricultural products on e-marketplace. Which, the factor Emotional value has the strongest impact with a regression coefficient of 0.351, followed by Functional value-quality with a coefficient of 0.330, Social value with a coefficient of 0.181 and the last is Functional value-price with a coefficient of 0.145. However, for Electronic Word of mouth, the analysis results do not support the hypothesis of the research team when it shows that this factor does not affect the purchase intention of consumers.

4.4. Bootstrap test result

The sample was divided into two sub-samples. One half are used to estimate model parameters and another half are used for re-assessment. There is another method is that repeat the research with a different sample. The above two methods are normally impractical because structural equation modeling needs a large sample, which is expensive with much time (Anderson & Gerbing, 1998). In such cases, Bootstrap is a suitable alternative. Bootstrap is a resampling method with replacement, of which the original sample plays the role of crowd (Nguyen Minh Tam, 2009). This study uses the quantity of repeated samples being N = 1,000. The averaged sample value with deviation is presented in the appendix. It

is found that although there is the deviation, the absolute value is $CR \leq 2$, so the deviation is very small, not statistically significant. Therefore, the model estimates can be reliable.

5. Discussion and Conclusion

Electronic word of mouth has a positive impact on all 4 groups of factors including Functional value-quality, Functional value-price, Emotional value, Social value with a standardized regression coefficient of 0.613, 0.573, 0.439, 0.436. Thus, it can be seen that Electronic word of mouth have the strongest influence on Functional value-quality and the lowest on Social Value. Besides, the authors also consider hypotheses about the relationship between independent variables and dependent variables. Observing 4 groups of factors of customer perceived value including Functional value-quality, Functional value-price, Social value, Emotional value, the authors found that the estimated coefficient of these factors all has a positive sign (+), showing a positive relationship to buy organic agricultural products on e-commerce platforms. The factor Emotional value has the strongest impact, followed by Functional value-quality, Social value, and lastly, is the Function value-price. Research results support the study of Chang (2011), Lin et al (2020), Liu et al (2021), Aslam (2020). However, for Electronic word of mouth, the analysis results do not support the hypothesis of the research team when it shows that this factor does not affect the purchase intention of consumers.

Accordingly, the value related to emotion is the factor that consumers are most interested in. The best way to get people's attention is with emotional stimulation, somehow feeling good, annoyed, happy, angry, indignant, or jumping up and down at the sight. Besides, quality standards must be regularly updated according to world standards and should be unified under the management of state agencies. In addition, in the context that Vietnamese consumers still have the habit of favoring low-priced products, social organizations need to promote communication about the benefits and contributions of organic agricultural products to the community with health and the environment. On the part of enterprises producing and providing services on the e-commerce floor, marketing strategies need to focus on quality or price incentives as well as focus on the characteristics of each customer group to popularize organic agricultural products in consumers' shopping carts.

The limitation of this study is that it only focuses on assessing the impact of value factors and electronic word of mouth factors on intention without considering the relationship between these factors. In addition, this study still has limitations related to research methods to collect and process data, the small sample size. Next studies should increase the sample size. Survey data used in quantitative research is conducted at a point in time, thereby the following studies can conduct surveys over some time.

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THE IMPACT OF GAMIFICATION ON ONLINE PURCHASE INTENTION ON E-COMMERCE APPLICATIONS OF GEN Z CONSUMERS IN VIETNAM

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Abstract

E-commerce platforms today have developed and employed many features to increase engagement with users. Due to the advancement of information and technologies, gamification has been developed as strategies to attract customers and encourage purchase intention. In this study, the authors examine the impact of gamification on the purchase intention of users on e-commerce applications. Data sample collected from 535 mobile commerce shoppers in Vietnam through a survey via Google form was analyzed using cognitive evaluation theory. The results of this study found that immersion, achievement, and social features have a positive impact on brand engagement. Brand engagement has also been shown to positively influence purchase intention. Afterward, the result shows that gamification indirectly affects purchase intention, but relies on interaction with brand engagement. This paper discussed the implications of this study on both research and practice and additionally, this is the first empirical study about the impact of gamification on purchase intention in Vietnam.

Keywords: *Gamification, Purchase Intention, Brand engagement, Cognitive evaluation theory*

1. Introduction

With the advancement of Internet technology and the widespread use of smart devices, a growing number of individuals are shopping and paying with their smartphones. In addition, Yuan et al., (2021) indicated that due to the outbreak of the Covid 19 epidemic, people's demand for online shopping increased significantly. The rapid development of e-commerce in Vietnam has led to fierce competition among e-commerce businesses in Vietnam.

As the competition between these e-commerce platforms is getting more and more intense, boosting the online purchase intention of consumers is considered as an important aspect of this type of business. And one of the effective ways to increase purchase intention is adopting gamification into E-commerce applications.

In the past few years, the concept of gamification is gaining popularity in many fields such as healthcare, education, and business. Especially, in the context that Vietnam has a considerable growth rate of Internet usage, gamification is a very effective marketing tool in communication activities, trade promotion, promotion of consumer buying decisions. Previous quantitative studies have studied gamification as one of the means of promoting consumer behavior, which has been applied across many fields such as education, marketing, training, networking, and health (Bunchball, 2010; Hamari & Lehdonvirta, 2010; Deterding et al., 2011a; Hofacker et al., 2016). Some studies Hofacker et al., (2016); Eisingerich et al., (2019); Dhahak and Huseynov (2020); Gajanova and Radišić (2021) suggest that online purchase intention can be explained by intrinsic motivational factors motivated by gamification. This conclusion is further extended when later studies such as De Canio et al. (2021), Willis and Tjhin (2021) show that these intrinsic motivational factors through building brand engagement influence online purchase intention.

However, the studies on the impact of gamification on the online purchase intention of consumers in Vietnam are quite a few and almost never been done, so this issue needs more research. Moreover, given the increasingly widespread use of gamification in marketing, whether on an online brand platform or at e-commerce platforms, there is little research to show an important, key factor of gamification affecting consumers' decisions in online purchases. In addition, most of the previous studies only selected a certain e-commerce platform. In this case, consumers choose to use multiple e-commerce platforms at the same time in order to achieve the best purchasing benefits.

Addressing these gaps, cognitive evaluation theory (CET) was applied in this study. CET was developed to predict the impact of consumers' enjoyment on the game on their purchase intention. (Ryan & Deci, 2000; Deci & Ryan, 2008, 2013). We use this model as the basis for posing a series of research questions about the effect of gamification on purchase intention in e-commerce markets. In this study, a model based on CET was constructed and tested to see how game aspects affect players' psychological demands and boost their sense of enjoyment, influencing their purchase intention.

The study contributes to the literature and practice in a number of ways. First, the authors prove that gamification indirectly affects purchase intention but it affects through the mediating variable, brand engagement... In addition, we successfully applied scales

referenced from foreign studies to measure the influence of gamification on brand engagement, also brand engagement on purchase intention. Our study thus sheds new light on how e-commerce platforms can encourage purchase intention in gamification contexts by demonstrating how three gamification features: immersion, achievement, social facilitate brand engagement, and purchase intention.

2. Literature review and hypotheses

2.1. Gamification

Firstly, gamification is defined as the art and science of turning everyday customer interactions into games that serve your business purposes (Zichermann & Linder, 2010), Gamification is “the use of design elements characteristic for games in non-game contexts” (Deterding et al., 2011b, p.9). It refers to design principles, processes, and systems that attempt to bring about similar positive experiences as those seen in games used, and consequently influence, engage, and motivate individuals, organizations, and communities to promote user behavior (Glover, 2013; Nicholson, 2012; Deterding et al., 2011a).

Gamification features are frequently used on online shopping platforms for content development or advertising. (Vashisht & Pillai, 2017). Hunter and Werbach (2012) proposed the types of game mechanics: exploration, gathering, competition, status, coordination, challenge, and development. The two most popular gamification methods have been recognized as rewards and challenges. (Tobon et al., 2020). The gaming experience is an important part of services using gamification (Deterding et al., 2011b), while entertainment features are also important factors in the gaming experience (Huotari & Hamari, 2017).

Hofacker et al. (2016) used the four-element model proposed by Shell (2008) to measure gamification factors. They are Story, Mechanics, Aesthetics, and finally Technology. Suh et al. (2018) posit the aspect of game dynamics which are the reward, competition, self-expression, and altruism while Eisingerich (2019) used the game principle to study the impact of gamification on user interaction, variables include social interaction, feeling of control, goals, progress tracking, rewards, reminders.

Moreover, gamification design involves many components and according to Ufford (2017), Xi and Hamari (2020), they are classified into three based on their features: immersion-related features, achievement-related features, and social interaction-related features, which appear to be intuitively associated with the dimensions of intrinsic need fulfillment. Immersion-related features, like avatars, storytelling, narrative structures, roleplay mechanics, etc. aim to immerse the user in self-directed questioning action. Achievement-related features include badges, challenges, missions, goals, leaderboards, progression metrics, and other game mechanics that aim to increase the players' sense of success. Social interaction-related aspects, such as team, group, and competition game mechanics, are primarily employed to enable users' social interaction (Jang et al., 2018). In the context of the research paper, the authors propose to use three variables: immersion-related, achievement-related, and social interaction-related to analyze the proposed motivational characteristics.

2.2. Online purchase intention in E-commerce exchange.

E-commerce is an abbreviation of “electronic commerce” (Mohapatra, 2013). It refers to the use of the Internet and other network platforms, such as Shopee, to purchase, sell, transport, transfer, or trade data, goods, or services (Turban et al., 2017). Moreover, e-commerce can be seen as “a subset of e-business, which refers not only to the buying and selling process but all kinds of businesses such as servicing customers, collaborating with business partners, as well as delivering electronic transactions” (Turban et al., 2018). Customers that use e-commerce have various advantages, according to the US Department of Commerce. It gives users access to a worldwide marketplace that connects global supply and demand. Customers can get products, services, and information at any time of day or night, from any location, which is quite convenient. Shopping is faster and more transparent than traditional retail since it is easier to compare pricing and discounts for similar products. E-commerce also provides an interactive way to learn more about things and how to use them (Commerce, 2020). Within the scope of this study, we define e-commerce as the marketing and sale of goods and services through an online platform and focus on the application of gamification on e-commerce exchanges.

Purchase intention is a combination of a consumer's interest and ability to buy a product. The intention to buy at e-commerce platforms is customers' willingness to purchase behavior via the Internet. Purchase intention is the final step in the decision-making process before the customer actually buys the product. To achieve this step, consumers have to pass through several stages until they express purchase intention or in the case of most studies outward supportive communication (Kim et al., 2019). These stages include identifying a need and recognizing a problem, acquiring information, evaluating various solutions (products), selecting an appropriate solution (product), and evaluating the decision after it has been purchased (Jobber & Lancaster, 2015). Many other aspects influence purchase intent during this process, such as brand relationships (Anuwichanont, 2011), eWOM (Lee et al., 2011), or the buyers' general personality (Till & Busler, 2000).

It also refers to attitudes and preferences towards a brand or product (Kim et al., 2010; Kim & Ko, 2010; Kim & Lee, 2009). Bredahl (2001) identified brand attitude as the most important determinant of purchase intention. Dick and Basu (1994) proposed that consumer purchase intention increases when consumers are positively affected by a brand due to an emotional association.

The study of factors affecting online purchase intention has been based on many different theories by the authors. Many theoretical models are widely applied in predicting human behavior from a psychosocial point of view. Examples such as Theory of Planned Behavior (TPB), Technology Acceptance Model (TAM), Cognitive Evaluation Theory (CET)... were used to identify which factors influence online purchase intention. These theories have proven to be effective in predicting human behavior in many contexts.

2.3. Self-Determination Theory & Cognitive Evaluation Theory (CET)

Motivation, according to Deci and Ryan (2008), is what drives people to think, act, and grow. Deci and Ryan's study focuses on intrinsic motivation, as well as the conditions

and processes that enhance performance, increase persistence, and facilitate growth. In this study, intrinsic motivation is defined as "performing an activity solely for inherent satisfaction". When a person is intrinsically driven, he or she is energized and enthusiastic about the task at hand, and when it is completed, he or she experiences a sense of satisfaction or fulfillment. The concept of intrinsic motivation can be understood using Deci and Ryan's (1985) Self Determination Theory as a framework (SDT). The source of intrinsic drive, according to SDT, is an innate pattern of development and assimilation.

Although researchers describe intrinsic motivation as an inherent quality, the individual's ability to maintain and increase it is influenced by the social and environmental circumstances in which he or she lives (Ryan & Deci, 2000). Deci and Ryan's Cognitive Evaluation Theory (CET) focuses on the social and environmental elements that help or facilitate intrinsic motivation and identifies three key psychological demands that must be met in order for an individual to be self-motivated. Competence, autonomy, and relatedness are three of these demands. Competence, according to Deci and Ryan (2013), a sense of competence comes from success experiences and overall positive feelings about an activity. When an individual is given a sense of choice, acknowledgement of feelings, or the opportunity for self-direction, feelings of intrinsic satisfaction are increased. People who have a sense of attachment and affiliation with others are said to be related.

This is a psychological theory that aims to explain extrinsic results from intrinsic motivation. CET proposes the concept of "intrinsic incentive", also known as "intrinsic motivation". This theory suggests that people are more inclined to engage in an activity when they have intrinsic motivations such as pleasurable experiences (Agarwal & Karahanna, 2000; Gottschal & Zollo, 2007; Beecham et al., 2008)

By extending aspects of CET to build a framework for the impact of gamification which are the main determinants of consumer enjoyment, creating real incentives to influence commitment brand and purchase intention. Specifically, in this study, it is possible to consider competence, autonomy motivated by factors such as achievement-related features, immersion-related features while relatedness is motivated by social interaction-related features in gamification.

2.4. Research framework and hypotheses

The relationship between gamification and brand engagement.

There are many previous studies demonstrating the positive influence of gamification on brand engagement. The study by Holbrook et al. (1984) laid the groundwork for applying gamification in marketing, also appreciating gamification as a joyful experience that unites customers and brands. The positive influence of gamification on brand engagement is demonstrated by Lucassen and Janse (2014); Summers and Young (2016), Gatautis et al. (2016), Högberg et al. (2019), Xi and Hamari (2020). Immersion-related features are frequently associated with the sensation of expressive freedom (Peters et al., 2018, Wolf et al., 2020), as well as more emotive and affective aspects (e.g. enjoyment, joy, pride, and surprise). As a result, immersion-based gamification can be expected to be connected with increased emotional brand engagement. Badges, challenges, missions, goals, progression

metrics, and other achievement-related features are composed of goal-structures (goal-setting theory, Landers et al., 2017), effort investment (effort justification theory, Baek et al. 2015) and optimizing consumer behavior, etc... Therefore, it's reasonable to suppose that achievement-related features positively influence cognitive brand engagement. Moreover, customers may easily get/share knowledge about the brand from/with others when there are more interactions with social-oriented gamification features such as collaboration and teams, which can boost social capital and drive social brand engagement. (Xi & Hamari, 2019a). Thus, we propose the following three hypotheses:

H1: The interaction with the immersion-related features in gamification has a positive effect on brand engagement.

H2: The interaction with the achievement-related features in gamification has a positive effect on brand engagement.

H3: The interaction with the social interaction-related features in gamification has a positive effect on brand engagement.

The relationship between gamification and online purchase intention

The relationship between gamification and online purchase intention has been studied by scholars. However, there is still no specific conclusion on the direct influence of gamification on purchase intention (Tobon et al., 2020). According to Gajanova and Radišić (2021) gamification as part of sales promotion; has a positive effect on the buying behavior and attitude of customers. Gamification brings a lot of benefits to businesses on e-commerce channels, it helps to retain more customers on e-commerce platforms (Behl, 2020). This statement is also supported García-Jurado (2021), in this study, the elements in gamification have a direct and positive influence on customers shopping on e-commerce platforms. E-commerce sites can also find customers who frequently visit or have visited the website through tools using gamification, which tends to make the products more attractive plus the lowest cost (Jayasingh, 2019). On the other hand, there are a number of scholars who have studied this relationship through the mediating role of intrinsic motivation and most empirical studies points out that gamification positively influences customer's purchase intention (Bittner and Schipper, 2014; Yüksel & Durmaz, 2016; Mucollari & Samokhin, 2017; Dhahak & Huseynov, 2020; Xu et al., 2020; Gajanova & Radišić, 2021). We based on this to propose that:

H4: The interaction with the immersion-related features in gamification has a positive effect on online purchase intention.

H5: The interaction with the achievement-related features in gamification has a positive effect on online purchase intention.

H6: The interaction with the social interaction-related features in gamification has a positive effect on online purchase intention.

The relationship between brand engagement and online purchase intention

The relationship between brand engagement and purchase intention has been extensively studied (Hewett et al., 2002; Algesheimer et al., 2005; Hollebeek, 2011b; Kim

and Ko, 2012). Research by Hewett et al. (2002) suggests that there exists a strong relationship between the quality of the relationship with the brand perceived by buyers and their repurchase intention. Brand engagement is positively related to purchase intention and mediates the relationship between brand personality and purchase intention (Lee et al., 2020). On the other hand, brand engagement also positively affects purchase intention for social media campaigns (Jimenez-Castillo & Sánchez-Fernández, 2019), online communities (Prentice et al., 2019), and brands (Kumar & Nayak, 2019). Recently, a study by Bilal et al. (2021) on the influence of brand engagement on customer's purchase intention with 260 valid samples in Beijing and Shanghai (China) concluded that brand engagement has a direct positive effect on purchase intention, while other engagement factors such as eWOM have an indirect effect. Moreover, brand engagement and consumer interaction can add brand value, which then leads to long-term profits and consumer loyalty to the brand (Goldsmith, 2012). When a certain brand has established its distinctive value, consumers often use products/services from that brand for a variety of reasons, such as being able to create and express their own identity, helping consumers satisfy the purpose of establishing and maintaining social relationships (Haugtvedt et al., 2018). Thus, brand attachment can be expected to positively influence consumers' purchase intention. A further hypothesis can be proposed:

H7: Brand engagement has a positive effect on online purchase intention.

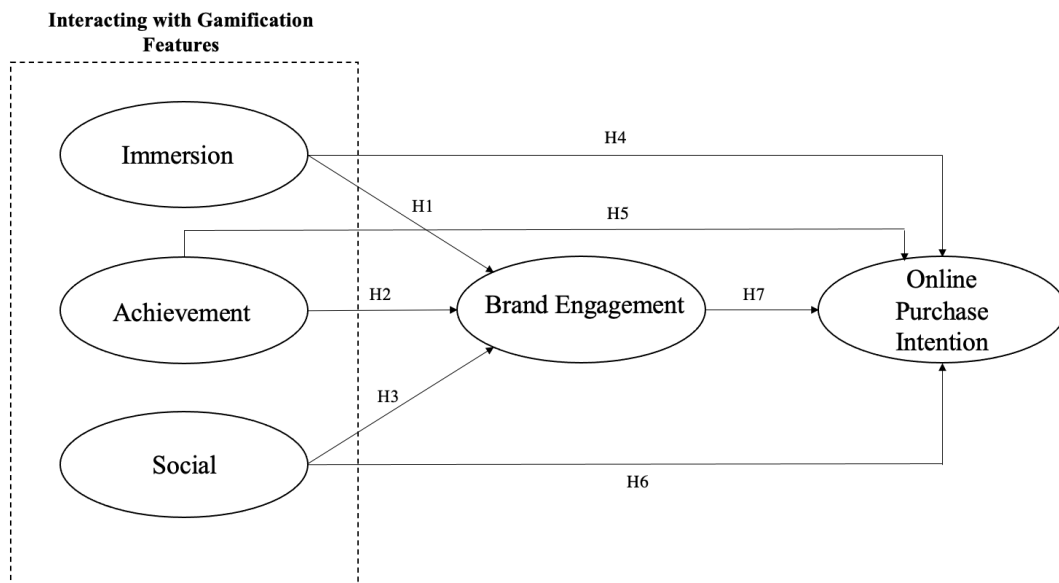


Figure 1. Conceptual model

3. Methods

3.1. Research design

In the first step, the research team designed a preliminary investigation. After consulting with the instructor to ensure the accuracy of the content of the statement, the research team conducted a preliminary survey of a small group of 5 people to check the accuracy and intelligibility of the questionnaire. Since then, the group has adjusted the questionnaire accordingly.

Secondly, after editing and adjusting the questionnaire based on the preliminary survey, the research team then issued a survey with a total of 48 questions. The content of the questionnaire was built with two main parts:

- Part 1: General information (includes questions related to consumer demographics and online shopping habits).

- Part 2: Evaluation questions on how gamification affects consumers' online purchase intention through the intermediary of brand commitment at Vietnamese e-commerce platforms with the form of choosing the level of consent according to Likert scale 5 with 1 - Totally disagree, 2 - Disagree, 3 - Neutral, 4 - Agree, and 5 - Totally agree. Items of Social were adopted from Zhang et al. (2021) to Xi and Hamari (2019b), and we adopted items for Immersion from Willis and Tjhin (2021) to Yee et al. (2006). Items for Achievement were adopted from Suh et al. (2018); Xi and Hamari (2019b); Wang et al.(2017); Bitrián et al. (2021). Items for Brand Engagement were adopted from Xi and Hamari (2020); Willis & Tjhin (2021), Khan et al. (2019), and suggestions by authors. Finally, we adopted items for online purchase intention from Soni and Kuma (2019); Saprikis (2018); Raman (2020); Huang et al., (2017). We collected the data by means of a questionnaire (see Appendix A).

The research team conducted an investigation in Viet Nam with Gen Z consumers as this generation occupies the most potential customer segment, becoming the world's biggest consumer group in the online shopping market. The number of post-screening votes eligible for data entry and analysis is 535 out of a total of 648 votes collected.

3.2. Data analysis techniques

First, the research team analyzes and evaluates the PLS-SEM path model using SmartPLS. The model consists of two elements:

- **The measurement model (also called the outer model)** of the research variables specifies the relationship between the latent variables and the observed variables. It provides information about the measurable attribute of the observed variables (compose reliability, discriminant validity).

- **The structural model (also known as the inner model)** presents research variables that clearly indicate the relationship between latent variables. These relationships can describe theoretical predictions of interest to researchers.

Next, the research team tests the mean between the qualitative variables (with many groups of values to compare) in the research and the quantitative variable Intention to buy. Specifically, the research team performs One-way Anova Test on SPSS 20 to evaluate and compare the difference in purchase intention of Gen Z users on e-commerce apps in Vietnam in different groups, different qualitative values.

4. Results

4.1. One-Way ANOVA Test

The results of *One-Way ANOVA* to test the mean between the qualitative variables (with many value groups for comparison) in the research and the quantitative variable *Intention to buy*.

In terms of gender, the results of the above table show that there is no statistically significant difference in online purchase intention on e-commerce applications of gen Z users in Hanoi of different genders.

In terms of age, the results from the table above show the decreasing level of purchase intention of each age group in the following order: From 26-30 years old (Mean=3.8478); From 18-22 years old (Mean=3.7690); From 22-26 years old (Mean= 3.6471); From 14-18 years old (Mean=3.4110); From 10-14 years old (Mean=3.2059).

In terms of jobs, the results of the above table show that there is no statistically significant difference in online purchase intention on e-commerce applications of gen Z users in Hanoi of different jobs.

In terms of monthly income, the results from the above table show the decreasing level of purchase intention of each monthly income group in the following order: 7–12 million VND (Mean=3.9138); 3–5 million VND (Mean= 3.8893); 5–7 million VND (Mean=3.7639); 1–3 million VND (Mean=3.7374); Over 12 million VND (Mean=3.7250); No income (Mean=3.3626)

In terms of spending on online shopping every month, the results from the table above show the decreasing level of purchase intention of each group of spending on online shopping each month in the following order: From 1,000,000 to 3,000,000 VND (Mean=3.9884); From 500,000 to 1,000,000 VND (Mean=3.7714); Over 3,000,000 VND (Mean=3,50000); Under 500,000 VND (Mean=3.4942).

In terms of shopping habits, the results from the table above show that the decreasing level of purchase intention of shopping habits is in the following order: Frequent online shopping (Mean=3.7074); Always shop online (Mean=3.6078); Search online and go to traditional stores to buy (Mean=3.4307); Buy at traditional stores (Mean=2.8700).

In terms of frequency of accessing e-commerce apps, the results of the above table show that there is no statistically significant difference in online purchase intention on e-commerce applications of gen Z users in Hanoi of different frequencies of accessing e-commerce apps.

In terms of playing games on e-commerce apps, the results of the above table show that there is no statistically significant difference in online purchase intention on e-commerce applications of gen Z users in Hanoi of different frequencies of playing games on e-commerce apps.

In terms of average time using e-commerce apps per day, the results from the table above show the gradual decrease in purchase intention of each group. Average time using e-commerce applications during the day is as follows: 5-7 minutes (Mean=3.7111); Over 15 minutes (Mean=3.6679); 7 - 15 minutes (Mean=3.6622); Under 3 minutes (Mean=3.2115); 3 - 5 minutes (Mean=3.2092).

4.2. Measurement Proposed Research Model Assessment

SmartPLS is one of the leading tools on the problem of applying the PLS method in SEM model estimation, the software also calculates standard results evaluation criteria. Is

software with a graphical user interface for modeling structural equations based on variance using partial least squares path modeling.

The research model is a reflective SEM model. In the outcome measure model, the observed variables are generated by the same research concept (it derives from the same parent), and these observed variables need to be closely related. In addition, the observed variables in the outcome measure are interchangeable, and removing any observed variables from the measure generally does not change the significance of the parent latent variable.

When evaluating the result-type measurement model on SMART PLS, we will focus on the main issues: *Outer loadings (indicators)*, *Cronbach's Alpha*, *Compose reliability*, *Convergence*, and *Discriminant of the scales*.

From previous researches, the research team proposes qualifying thresholds for the criteria in the SEM measurement model analysis:

- Outer Loading > 0.7 (Hair, 2016)
- Cronbach's Alpha \geq 0.7 (DeVellis, 2012)
- Composite Reliability CR \geq 0.7 (Bagozzi & Yi, 1988)
- Average Variance Extracted AVE \geq 0.5 (Hock & Ringle, 2010)

Table 1. Convergent validity and reliability.

Constructs	Items	Outer Loadings	Cronbach's Alpha	rho_A	Compose Reliability	Average Variance Extracted (Ave)
Immersion	NV1	0.762	0.836	0.842	0.890	0.671
	NV2	0.781				
	NV3	0.863				
	NV4	0.683				
	NV5	0.812				
Achievement	TT1	0.677	0.900	0.900	0.930	0.769
	TT2	0.872				
	TT3	0.838				
	TT4	0.853				
	TT5	0.889				
Social	XH1	0.228	0.882	0.888	0.919	0.739
	XH2	0.857				
	XH3	0.895				
	XH4	0.848				
	XH5	0.822				
Brand engagement	CK1	0.669	0.965	0.965	0.968	0.653
	CK2	0.830				

Constructs	Items	Outer Loadings	Cronbach's Alpha	rho_A	Compose Reliability	Average Variance Extracted (Ave)
	CK3	0.850				
	CK4	0.832				
	CK5	0.807				
	CK6	0.807				
	CK7	0.827				
	CK8	0.837				
	CK9	0.794				
	CK10	0.770				
	CK11	0.791				
	CK12	0.793				
	CK13	0.811				
	CK14	0.765				
	CK15	0.803				
	CK16	0.822				
CK17	0.773					
Purchase intention	YD1	0.805	0.900	0.899	0.931	0.771
	YD2	0.907				
	YD3	0.899				
	YD4	0.896				

The result of table 1 shows that the Outer Loadings of the variables CK1, TT1, NV4, XH1 <0.7. Therefore, those variables are removed from the model. The remaining quality criteria were met, as remaining Factor loadings, Cronbach's alpha values, Composite reliability (CR) values, and Average variance extracted (AVE) values were above the recommended thresholds.

In terms of discriminant, Fornell and Larcker (1981) recommend that discriminant is guaranteed when the square root of the AVE for each latent variable is higher than all correlations between the latent variables.

Table 4. Discriminant validity

	CK	TT	NV	XH	YD
CK	0.808				
TT	0.749	0.877			
NV	0.711	0.718	0.819		
XH	0.647	0.547	0.675	0.859	
YD	0.801	0.685	0.621	0.546	0.878

The result from table 1 shows that the numeric part at the top of each key column (square root AVE values (0.808, 0.877, 0.819, 0.859, 0.878) is larger than the numeric part below (correlation between latent variables). Therefore, the discriminant of the model is guaranteed.

4.3 Testing Research Hypothesis

Table 5. Hypothesis Testing

	Hypothesis	Std. Beta	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Decision
CK -> YD	H7	0.821	0.821	0.042	19.700	0.000	Supported
NV -> CK	H1	0.212	0.213	0.046	4.584	0.000	Supported
NV -> YD	H4	-0.010	-0.011	0.044	0.235	0.814	Not supported
TT -> CK	H2	0.459	0.459	0.039	11.881	0.000	Supported
TT -> YD	H5	0.093	0.093	0.040	2.342	0.019	Supported
XH -> CK	H3	0.252	0.251	0.043	5.897	0.000	Supported
XH -> YD	H6	-0.029	-0.029	0.032	0.882	0.378	Not supported

The research conducted experiments with bootstrapping sample size N = 5000. The results from table 7 show that the research hypotheses H1, H2, H3, H5, H7 have statistical significance and are accepted. The P Values of the remaining effects of H1, H2, H3, H5, H7 are all < 0.05, so the research hypotheses H1, H2, H3, H5, H7 are all statistically significant (p values < 0.05). The Original Sample-standardized effect coefficients of the effects of H1, H2, H3, H5, H7 are all > 0. Therefore, the research hypotheses H1, H2, H3, H5, H7 are accepted.

The level of impact of the independent variables TT, NV, XH on the intermediate variable CK in descending order is as follows: Interaction with achievement feature TT (Beta=0.459), Interaction with social feature XH (Beta=0.252), Interaction with immersion feature NV (Beta=0.212).

5. Discussion and Conclusion

5.1. Findings and implications

The results of the study have shown that of the 3 features of the game, only the achievement feature has an impact on the customer's online shopping intentions, which reflects the fact that when participating in the game application users will enjoy the achievements they achieve through bonus points, this reflects the fact that when participating in game applications users will enjoy the achievements they achieve through bonus points, voucher... these are gifts that can be used to shop right at those e-commerce platforms because most people have a pragmatic mindset, only do things that benefit them and the gifts they receive when playing games will help them buy cheaper, even free.

The results of this study addressed the team's research goal of looking at the impact of gamification on consumers' online purchasing intentions. It also supports some previous studies by Dhahak & Huseynov (2020), Haziri (2021).

Therefore, the implication here is that game creators need to develop more and more game achievement features that match the context, drive and stimulate customer purchase intention. when shopping online at e-commerce platforms.

Secondly, although the study results indicate that immersion and social features do not impact online purchasing intent, these two features have an impact on brand engagement. The results of the study show that brand engagement has a favorable impact on online purchasing intentions. Therefore, the emphasis is that interaction with immersion features and social features has no direct effect on online purchasing intent, so it is necessary to rely on brand engagement as intermediaries. With brand engagement having a great influence on purchasing intent, it's important to know which size is greatest in shaping the brand interaction variable itself, in this case the social aspect.

Previous research has shown that brand engagement has no direct impact on purchasing intent but through brand equity (Verma, 2021). Through experimental research, the authors have demonstrated that brand commitment has a direct impact on purchasing intentions. This demonstrates that the greater the customer's brand commitment, the more intent is to spend on the brand. This conclusion agrees with research by Hewett, Money and Sharma (2002); Algesheimer et al (2005); Erdoğan & Tatar (2015); Bilal et al. (2021) on the impact of brand engagement on online purchasing intent. The results of this study addressed the team's research goal of looking at the impact of gamification on consumers' online purchasing intentions and answering research question 5.

Thus, it is advisable for brands to increase the customer service experience to increase purchasing intentions.

5.2. Limitations and suggestions for Further Studies

The limitation of this study belongs to the sample of the study. Although selected by a convenient method, although the team has tried to take it across The Vietnamese scale, including a variety of ages, occupations, incomes, and frequency of use of e-commerce platforms, the sample may not necessarily meet the requirements for representation and generality because the number of study samples is predominantly female (87.66%) and most use only Shopee e-commerce platforms.

Proposals for further studies

Firstly, further research is needed to continue to build and perfect the scales.

Secondly, since this study has only stopped at studying the impact on Gen Z, the latter study could expand the research unit, looking at a variety of ages to ensure the objectivity of the conclusions made.

5.2. Conclusion

The results of the article's research indicate a positive relationship between gamification and consumers' online purchasing intentions through an intermediary role of brand engagement. It refers to gamification's same-sided relationship to brand engagement while assessing that this factor also has a positive impact on online purchasing intentions. As such, it can be seen that the application of gamification will increase the commitment

and cohesion between the brand and customers, thereby leading to innovation in a positive way and increasing consumers' online purchasing intentions on e-commerce platforms.

With the results obtained, the study gives e-commerce platforms in Vietnam, researchers, and economists an overview of the relationship between gamification and consumers' online purchasing intentions. Therefore, encouraging e-commerce enterprises and the state to come up with practical plans to maximize the role of gamification to increase customer purchases, promotes the development of e-commerce enterprises in the context of modernization today.

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IMPACT OF AUGMENTED REALITY TECHNOLOGY ON SAFENESS AND MEDIA USEFULNESS ON USER EXPERIENCE ON ONLINE SALES PLATFORMS

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Abstract

This research explores the impacts of augmented reality (AR) technology on the security and convenience level of e-commerce platforms in Vietnam. The research's results show that factors of AR technology including Vividness, Novelty, Reality congruence, Quality of information system, Interactivity, Product information all affect the security and convenience level of e-commerce platforms. Based on these results, this research makes some recommendations to help businesses in e-commerce platforms develop their sales tools of AR technology.

Keywords: *augmented reality, AR, security*

1. Introduction

Online marketing in the 4.0 era will no longer be traditional marketing. Consumers are increasingly demanding and wanting more when shopping online. So AR was born as a matter of course. Google's 2019 AR survey shows that 66% of consumers use AR before making a purchase intention. Besides, according to STATISTA, by 2022, the AR augmented reality market's size will increase sharply to 12.85 billion USD, a growth rate 1.3 times larger than in 2021. This is also a sign that predicts the explosion of the market. AR technology for the marketing industry for brands, as well as supporting the online shopping market and increasing customer experience. The challenge for brands is whether AR technology is really relevant and competitive to draw consumers' attention to their products?

Therefore, this study was born in the context of the strong development of the 4.0 era, as well as the gradual application of AR technology in Vietnam, the Covid 19 pandemic has caused a sharp increase in the demand for online shopping, in order to improve the quality of life. more clearly the impact of AR on marketing in the business as well as on the safe and convenient experience of customers when shopping online.

2. Method

2.1. Theoretical basis

According to Hilken et al., 2018; Javornik, 2016, AR provides a rich product experience that makes it easy for consumers to visualize the product, such as recreating the product with the same parameters as a real-life product, providing a visual interaction for the user before the buying product.

In addition to the utility of AR in online shopping, it brings safety and reliability to users, according to Hsu Liu. F, 2014, augmented reality technology also reduces risk factors, and system error rates. This ensures the safety, builds the trust of users when using AR, for the sake of information security, avoids the right to access user information (Poushneh. A, 2016). At the same time, the safety level of AR is reflected in the accuracy of product images, helping users to trust the product quality before making a purchasing decision.

2.2. The research model proposes that

The research team selects and develops a research model as shown in Figure 2.7 below. In which, the attached hypotheses are stated related to each specific factor:

- The group of dependent variables includes: Safeness, Media usefulness
- The group of independent variables includes: Vividness, Novelty, Reality congruence, System quality, Interactivity, Product informativeness.

More specifically, the research model is presented as follows:

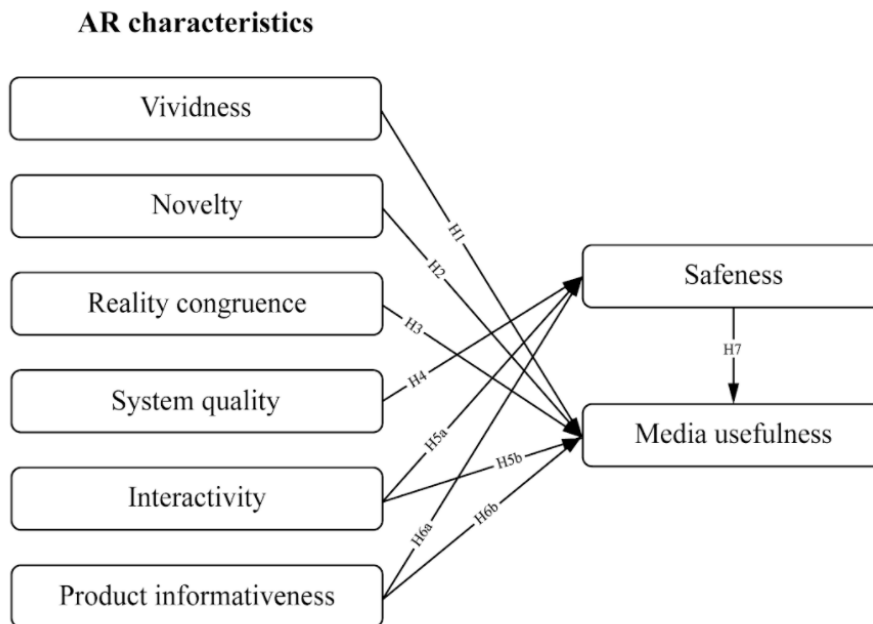


Figure 1. Research model

Source: Proposed Research Team, 2022

The research hypotheses are posed as follows:

H1. Vividness positively affects Media usefulness.

H2. Novelty positively affects Media usefulness.

H3. Reality congruence positively affects Media usefulness.

H4. System quality positively affects security and safety.

H5a. Interactivity positively affects security.

H5b. Interactivity positively affects utility levels.

H6a. Product informativeness positively affects security.

H6b. Product informativeness positively affects utility level.

2.3. Research Methods

In this study, the authors used two methods of quantitative research and qualitative research. In the qualitative research, the authors conducted in-depth interviews with 10 random users who knew/don't know about AR technology. Sampling survey method was conducted on 500 questionnaires and collected 468 survey votes Invalid. The authors conducted analysis of the linear structural model (SEM) and bootstrap to determine the influence level of each factor and test the hypothesis.

3. Results

Tested by linear structural analysis (SEM) method.

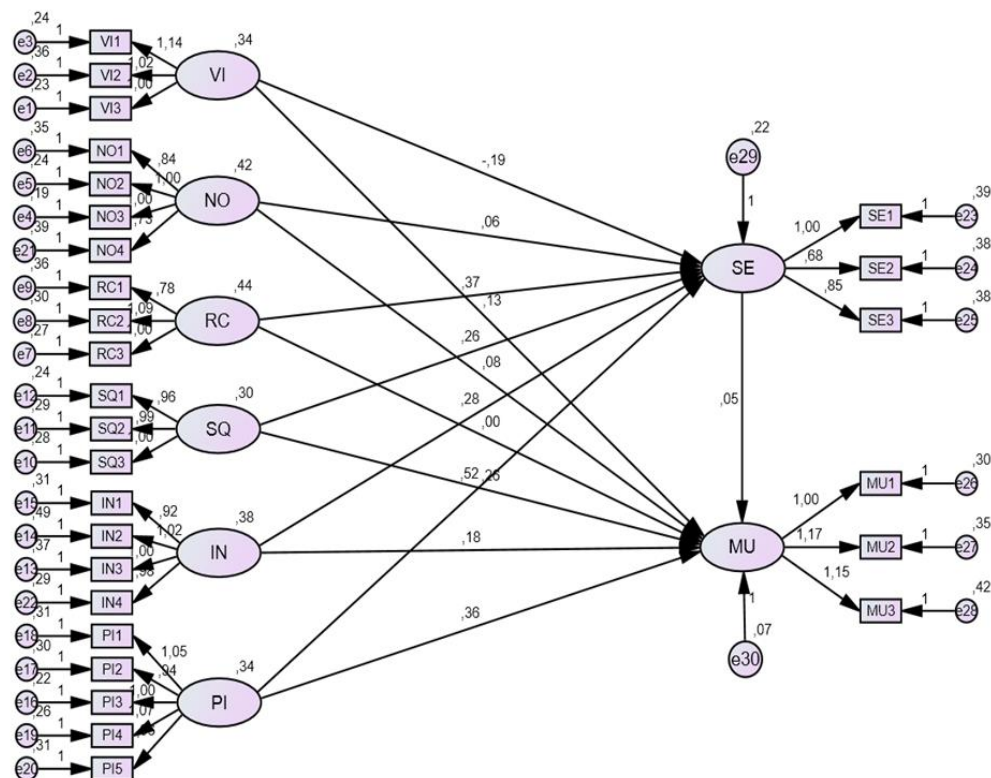


Figure 2. SEM results of the theoretical model

Source: Research team results (2022)

It can be seen that, with the SEM analysis results, the authors found that the model has a CMIN/df value of $2.032 < 3$, at the same time, GFI index = $0.872 > 0.8$; CFI = $0.932 > 0.9$; RMSEA = $0.055 < 0.08$ satisfactory. The data run results show that the model is compatible with market data.

Table 1. Unstandardized weight table

			Estimate	S.E.	C.R.	P	Label
SE	←	SQ	,258	,076	3,383	***	
SE	←	PI	,518	,074	6,962	***	
SE	←	IN	,283	,067	4,206	***	
SE	←	VI	-,194	,069	-2,823	,005	
SE	←	NO	,058	,060	,964	,335	
SE	←	RC	,374	,065	5,750	***	
MU	←	VI	,130	,048	2,714	,007	
MU	←	NO	,077	,040	1,947	,052	
MU	←	RC	,004	,049	,073	,942	
MU	←	IN	,175	,050	3,496	***	
MU	←	PI	,360	,067	5,401	***	
MU	←	SQ	,256	,058	4,397	***	
MU	←	SE	,048	,071	,673	,501	

Source: Research team results, 2022 Unnormalized

The weight table shows the P-values of the variables “System quality”, “Interactivity” and “Product informativeness” are both less than 0.05; should have an effect on the dependent variable “Security”. Thus, the authors accept the hypothesis H4, H5a, H6a.

Besides, the P-value of the two variables "Novelty" and "Safeness" is 0.335 and 0.501, respectively, which are greater than 0.05; Therefore, the two variables “Novelty” and “Safeness” do not show an influence on the dependent variable “Utilities”. The other independent variables are “Vividness”, “Reality congruence”, “Interactivity” and “Product informativeness” all have P-values less than 0.05; Therefore, it is possible to show the influence on the dependent variable "Media usefulness". Thus, the authors reject hypothesis H2, H7 and accept hypothesis H1, H3, H5b, H6b.

Table 2. Normalized Weight Table

Dependent		Variable	Estimate
SE	←	SQ (Information System Quality)	.215
SE	←	PI (Product Information)	.445
SE	←	IN (Experience Interoperability)	.266
MU	←	VI (Vivid)	.186
MU	←	RC (Actual Similarity)	.006
MU	←	IN (Experience Interoperability)	.226
MU	←	PI (Product Information)	.513

Source: Group Results Research, 2022

The standardized regression coefficient table shows that the impact level of “Product informativeness” on “Safeness” is 0.445, the largest of the three factors affecting “Safeness”. The factors "Interactivity of experience" and "Quality of information system" have an impact level of 0.226 and 0.215, respectively, on the variable "System quality".

Among the four factors affecting the variable "Media usefulness", the level of impact of "Product informativeness" is the largest with a coefficient of 0.513. The remaining three factors, "Interactivity", "Vividness" and "Reality congruence" have a decreasing impact afterwards with impact coefficients of 0.226, 0.186 and 0.006 respectively.

Table 3. Table of squares of correlations

	Estimate
Security	.499
Convenience level	.565

Source: Research team results, 2022

The R-squared value of the variable “Safeness” is 0.499 = 49.9%, so independent variables affect 49.9% of variation of “Safeness”. The R-squared value of “Media usefulness” is 0.565 = 56.5%, so the independent variables affect 56.5% of the variation of “Media usefulness”.

Table 4. Comparison table of model coefficients Variability and Invariance of the variable Gender

	Chi-square	df
Invariant	2160,497	687
Variability	2145,101	674
Difference	15,396	13

We can see the Chi-square coefficients of the two models. variable and invariant are different, so the Research Team will take the results from the Variability model for multi-group analysis for the variable "Gender".

Table 5. Results of multigroup structural analysis for the variable Gender

			Male		Female	
			Standardized Regression Weights	P-value	Standardized Regression Weights	P-value
SE	←	SQ	.190	.217 ,	.010	.041
SE	←	PI	.635	***	.294	***
SE	←	IN	.251 ,	.005	.321	***
MU	←	EN	.206,053	.219,015	.947	-.037
MU	←	RC	.009	.708	,	.199,111
MU	PI	IN	.293	MU	,	.004
←	,	.151	***	.579	.415	Squared
Multiple Correlations (SE)			.620 ,		.620 ,	
Squared Multiple Correlations (MU)			.753			

Source: Research team results, 2022

For the relationships related to the independent variable “Safeness”, the analysis results are as follows:

- In both male and female respondents, “System quality” has an impact on “Safeness”, but with female respondents, the impact is stronger than that of men (standardized impact coefficient of female is higher than that of male $0.217 > 0.190$).

- In both male and female respondents, “Product informativeness” has an impact on “Safeness”, but for male respondents, the effect is much stronger than that of female respondents (standardized impact coefficient for men is high. than female $0.635 > 0.294$).

- In both male and female respondents, “Interactivity” has an impact on “Safeness”, but for female respondents, the effect is stronger than that of men (the standardized impact coefficient for women is higher than that of male respondents). $0.321 > 0.251$).

In general, in relation to “Safeness” in Augmented Reality (AR), there is not much difference between men and women. So the Research Team came to the conclusion that: It is possible to focus on Marketing for both male and female audiences in the "Safeness" of Augmented Reality Technology.

But for the relationships related to the independent variable "Media usefulness", the results of multigroup analysis are slightly different from the variable "Safeness":

- For male respondents, "Vividness" There is no effect on “Media usefulness” (due to P-value > 0.05) but for female respondents there is this effect.

- In both male and female respondents, there is no impact from “Reality congruence” to “Media usefulness”.

- For male respondents, “Interactivity” had no impact on “Media usefulness” (due to P-value > 0.05) but for female respondents, this effect was found.

- For male respondents, “Product informativeness” has no effect on “Media usefulness” (due to P-value > 0.05) but for female respondents there is this effect.

In general, in the relationships involving the independent variable "Media usefulness", women will have an impact on these relationships and men will not. Therefore, the Study Team concludes that: Marketing investment in the “Media usefulness” of AR technology should be more for women than for men

4. Discussion and Conclusion

On the basis of research model and data obtained with 351 respondents (out of 500 respondents, 351 respondents know about AR technology, accounting for 70.2%, 149 respondents do not know about AR technology, 149 respondents do not know about AR technology. AR technology accounts for 29.8%), it can be seen that although the level of technology awareness has increased in the year 2021 - 2022. The authors can draw some conclusions on hypotheses about influencing factors. to the security, safety and convenience level of consumers when shopping on online sales platforms as follows:

Firstly, Novelty (H2) has no impact on the Media usefulness of AR. The results show that consumers consider novelty to feel Novelty is only a small factor to attract attention to sales platforms using enhanced technology. This reinforces the limitations of previous studies that use Novelty to enhance the utility of media in the shopping experience and

purchase decision (Bezjian-Avery, Calder and Iacobucci 1998) ; Childers et al. 2001; Van Noort, Voorveld and van Reijmersdal 2012).

Second, rejecting the hypothesis that Safeness (H7) has a direct impact on Media usefulness when experiencing augmented reality technology in users' shopping activities.

Third, the Safeness is strongly influenced by the factors of System quality (H4), Interactivity (H5a) and Product informativeness (H6a). Accepted hypothesis showing a positive effect from Consumer Acknowledged Information Systems Quality, adding a new AR-enabled feature to existing sales platforms will likely lead to theft data or being attacked by groups of bad actors in order to profit from the business's entire system of sales stalling.

Fourth, the Vividness (H1) and Reality congruence (H3) factors have a direct positive impact on the Media usefulness. The author's research has shown more clearly and deeply this impact on a specific field than online sales platforms in Vietnam. Vividness is one of the key factors that sets AR technology apart by allowing users to realize what their fantasies will look like in reality.

Fifth, Interactivity (H5b) and Product informativeness (H6b) also have a strong impact on Media usefulness. Accordingly, the experiential interactivity directly affects the UX and helps the sales platforms to optimize the design interface, thereby providing an enjoyable but simple and convenient shopping experience.

However, there are still some concerns because AR technology is also a design product, consumers worry about accuracy and brands make their product images too beautiful. difference with the actual product to attract buyers.

Based on the above results, the research team makes a number of recommendations to improve and enhance the utility level as well as assess the security of ARAR technology in promoting, introducing products and selling on websites. online platform as follows:

For businesses

Designing an identity through AR

The introduction of AR technology into product introduction activities helps product information such as: model, design, color, etc. to be truer and clearer, and to solve problems. Image and video problems are not enough for customers to evaluate product quality. The research on consumer behavior of customers to design convenient and smart AR interfaces instead of hiring small units to design traditional, lack of creativity. In order to bring high efficiency and attract consumers, businesses need to diversify their application types (scanning AR products directly, playing sound through scanning AR, applying AR to many Gamification activities. than). Businesses should quickly learn and develop AR tools for their platforms before this technology is widely applied in Vietnam and consumers will partly lose interest in brand communication.

Optimizing security

Customers find it more convenient and safer to use augmented reality than traditional visual purchases when they receive a branded product. When brands decide to use augmented reality to market their products, they need to focus on optimizing features and improving user safety, not just investing in devices. Fresh and lively interface design.

Implementation of the communication

Bringing a new technology into the product introduction does not immediately make a mark on the business, brands need to include these new features in a specific marketing and sales plan. possible to increase engagement (recognition) for the product. AR is a tool to support communication and to achieve the best results, brands need to optimize augmented reality in parallel with other marketing activities.

✚ For E-commerce

E-commerce platforms selling online are currently updating and learning about typical AR technology like Shopee. Applying AR technology in online product marketing will increase a distinct competitive advantage for these online shopping platforms to attract and retain brands and retailers that open stores on e-commerce platforms. this death. AR also helps e-commerce floors control product information, making information more secure. Thanks to the advantage of shortening the distance between the real and virtual worlds of AR, it can be an interesting utility solution to increase the shopping experience of customers when they are too bored with traditional sales interfaces. Currently in Vietnam, augmented reality technology has not been widely applied.

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FACTORS AFFECTING THE YOUNG'S IMPULSE BUYING BEHAVIOR ON E-COMMERCE PLATFORMS FOR COSMETIC PRODUCTS

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Abstract

This study aims to determine the factors affecting the young's impulse buying behavior on e-commerce platforms for cosmetic products. Based on the findings of previous studies, we examine the influence of factors including the platform's ease of use, impulsiveness, scarcity, visual appeal, user-generated content, and pleasure when shopping. Besides, the study will quantitatively test the relationship between user-generated content and impulse buying behavior. By applying the stimulus-organism-response model (SOR Model), we will examine and clarify the role of mediators, namely "Pleasure when shopping" on impulsive buying. Finally, this research demonstrates that impulsiveness, scarcity, visual appeal, and user-generated content positively impact impulse buying behavior through an intermediary factor called Pleasure.

Keywords: *Cosmetics, e-commerce, impulse buying, the young*

1. Introduction

Impulsive buying, or the tendency to buy goods and services without planning, is known as the heart of marketing strategies (Rook, 1987). Researches on the impulse buying behavior of consumers have received particular attention from experts because of its importance both in practice and in theory. The study conducted in 1980 by Bellinger and Korgaonkar indicated that impulse purchases accounted for 27% to 62% of a store's sales. Even nine out of ten people make regular impulse purchases (Welles, 1986).

The development of science, engineering, and digital technology in recent years has led to an increasing number of online shoppers in Vietnam. According to the Vietnam E-commerce and Digital Economy Agency (iDEA) (belonging to the Ministry of Industry and Trade), 44.8 million people participated in online purchases in 2019, accounting for more

than 46.6% of the country's population. In addition, the value of goods purchased online reached USD 225 per person, up 11.2% over the same period last year.

Due to capturing new consumer trends, studies on impulse buying gradually focus on customer behavior on e-commerce platforms. These researches consider stimulus factors from both the consumer's internal and external environment and their influences on customers' online impulse buying behavior. Internal stimuli include mood when shopping (Ahmad, 2019), trust in online platforms (Verhagen and Dolen, 2011), and impulsiveness (Welles et al., 2011). External stimuli must be mentioned, such as price, quality of goods, and product layout (Beatty and Ferrell, 1998; Salman and Fellow, 2014). For online purchases, there are also website quality, ease of use, interface, and content (Welles et al., 2011; Liu et al., 2013; Floh and Madlberger, 2013; Hamma et al., 2019). The most noticeable was that in 2021, a qualitative study by Djafarova and Bowes indicated that user-generated content (UGC) was one of the significant factors influencing the impulse buying behavior of consumers. However, studies on impulse purchases in Vietnam are limited in both quantity and quality.

It can be said that this study is one of the first analyses in Vietnam on the online impulse buying behavior of the young for a specific category, namely cosmetics. It is also considered one of the first to examine quantitative research on the influence of user-generated content on impulsive buying.

Theoretical framework

The study was based on the stimulus-organism-response (S-O-R) theory developed by Mehrabian and Russell (1974). The S-O-R model describes that factors from the shopping environment will lead to buyer's behavior. Specifically, one or more stimuli (S) from spaces on shopping websites affect individual emotions (O), leading to buyer's reactions, including a desire to approach or avoid (R). Thus, the emotional states of the organism (the buyer) act as mediators between the stimuli and the customer's behavior.

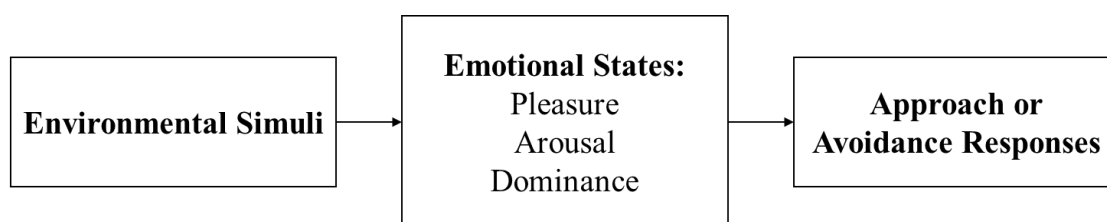


Figure 1. Mehrabian and Russell's psychological environment model (1974)

Source: Mehrabian and Russell (1974)

According to Chan et al. (2017), the S-O-R model is the most popular one applied to research on impulse buying behavior. A large number of previous studies have also shown a relationship between the stimulus from the shopping service environment and the buying behavior of consumers (Ezeh and Harris, 2007). Based on the model of Mehrabian and Russell (1974), studies repeatedly confirm that impulse buying behavior is significantly influenced by stimuli from the shopping space, with the mediating factor that is the buyer's emotions. (Khalifa and Shen, 2007; Parboteeah et al., 2009; Verhagen and Dolen, 2011; Floh and Madlberger, 2013; Liu et al., 2013; Chen and Yao, 2018)

Impulse buying

The first definition of impulse buying is a purchase that is unplanned, it was first introduced by DuPont Consumer Buying Habits Studies (Rook, 1987). Then, Hawkins Stern (1962) also defined impulse buying as any buying activity carried out without prior planning. Meanwhile, Rook and Hoch (1985) paid attention to two aspects of behavior, namely the perception and emotion of shoppers.

In 1991, Francis Piron gave a relatively complete definition after synthesizing the previous theories: Impulse buying is spontaneous purchase behavior that occurs without prior preparation. It results from a complex psychological process when the buyer is exposed to external stimuli. After the buyer has made a purchase, cognitive and emotional processes can still occur.

Therefore, the four most important characteristics of impulse purchasing can be summarized, including (1) the purchase behavior that is beyond the original plan, (2) occurring when buyers are affected by stimuli, leading to complex psychological developments that prompt them to purchase, (3) the act that is spontaneous and performed on the spot, and (4) this is an emotional-oriented behavior.

Model and hypotheses

This study was based on the S-O-R model and theoretical basis to develop the research model. In which, the emotional factor, “shopping enjoyment”, acts as a mediator for the relationship between the factors that stimulate impulse buying behavior.

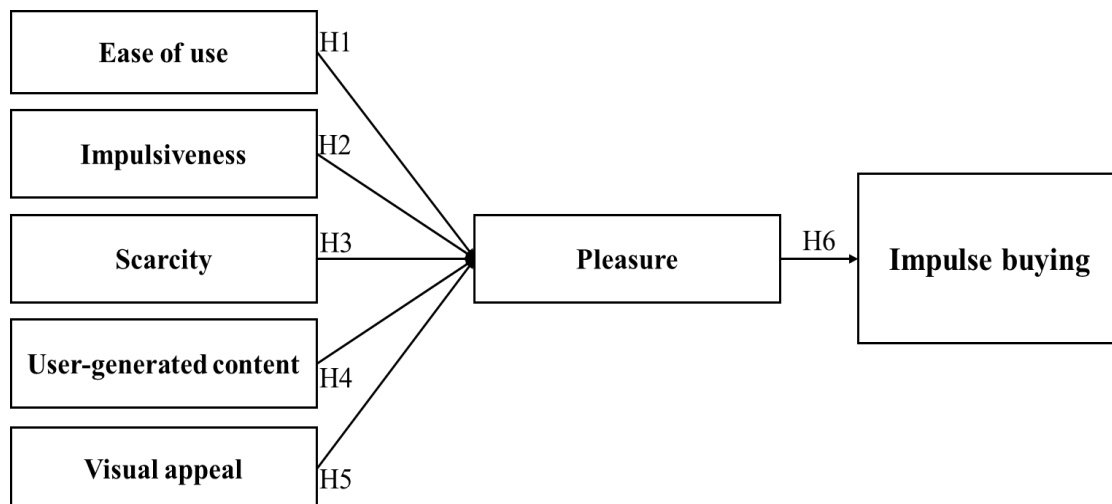


Figure 2. Proposed research model

Source: Suggested by the authors

According to Davis (1985), ease of use is the level at which an individual believes that using a particular information system does not require physical and mental capabilities. Using and making transactions easily on the online platform can help consumers optimize purchases, so they can enjoy the pleasure of choosing and ordering products and services (Jung and Chung, 2015). In a study on consumer behavior using the S-O-R model of Lee et al. (2011), the authors demonstrated that ease of access positively affects consumer’s

happiness. Similarly, Manganari et al. (2011) and Chen and Yao (2018) also mentioned that the higher the website's ease of use was, the greater the ability to create positive emotions for shoppers was, increasing their delight and shopping needs. Thanks to the previous studies, the research team came up with hypothesis H1, specifically as follows:

H1: The ease of use of the platform has a positive effect on pleasure when shopping.

Consumers are considered impulsive when shopping if they have both of the following tendencies: (1) having a natural urge to make an immediate purchase, and (2) rarely evaluating themselves the consequences of making a purchase (Beatty, 1998). Miao (2011) showed the influence of impulsiveness on buyers' emotions which was shopping enjoyment. Next, Ahmad et al. (2019) demonstrated that impulsiveness made a great contribution to the pleasure when shopping, thereby influencing the impulse buying behavior of consumers. Based on the above statements, we gave the following hypothesis H2:

H2: Impulsiveness positively affects pleasure when shopping.

According to Gierl et al., 2008, the scantiness of products and services can be expressed through a limit on quantity or time. Via an empirical study, Lee and Park (2022) demonstrated that scarcity positively affected happiness when shopping. Information about shortages increases consumer interest (Chen and Yao, 2018; Song et al., 2015). When clients get their hands on a product before it runs out of stock, they feel it is an achievement, which lifts their mood (Aggarwal et al., 2011). Therefore, hypothesis H3 was given.

H3: Scarcity has a positive effect on pleasure when shopping

Daugherty et al. (2008) defined UGC as online media content created, initiated, transmitted, and used by the public. Research by Koo and Ju (2010) also indicated a positive relationship between the frequency and quality of the information provided by people who had used products and services with positive emotions in experiencing and making product-related decisions. Therefore, we presented the following hypothesis H4.

H4: User-generated content has a positive effect on pleasure when shopping.

According to Nadkarni (2007), visual appeal is the graphic elements, design layout, or fonts of a website to enhance consumers' attraction. According to Parboteeah et al. (2009), different levels of website attraction will stimulate users' perceptions and emotions. Visual appeal plays a vital role in creating a sense of attraction and pleasure for buyers (Chowdhury et al., 2014). From the above statements, we came up with the hypothesis H5:

H5: Visual appeal positively affects pleasure when shopping.

Enjoyment when shopping is a positive emotion such as happiness, satisfaction, or delight with the experience received from the store's space (Adelaar et al., 2003; Khalifa and Shen, 2007; Chen et al., 2020). Shen and Khalifa, 2012; Lee and Yi, 2008 and Chen et al., 2020 suggested that the consumer's excited response to stimuli from the shopping environment could lead to impulse buying behavior. Based on the acknowledgments of previous studies, the authors put forward the following hypothesis H6:

H6: Pleasure when shopping positively influences online impulse buying.

2. Method

Research method

The study was carried out with two main methods: qualitative and quantitative methods.

For the qualitative research method, the research team conducted in-depth interviews with 11 subjects to verify the original model and adjust the scale for the first time.

With the quantitative research method, quantitative data was collected by distributing online questionnaires to young consumers aged 15 to under 30 years living in Hanoi City. The research team obtained 450 answer sheets with 440 valid ones. Besides, SPSS 20.0 and AMOS 20.0 software were used to analyze quantitative data.

Measure

The scale to measure the factors affecting impulse buying behavior in the scope of this study was based on research background in the world and translated from English to Vietnamese by the authors to match the research in Vietnam and keep the original scale. The study also used a 5-point Likert scale, from point 1: “Strongly disagree” to point 5: “Strongly agree.” Scales for measuring factors include the scale of ease of use (Gefen and Straub, 2005), the scale of impulsiveness (Rook and Fisher, 1995), the scale of scarcity (Wu et al., 2011), the scale of user-generated content (Sethna et al., 2017), the scale of visual appeal (Loiacono et al., 2007), the scale of enjoyment when shopping (Chen et al., 2020), and the scale of impulsive buying behavior (Beatty and Ferrell, 1998).

3. Results

Sample

The survey was conducted by distributing online questionnaires and received 450 responses. After screening, we performed data analysis on 440 valid responses. With the collected research sample, the survey subjects are mainly young people aged 15 to 25 years old studying at universities and colleges. Their income is not high and is under 5 million VND per month. More than 96% of survey respondents use the Internet quite well, and they spend more than 4 hours a day using the Internet. This is a condition for impulsive buying behavior. They said that they had made a purchase recently, and the platform they used the most was Shopee. While surfing the Internet, they occasionally came across information about cosmetics (both actively and passively) and stopped to read it.

Measure the reliability of the scale

Based on the method of analyzing the scale’s reliability by Cronbach’s alpha, the research team removed the observed variable IM7 in the scale of spontaneity. The remaining observed variables gave the indexes that met the standards of Cronbach’s alpha and were above 0.7, which was a great level.

The results of exploratory factor analysis EFA

Because there were 35 observed variables accepted after analyzing the scale’s reliability using Cronbach’s alpha, the research team continued to investigate the exploratory factor EFA. In this step, the rotated factor matrix provided seven groups of factors, which coincided with the original model proposed. Besides, the indicators in the analysis were

positive. The KMO value was 0.923. The Sig. of Bartlett's test was 0.000, and the total variance explained was 61.5%. It can be stated that the exploratory factor analysis has confirmed the reliability and representativeness of the scale.

The results of confirmatory factor analysis (CFA)

In this study, the research team conducted a CFA analysis for factors appearing in the model to test the directionality, the convergent validity, and discrimination among research concepts. The results showed that the standardized regression coefficients of all variables were more than 0.5, and the model achieved convergent validity. Moreover, the model was accepted with research data because its indexes were satisfied and ranged from acceptable to good levels. The observed variables representing the factors had a p-value of 0.000, demonstrating the ability to represent the factors well in the CFA model.

The results of the structural equation modeling (SEM)

The result was quite good by testing the structural equation modeling (SEM). All indicators were in the range from acceptable to good degrees. The criteria of the model's suitability were satisfactory, with GFI = 0.852; CFI = 0.917 > 0.9; and RMSEA = 0.058 (< 0.08), It can be concluded that the research model completely satisfies and fits the market data. Through analysis, 5 out of 6 factors proposed in the research model have a positive impact on the change of impulse buying behavior for cosmetic products, which means that 5 out of 6 hypotheses put forth by the research team are appropriate.

Table 3. Summarizing research results

Hypothesis	Relationship	Result
H1	The ease of use of the platform has a positive effect on pleasure when shopping	Rejected
H2	Impulsiveness positively affects pleasure when shopping.	Accepted
H3	Scarcity has a positive effect on pleasure when shopping	Accepted
H4	<i>User-generated content has a positive effect on pleasure when shopping</i>	Accepted
H5	<i>Visual appeal positively affects pleasure when shopping</i>	Accepted
H6	<i>Pleasure when shopping positively influences online impulse buying.</i>	Accepted

Source: Calculated based on surveys by authors

4. Discussion and Conclusion

4.1. Discussion

Firstly, we agree with the results of Verhagen and Dolen (2011) because the study demonstrated that the ease of use of the platform doesn't affect the pleasure when shopping. The findings of Liu et al. (2013) also show that the website's ease of access has no relationship with instant customer satisfaction. Nowadays, Internet proficiency has become a crucial skill, so consumers are no longer stimulated to form emotions by the reachability of the web quickly while shopping.

Secondly, impulsiveness plays a crucial part in creating pleasure when shopping. This hypothesis is accepted by many other studies as researchers have found a relationship between customer impulsivity and high arousal as well as more positive feelings (Rook, 1987; Rook and Gardner, 1993; Weiberg and Gottwald, 1982).

Thirdly, findings have shown that perception of the scarcity of products and services positively impacts pleasure when shopping. Cook and Yurchisin (2017) explained that sensing a product's shortage would increase customers' perception of its value. In the in-depth interview, the interviewees said that the scarcity made them feel the product was valuable, and they were delighted because there was a chance to possess it.

Fourthly, user-generated content is indispensable in creating pleasure when shopping. Kennell and Rushton (2015) examined this relationship and attained a positive finding. He found that consumers often loved UGC and considered it a useful reference source. In some cases, even though the opinions provided by users were incredibly subjective, readers still expressed preferences. They especially appreciated content created voluntarily and not influenced by any third party such as a producer or distributor (according to Kennell and Rushton, 2015).

Fifthly, the visual appeal contributes to pleasure when purchasing. This result coincides with the previous study carried out by Parboteeah et al. (2009), who have suggested that a website's characteristics significantly influence users' emotions and moods. Research by Dion et al. (1971) and a study by Liu et al. (2013) indicated that users would have more sympathy for products if their images were beautiful and attractive.

Lastly, results have shown that pleasure when shopping substantially impacts impulse buying behavior. This finding is consistent with previous studies by Jarvenpaa and Todd (1997) and Eighmey (1997), Koufaris (2002), Lee and Yi (2008), and Shen and Khalifa (2012). All of them manifest that customers' pleasure in online shopping can lift the purchasing capacity and encourage them to buy more than they have intended.

4.2. Conclusion

Via the findings, we target three stakeholders to make recommendations to suit their goals and interests. Firstly, e-commerce platform developers need to improve the designs and features. Specifically, they should enhance platforms so that users can make contributions. The development of algorithms that support users as well as data analysis to give them shopping suggestions should be paid more attention to. Secondly, for online sellers, product quality is considered the top factor for customer retention. Developing a sales plan based on factors encouraging buyers, such as visual factors, is necessary. Moreover, it's great for store owners to care about customer service and their experience to provide the services carefully. Finally, it's about consumers. They should think about and prepare a shopping plan based on their needs and budget to choose the most suitable items. It is advisable to consider the store's reputation in particular and the e-commerce platform in general to limit the risks of poor product quality and experience.

Besides the valuable contributions in terms of theory and practice, there are some limitations in this study. Because it was conducted in a short time with the primary sampling

method, the sample's representativeness hasn't been high and hasn't shown the behavioral characteristics of consumers for a long time. Moreover, this research only deals with quantity scarcity and ignores time restrictions, so further studies can focus on the influence of scantiness to impulse buying behavior.

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MOTIVATIONS FOR INDIVIDUALS TO PARTICIPATE IN SELLING ON SHOPEE IN VIETNAM IN THE CONTEXT OF THE DIGITAL ECONOMY: A QUALITATIVE STUDY

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Abstract

The explosion of the technological revolution has brought many benefits to people. With an increasingly large scale, the technological revolution has created countless business opportunities, the most prominent of which is doing business on the e-commerce platform Shopee. Therefore, firms as well as individuals are tending to choose to sell goods online through the Shopee e-commerce platform instead of opening a physical store like the traditional one. This study aims to determine the motivation of individuals to participate in selling on Shopee in the context of the digital economy in Vietnam. The research uses qualitative research method as the main, combined with desk method and analytical method to achieve the research purpose. The results show that income is the driving force that has the strongest impact on individuals' decisions when participating in selling on the Shopee e-commerce platform. After discussing, some recommendations were proposed based on the research results for specific target groups.

Keywords: *E-commerce, Sellers, Sharing economy, Shopee*

1. Introduction

Appearing in the mid-twentieth century, the scientific-technological revolution is a vital contemporary milestone. Along with the industrial revolution 4.0 as well as the rise of the digital economy, the sharing economy model is also growing. With an increasingly large and extensive scale, the scientific - technological revolution has brought about technical and

technological inventions that have a direct impact on people's lives in many fields such as culture and society, health, education, especially the economy. The scientific - technological revolution, especially today when the industrial revolution 4.0 is on the rise, gradually takes people out of the direct production process, turning them into real creative subjects, creating a new material premise and productive force for a new economy, bringing humanity to a new stage of development with different names such as knowledge economy, information society, knowledge society, also known as the digital economy. The explosion of the technological revolution has brought many conveniences, benefits to humans. With its growing scale, the technological revolution has created countless business opportunities, prominent among them are doing business on e-commerce platforms, especially Shopee. It can be easily seen that e-commerce, especially Shopee, have been taking advantage of the benefits of the sharing economy model. Shopee is one of the largest e-commerce platforms in Vietnam, in the field of consumer goods of the sharing economy system, allowing users to buy and sell items through their interface and support the transportation of goods to wherever they want. Applying the advantages of the sharing economy model, more and more businesses and individuals participate in selling on Shopee. Although, recently, Shopee has expanded into the B2C model with Shopee Mall, the C2C model is still the main model that they focus on developing. This model has helped Shopee build a huge network, connecting buyers and sellers. These utilities have created a strong motivation for individuals to participate in selling on Shopee. The explosion of the technological revolution has brought many benefits to people. With its growing scale, the technological revolution has created countless business opportunities, prominent among them is doing business on e-commerce platforms, especially Shopee. Therefore, businesses as well as individuals are tending to choose to sell online through the Shopee e-commerce platform instead of opening a physical store like the traditional one. As a result, from a specific perspective, the motivation for individuals to participate in the sharing economy model and the motivation for individuals to participate in e-commerce also have an intersection. Florian et al. (2016) have pointed out 24 motivations for individuals to join the sharing economy in terms of both buyers and sellers (Hawlitschek, Florian; Teubner, Timm; Gimpel, Henner, 2016). Before that, Birte and Daniel (2015) also identified 10 factors affecting the intention and behavior to participate in the sharing economy and gave the top 5 motivations as price reduction; access and availability; sustainability, the environment, and saving resources; innovation and scarcity; use but not ownership (Balck, Birte; Cracau, Daniel, 2015). There have been quite a few studies on e-commerce, especially Shopee (focusing mainly on Southeast Asia). However, these articles are often only researched from the perspective of consumers. Some factors that have a positive influence on consumer purchase intention are free shipping (Ekwinia & Maydena, 2021) (Ambarwati & Pradana, 2021); brand ambassadors, marketing events and digital marketing (Kok, Ariesa, Kelvin, Pratama, Kosasih, & Alianza, 2021)

In fact, in Vietnam, there have also been many studies conducted to learn about the link between consumers' purchasing decisions and factors such as customer loyalty, corporate brands, etc. career or e-WOM. Many studies have proven that customer loyalty is positively influenced by brand association, brand equity and brand awareness (Phong, Nga,

Hanh, & Minh, 2019); customer's trust, perceived quality, ethnocentrism (Khoa, Uyên, Oanh, & Dung, 2021); e-WOM (Doan, 2019)).

This study makes 2 core contributions: first, identify the motivations that motivate individuals to participate in selling on Shopee in Vietnam in the context of the digital economy. Through these findings, the study can become a document to help point out the differences between the intention to participate in selling on Shopee and other e-commerce platforms and traditional business. Second, the study makes recommendations for individuals to increase sales quality, propose solutions for Shopee as well as other e-commerce platforms and the Government in order to deal with the existing limitations and promote the advantages so that the Vietnamese e-commerce business market will achieve a breakthrough.

In sum, we do not claim to provide a comprehensive theoretical building of participating behavior. By correcting the multiplicity of potential drivers and inhibitors, we rather intend to set the stage for further research in that direction.

The remainder of this article is organized as follows. In Section 2, we outline our methodological approach and how we use the method in this research. We then identify motives for participating behavior by means of analyzing the data collected from in-depth interviews (Section 3). Eventually, we discuss the result and conclude in Section 4.

2. Method

Research uses a qualitative approach as the main method, combining with data processing according to desk research, analytical and meta-analysis methods and in-depth interview because they refer to a phenomenon that occurs when looking at literature studies. Firstly, adaptability and creativity are a form of tacit knowledge, so the identification needs to be based on a rational, or perceptual/judgmental approach in order to know what people think, and why they think so. Therefore, the qualitative research method will allow the authors to collect information about the learners' judgment, identification and sharing in the learning process and practical experience (Norman K. Denzin, 2012) (Thắng, 2014). Secondly, it is a fairly new topic, which has not been discussed much or researched deeply in Vietnam. The models and measures have not been standardized for a quantitative study. As a result, the qualitative approach is reasonable.

Qualitative approach

The research process involved experimental work as well as data collection to consider whether information could be agreed with or disproved; thereby allowing the authors to identify and analyze analysis of different observed variables. Data was collected by interviewing 16 participants via text messages and voice calls. In addition, the research team also used analytical and meta-analysis methods to process the collected data.

Data collection

The authors searched for academic papers through domestic and foreign reports and theses related to the sharing economy, e-commerce, motivation for people to buy and join e-commerce exchanges. Besides, the authors also investigate the development process and operation as well as the popularity of Shopee in Vietnam. From this information, the team has come up with a theoretical basis for the research topic as well as hypotheses to test.

The authors conducted in-depth interviews on 16 Shopee sellers and obtained 15 valid answers. The interview was performed over the Internet using activities such as texting and calling. With a purposeful selection of research subjects, the research team ensures that there is enough information about the reasons that motivate individuals to participate in selling on Shopee when they accumulate enough experience and learn carefully about the policies for Shopee sellers.

In-depth interview:

The interview was conducted online. The purpose of the in-depth interview is to explore the reasons why individuals do business on Shopee in Vietnam; thereby determining the influence of the above-mentioned motivations on the intention to join. sales on this platform. Interviews are recorded or carefully written all questions and answers. The discussion topic is suggestive for individuals to share their reasons and experiences when running a business on e-commerce platforms and why they focus on selling on Shopee. The question revolved around the motivations of individuals to join Shopee as a seller.

Sampling and selection:

The authors used a purposive sampling strategy to select a sample of participants. To reduce the error rate to a minimum when sampling, the research team collected research samples from many provinces across the country with diverse characteristics in terms of age and income level. Participants will receive an interview consisting of about 17 questions lasting about 30 minutes via text message, phone call or face-to-face meeting.

Table 4. Information of interviewees

Interviewee	Age	Gender	Period doing business on Shopee
1	20	Male	1 year
2	20	Female	3 years
3	27	Female	has temporarily stopped selling
4	19	Female	1 year
5	21	Female	1 year
6	20	Male	2 years
7	30	Male	4-5 years
8	20	Female	2 years
9	19	Female	just started joining
10	20	Male	3 months
11	20	Male	1 month
12	24	Male	2 years
13	20	Female	6 months
14	22	Male	7 months
15	20	Female	6 months

Source: Authors

Participants were found through the researchers' personal contacts. Initially sixteen participants were recruited to be interviewed. However, only fifteen responses were valid to analyze based on the study's criteria.

Data analysis

Text messages and audio recordings were converted to text format (tape phase) and entered into the answer sheet. Then, the questions have been classified into separate motivation groups, the answer data will be entered in each corresponding section including: Income; Application of the sharing economy; Large and promising business market share; Application of the development of technology; Understanding and familiarity with Shopee; External influences; Sustainability; Ease for start-up and some other factors. After that, the research team conducted an assessment of the influence of the motivations on the intention to participate in selling on Shopee of individuals.

From the data that has been evaluated and determined, the research team has written statements and analyzed the motivations of individuals when participating in sales on Shopee, then summarized the general observations and findings of the study.

3. Results

About the status of individuals participating in sales on the Shopee, E-commerce has become a commonly used transaction method and is the optimal choice of consumers in the current complicated situation of the COVID-19 pandemic. Therefore, as the most famous e-commerce platform in Vietnam, it is not surprising that more and more people are doing business at Shopee.

From the above fact, it can be shown that there are many reasons why individuals want to participate in selling on Shopee. Our research team has collected data to be able to analyze and identify some personal motivations for selling on Shopee in Vietnam.

From the results of the interview, below are motivations that motivate individuals to sell on Shopee arranged in descending order based on their influence on dependent variables:

Income

Income is the most mentioned motivation by the interviewees. The majority of the interviewees have a monthly income from Shopee is less than 10 million. Many people raised the opinion that joining Shopee is for money or to have an additional source of income. However, there are some interviewees who assessed that the income on Shopee was not really as expected.

Application of the sharing economy

Selling on e-economy platforms has a great advantage compared to selling offline, which is the ability to apply the benefits of the sharing economy like helping sellers reduce the burden of ownership and supporting the shipping system.

Nearly all interviewees agreed that doing business on Shopee helps them reduce ownership burden, save time and costs. However, the majority of interviewees did not give much praise to the platform's transportation system.

Large and promising business market share:

The large and promising business market share of e-commerce in general and Shopee in particular helps sellers to expand their sales range, reach more customers, and support them to connect with domestic and foreign partnerships or with many suppliers.

Most of the interviewees highly consider this motivation's ability to expand the customer network, especially in the complicated situation of the COVID-19 epidemic. Regarding the ability to expand partners, some people consider this to be an advantage when selling Shopee products, but most sellers have not thought about it or experienced it, so they do not really appreciate this.

Application of the development of technology

The application of the development of technology is reflected in two main aspects: flexibility of time, space and automation. In general, the majority of interviewees agree that technology has a positive impact on the development of e-commerce platforms.

Many people appreciate the flexibility of time and space thanks to the application of technology development. However, most of the interviewees assessed that Shopee's technology application, specifically automation, has not really been able to support sellers because there are still many difficulties in the operation process.

Understanding and familiarity with Shopee

Understanding and familiarity with Shopee consists of two parts: popularity and personal understanding of Shopee. Although the majority of interviewees use not only Shopee but also some other e-commerce platforms, they consider Shopee to be better than the rest and they focus on selling on Shopee more than other platforms.

Most sellers agree that Shopee is the most popular e-commerce platform and has the highest number of visitors in Vietnam compared to others. When commenting on Shopee's strengths, many individuals affirmed that the platform's interface is easy to use, has many incentives, and has many customer care policies. Although the above advantages are an important factor to help many sellers choose Shopee to sell their products, Shopee still has some disadvantages that need to be improved, such as the time to approve orders or handle complaints is quite long, and the fees for successful orders are quite high for sellers.

External influences

External influences can come from the environment, context or people around. Although retail business on Shopee is the current trend, especially in the context of the COVID-19 epidemic, only a small percentage of individuals consider it as their motivation. When interviewed about this motivation, individual sellers showed many different reasons that motivated them to do business on Shopee, for example, guided by acquaintances or motivated by customers. The rest of the interviewees said that they are not influenced by external influences, but doing business is their hobby.

Sustainability

Sustainability here is referred to as the stability and longevity of the selling on Shopee. There are 6/15 interview respondents agreeing that sustainability is one of the

motivations that motivate them to sell their products on this e-commerce platform because they believe that the Internet will grow more and more, the demand for online shopping will also increase and because doing business on Shopee does not need to invest too much, so they will not have to worry too much about the risk of the job.

In addition, some interviewees hope that Shopee can improve its outstanding shortcomings such as high commission fees, shipping services... as well as maintain and promote existing advantages, so that the selling on this e-commerce platform can be more stable and long-lasting.

Ease for start-up:

According to the interview results, it is easy to start selling on this platform only when there are ancillary factors such as product availability, having business knowledge or the seller's goal is not high. The difficulties that sellers on Shopee encounter when starting a business are shared a lot such as slow capital turnover, difficulty finding customers, price competition, or lack of understanding about Shopee's policies...

4. Discussion and Conclusion

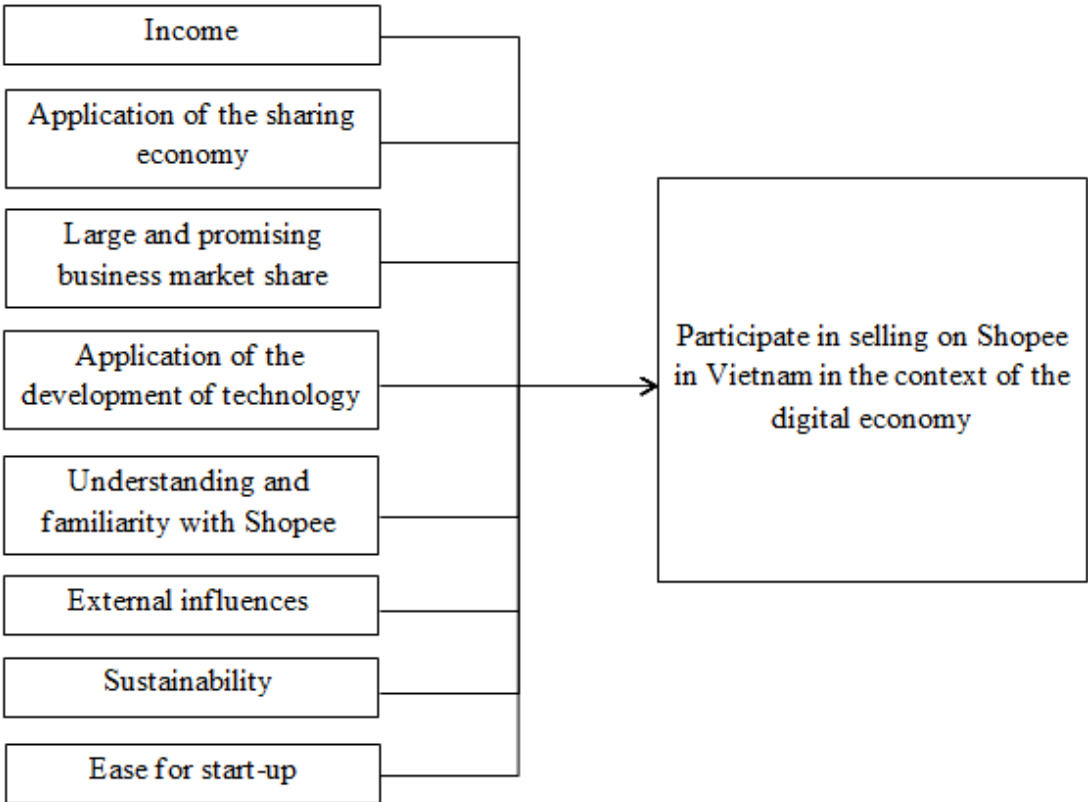


Figure 3. Model of motivations for individuals to participate in selling on Shopee in Vietnam in the context of the digital economy

Source: Authors

From the results of interviewing 15 people, the research has shown 8 motivations for individuals to participate in selling goods on Shopee in Vietnam in the context of the digital economy, which are arranged in descending order based on their influences on dependent variables are: Income; Application of the sharing economy; Large and promising business

market share; Application of the development of technology; Understanding and familiarity with Shopee; External influences; Sustainability; Ease for start-up.

Compared with the research paper “Understanding the Sharing Economy - Drivers and Impediments for Participation in Peer-to-Peer Rental” (2016), in this study, the “income” was rated as the main motivation that promotes individuals to run business on Shopee in Vietnam by most of the interviewees. This result also has similarities with a study of the group of authors Florian Hawlitschek, Timm Teubner, Henner Gimpel, which identifies the income variable as the driving force with a positive impact on the dependent variable. For the application of the sharing economy, it can be seen that reducing the burden of ownership is a prominent advantage of online sales. The motivation related to the burden of ownership has been mentioned by Florian Hawlitschek's group, but it did not have much influence on the intention of individuals to participate in the sharing economy.

According to the results of the study, some recommendations are made for the following subjects and units:

For sellers on Shopee: firstly, investing in product quality; secondly, optimizing product price; thirdly, building product images and booths; finally, investing in marketing campaigns and improving service quality.

For Shopee: this unit needs to promote and maintain its strengths as well as improve its weaknesses such as: the transportation system, the platform's infrastructure system or the speed of complaint handling.

For e-commerce platforms in Vietnam: these units also need to improve a number of points such as the interface setup, the transportation system, or strengthen campaigns to encourage shopping and reduce costs for sellers.

For the Ministry of Industry and Trade: coordinating with the government and relevant ministries and agencies to enlarge and perfect policies for the development and application of the digital economy, set up and operate essential infrastructure for e-commerce development; investing and promoting cross-border e-commerce as well as focusing on and speeding up the process of perfecting the legal framework on protecting consumers in the e-commerce market.

For the Government: firstly, building a fair and effective competition and sustainable e-commerce market by enhancing the legal framework for e-commerce; secondly, expanding the consumption market for Vietnamese goods domestically and abroad through e-commerce platforms; next, strengthening the construction of logistics systems, information technology infrastructure as well as ancillary services for e-commerce; then, narrowing the gap between big cities and localities in terms of e-commerce development level; finally, promoting and implementing training courses on e-commerce application skills as well as supplementing , updating knowledge about e-commerce in educational institutions such as universities or vocational education.

Although much investment and seriousness has been devoted, this study still has some limitations such as: the research sample is not really popular; it is not possible to cover all the motivations; not only the standard research model has not been found yet, but also

have the scale and quantitative research been utilized to evaluate the motivations affecting the selling behavior of individuals on Shopee in Vietnam.

This study, which is one of the first researches conducted to investigate the motivations for individuals to engage in selling on Shopee in Vietnam in the context of the digital economy, has obtained a number of meaningful results. From that, the authors propose a collection of recommendations for relevant parties, including sellers, Shopee, e-commerce platforms in Vietnam, the Ministry of Industry and Trade, the Government in order to improve individual's access opportunities to E-commerce platforms as well as promote Vietnamese e-commerce to develop more and more.

In particular, as a citizen of the new generation, each person needs to gain and enlarge necessary knowledge to adapt to the context of digital transformation in Vietnam, thereby improving and enhancing the quality of life.

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ANALYSIS OF P2P ONLINE LENDING MODEL SELECTION AND SUPERVISION BASED ON EVOLUTIONARY GAME THEORY

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Abstract

The rise of P2P online lending makes the private lending market more and more diversified, and lending business models become more and more diversified. According to different credit investigation links of online lenders, the way P2P platforms work is also different to get more user groups, market share and maximize benefits. This paper will establish an evolutionary game model between P2P businesses and the scaling up of P2P businesses and government regulators from the point of view of evolutionary game theory.

Keywords: *P2P online lending business; online lending operation model; evolutionary game theory; regenerative dynamic equation*

1. Introduction

In recent years, Internet finance has become a new trend in wealth management and financing, and even a subversion of traditional financial models. Internet finance is an extension of the Internet. It is a new ecological finance that combines the traditional financial industry and the Internet, and it is also an issue of the times that we must face. This paper focuses on the use of evolutionary game theory to discuss the P2P online lending model in Internet finance.

P2P (Peer to Peer) credit is online credit, which is a point-to-point, person-to-person, and a small loan method that invests and borrows with the help of third-party network platforms. It bypasses financial intermediaries such as commercial banks and reduces operations and transactions, information and other costs have become a typical representative of the disintermediation of Internet finance. This method first appeared in the United Kingdom (such as Zopa), with an online lending platform as an intermediary, with the help of Internet technology, the information of the borrower and the borrower is more transparent and symmetrical, which reduces the cost of funds and improves the utilization rate of funds. At present, market is huge, so there is still a lot of room for the development of P2P. However, as an emerging Internet lending channel, P2P online lending platforms are still facing the lack of laws and regulations, and the lack of intermediate accounts, lack of supervision, borrower information transparency, false guarantees and other lending risks.

There are generally three types of P2P online loan models in my country: one is a pure intermediary model represented, which means that all processes such as customer acquisition channels, credit risk control, transactions, and lending are completed on the Internet, and the risk is determined by the loan. Both parties undertake that the platform itself only undertakes information matching review, tool support and services; the other is a

guaranteed model. Once the loan defaults, this type of website promises to advance the principal for the investor first. At present, the vast majority of P2P websites operating in this mode are on the market. This paper mainly analyzes whether the P2P has a guaranteed model or not. With the guaranteed model, there will be problems such as the unclear subject of the guarantee rights, the guarantee company being an affiliated company, the "self-financing" trap, and the increase of platform risks. Some bank credit experts also said that P2P online lending institutions should be information intermediaries rather than credit intermediaries, and the process of "de-guarantee" should be accelerated. This paper uses evolutionary game theory with bounded rationality as the premise to establish an evolutionary game model between online loan companies, between companies and regulatory authorities, and analyze the evolution and stability of the model, which provides a theoretical basis for the selection of online loan models and supervision.

2. Method

Game theory and economic behavior, written jointly by American mathematician von Neumann and Morgenstein in 1944, marks the initial formation of game theory. Traditional game theory adopts the hypothesis of "complete rationality", but human limitations in the process of game can not be avoided; "Game analysis method and equilibrium concept based on complete rationality, that is, one-time choice based on reasoning analysis (for general static game and dynamic game), or overall planning based on high visibility (repeated game) The analysis framework is usually not applicable to the analysis of game problems of bounded rational players. Because these game analysis frameworks can not reflect the learning process of the game side, nor can they discuss the dynamic stability of the game side's behavior and strategy "; Therefore, it is necessary to study the evolution of rational game. Evolutionary game theory has been produced since the 1960s. Ecologists take Darwin's biological evolution theory and Lamarck's genetic gene as the basic ideas to explain ecological phenomena. The development of evolutionary game theory can be divided into two stages: the first stage is the substitution of limited rationality for complete rationality; The second stage is to introduce evolutionary game theory from the biological field into all fields of society. In the traditional game, the use of game theory to study human economic behavior adheres to the hypothesis of economic man and the principle of rationality, but in reality, people are not completely rational, but limited rationality. As an alternative, the rational principle is replaced by population dynamics and stability, while the self-interest principle is replaced by Darwin's fitness. Evolutionary game theory has two core contents: one is evolutionary stable strategy (ESS) and replication dynamic model; The criterion of evolutionary stability emphasizes the role of variation, while replication dynamics emphasizes the role of selection. Evolutionary stability strategy is that if the whole population chooses this strategy, under the action of natural selection, there is no mutation strategy that can invade the population. It is also a refinement of Nash equilibrium. It is also suitable for us to introduce evolutionary game theory from the biological field into the economic field; Replication dynamic process is a random pairing evolutionary game problem in a large group of members with low rational level and slow learning speed in repeated game.

According to the replicator dynamics, we can establish the dynamic differential equation of behavior evolution game between groups:

$$\begin{aligned}\frac{dx}{dt} &= x * U_1 - \bar{U} = x * [U_1 - (x * U_1 + (1 - x) * U_2)] \\ &= x * (1 - x) * (U_1 - U_2)\end{aligned}$$

Where x ($0 < x < 1$) represents the probability of adopting strategy 1, and the probability of adopting strategy 2 is $1-x$;

U_1 and U_2 respectively represent the expected return of adopting strategies 1 and 2; \bar{U} represents the average expected return of a group. When a strategy satisfies the conditions, it is an evolutionary stable strategy.

$$F'(x) = \frac{dx}{dt} < 0,$$

3. Results

3.1. Evolutionary Game Theory Model Analysis of P2P Network Lending Platform

(1) Model assumptions

Suppose there are only two groups in the P2P online lending industry, namely platform A and platform B, and the number of individuals is N . Platform A is a group that voluntarily accepts supervision, and platform B is a group that does not accept supervision. There is information asymmetry between platform A and platform B and they are both bounded rational and mutually random. Within the same group, platforms have the same set of strategies for their attitudes towards regulation and make decisions about regulation at the same time.

Table 1. The payoff matrix of the game between platforms A and B

		A	
		be regulated (P)	not regulated ($1-P$)
B	be regulated (P)	$(R+S, R+S)$	$(R+2S-M, R+M-2F)$
	not regulated ($1-P$)	$(R+M-2F, R+2S-M)$	$(R-F, R-F)$

In Table 1:

(P) : Proportion of groups under supervision

$(1-P)$: Proportion unwilling to accept regulation

R : Platform operating income

S : The platform's increased revenue due to acceptance of supervision

M : The platform loses revenue due to supervision

F : The cost of platform violations

If both platform A and platform B voluntarily accept the regulatory conditions of the regulator, then in addition to the platform's operating income R , the two parties also increase the income S due to accepting supervision, and the total income is $R+S$;

If both platform A and platform B choose not to accept supervision, the operating income is still R, but may be fined by the regulatory authorities F, so the income of both platforms will decrease F, and the income will become $R - F$;

If the two platforms choose different: Platform A is regulated (or Platform B is regulated). At this time, platform A is restricted by regulatory conditions, and the operating income is lost due to the loss of customers to platform B (M). However, platform A will receive twice the benefit of customers who voluntarily accept the regulatory policy as 2S, so the total benefit is $(R + 2S - M)$.

Platform B does not accept supervision (or platform A does not accept supervision. Platform B will receive the loss revenue M due to platform A being supervised, and also bear the fine cost of the regulated department 2F, so the total revenue is $(R + M - 2F)$.

(2) Establishment of evolutionary game model

The expected return (u_1) of the game player who voluntarily accepts supervision is:

$$u_1 = p(R + S) + (1 - p)(R + 2S + M) = R + S + (1 - p)(S - M)$$

The expected return (u_2) of the game party that does not accept supervision is:

$$u_2 = p(R + M + 2F) + (1 - p)(R - F)$$

Then the average income (U) of the group is:

$$u = pu_1 + (1 - p)u_2$$

Therefore, the replication dynamic equation of the evolutionary game model is:

$$\begin{aligned} F(p) &= dp/dt = p(u_1 - u) = p(1 - p)(u_1 - u_2) \\ &= p(1 - p)[2S + F - M - p(S - F)] \end{aligned}$$

Let $F(p) = 0$, when $p^* = 0$, $p^* = 1$, $p^* = (2S + F - M)/(S - F)$, the proportion of the platform under supervision is stable, but it cannot be determined whether it belongs to the evolutionary stable strategy ESS, in $F'(p^*) < 0$ equilibrium point is the evolutionary stable strategy ESS.

$$F'(p) = (2S + F - M) - 2p(3S - M) + 3p^2(S - F)$$

Putting the above p^* value into the equation, it can be calculated as:

$$F'(0) = 2S + F - M$$

$$F'(1) = M - S - 2F = -(S + 2F - M)$$

$$F'[(2S + F - M)/(S - F)] = (2S + F - M)(S + 2F - M)/(S - F)$$

At this time, the relationship between values exists in the following two cases:

Case 1:

When $S - F > 0$, $2S + F - M > 0$ when $S + 2F - M < 0$

Then $F'(0) > 0$, $F'(1) > 0$, $F'[(2S + F - M)/(S - F)] < 0$

At this point only $p^* = (2S + F - M)/(S - F)$ is the only stable evolutionary stable strategy.

When the market meets the above conditions, the probability of P2P platforms voluntarily accepting supervision will eventually stabilize at a level around $p = (2S + F - M)/(S - F)$ at this point, the average return of the group reaches its maximum value.

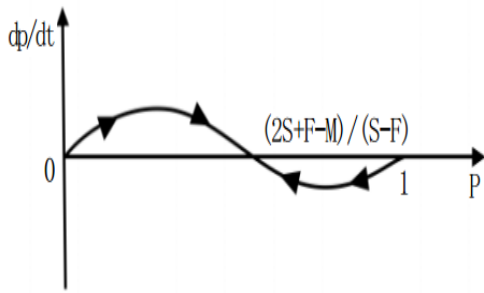


Figure 1. The phase diagram of the eagle-dove game replicating the dynamic equation

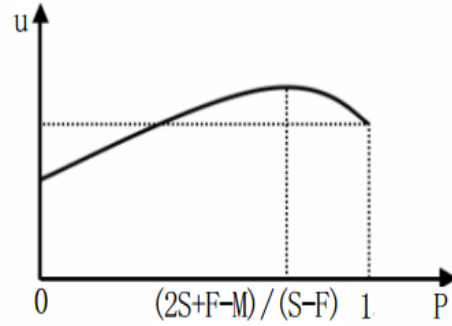


Figure 2. The average payoff curve of the eagle-dove game

Case 2:

When $S - F > 0$, $2S + F - M < 0$ when $2S + F - M > 0$

Then $F'(0) < 0$, $F'(1) < 0$, $F'[(2S + F - M) / (S - F)] > 0$

At this time $p^* = 0$ and $p^* = 1$ are evolutionary stable strategies of the game, forming a "coordination game". And $p^* = (2S + F - M) / (S - F)$ is not an evolutionarily stable strategy.

Therefore, the game between platforms will evolve into two stable states

When the probability of the platform being regulated is (P) and the initial level falls within the interval $[0, (2S + F - M) / (S - F)]$, the replication dynamics will tend to a stable state of $p^* = 0$, that is, all platforms are not regulated;

When the initial level falls within the interval $[(2S + F - M) / (S - F), 1]$, the replication dynamics will tend towards $p^* = 1$, that is all platforms will be voluntarily regulated;

When the initial level is equal to $(2S + F - M) / (S - F)$ each platform will randomly choose whether to accept supervision. At this time, the expected return of the two options of the platform is the same, and the average return of the group will be at the minimum.

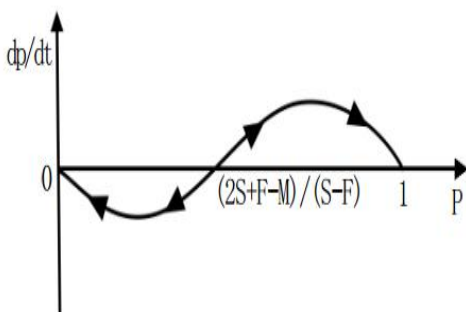


Figure 3. Phase diagram of the coordination game replication dynamic equation

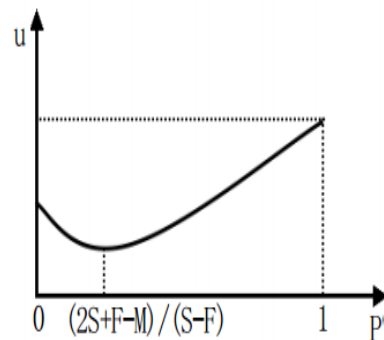


Figure 4. Average payoff curve of coordination game

Table 2. List of model equilibrium results

Condition	Equilibrium point p^*	Value $F'(p^*)$	Result
Pigeon game: $S - F > 0$ $2S + F - M > 0$	$p^* = 0$	$2S + F - M > 0$	unstable point
	$p^* = 1$	$M - S - 2F > 0$	unstable point
	$p^* = \frac{2S + F - M}{S - F}$	$\frac{(2S + F - M)(S + 2F - M)}{S - F} < 0$	ESS
Coordination game: $S - F < 0$ $2S + F - M < 0$	$p^* = 0$	$2S + F - M < 0$	ESS
	$p^* = 1$	$M - S - 2F < 0$	ESS
	$p^* = \frac{2S + F - M}{S - F}$	$\frac{(2S + F - M)(S + 2F - M)}{S - F} > 0$	unstable point

(3) Analysis of game parameters

In the "eagle-dove game", when the market tends to be in a stable state, the probability that each P2P lending platform decides to accept the supervision of the regulatory authority will be stable at $p = \frac{(2S+F-M)}{(S-F)}$. Because the platform chooses supervision will lead to loss of revenue (M) and increase of supervision revenue (S). At this time, the regulator should strengthen management, maintain a stable increase in revenue (S) to the platform that accepts supervision, and at the same time increase the fine (F) for illegal behaviors that do not accept the regulator to make $p = \frac{(2S+F-M)}{(S-F)}$ approach 1. At this time, The probability of platform A voluntarily accepting supervision will approach 1, and the average benefit of the group will be the largest at this time.

In the "coordination game", when the regulator first implements the regulatory policy, the number of platforms that accept supervision is very important, which will directly affect the evolution direction of the game. In order to implement regulatory policies more effectively, regulators should pay attention to grasping the regulatory standards when regulatory policies are introduced, appropriately propose incentive policies, increase the revenue (S) of their platforms, and strive for more resources for regulated platforms. Platforms that do not accept supervision or violate supervision shall be strictly punished, and the amount of fines shall be increased (F). The willingness to accept supervision through the platform increases, so that the overall probability of accepting supervision is greater than $p = \frac{(2S+F-M)}{(S-F)}$ to ensure that the evolutionary stability strategy will tend to 1, that is, the platform will choose to accept supervision.

3.2. An Evolutionary Game Model Analysis of the Regulatory Benefits of P2P Online Lending Platforms

(1) Model assumptions

It is assumed that P2P platforms and regulators interact in the development of the industry. If the regulatory authorities do not supervise the P2P industry or choose loose regulatory policies, it will cause industry losses and the losses will be greater than the cost of strict enforcement by the regulatory authorities. Or if, the P2P platform will suffer huge losses due to not accepting supervision, and its platform loss is far greater than the cost of the platform's supervision.

Table 3. Payoff Matrix of Regulatory Authority and Platform Game

Regulatory P2P Platform	No violation (q)	Violation ($1-q$)
Strictly regulated (p)	$(-C, R)$	$(-C, R + \Delta R - K)$
Loose regulation ($1-p$)	$(0, R)$	$(-E, R + \Delta R - L)$

In the table

R : platform revenue

(p) : Proportion of "strictly regulated"

$1-p$: Proportion of "easy regulation"

(q) : Proportion of "non-violating" platforms

$1-p$: Proportion of "offending" platforms

K : The cost of breaching the platform

C : The regulatory cost of the regulator

E : The regulator's unregulated loss

ΔR : The illegal income of the platform

L : The loss of the platform when the crisis broke out

(2) Construction of evolutionary game model of regulatory authorities and P2P online lending platforms.

That is $f(h, s)$ which represents the expected return obtained by the individual choosing strategy s with probability h .

$r_1 = (1, 0)$ indicates that the P2P platform or regulator chooses no violation or strict supervision with probability 1, and $r_2 = (0, 1)$ indicates that the P2P platform or regulator chooses violation or loose supervision with probability 1.

A point (p, q) on the available $[0, 1] \times [0, 1]$ region in state $E = \{(E_1, E_2), (E_3, E_4)\} = \{(p, 1-p), (q, 1-q)\}$ represents the evolutionary dynamics of the system consisting of regulators and platforms.

Fitness for a "strictly regulated" strategy: $f_1(r_1, s) = (-C)q + (-C)(1-q)$

The fitness of adopting the "easy regulation" strategy: $f_1(r_2, s) = 0.q + (-E)(1-q)$

Average fitness: $f_1(p, s) = pf_1(r_1, s) + (1-p)f_1(r_2, s)$

The fitness of adopting the "no violation" strategy: $f_2(r_1, s) = Rp + R(1-p)$

The fitness of adopting the "violation" strategy:
 $f_2(r_2, s) = p(R + \Delta R - K) + (1-p)(R + \Delta R - L)$

The average fitness is: $f_2(q, s) = qf_2(r_1, s) + (1-q)f_2(r_2, s)$

The growth rate of the proportion of regulators adopting a "strict regulation" strategy is:

$$\dot{p}/p = f_1(r_1, s) - f_1(p, s)$$

$$\dot{p} = p[f_1(r_1, s) - f_1(p, s)] = p(1-p)(E - C - Eq)$$

When $q = 0$ is appropriate $q = 0, 1$ or $q = (E - C)/E$, the proportion of departments adopting the "strict supervision" strategy tends to be stable.

The growth rate of the proportion of platforms adopting the "no violation" strategy is:

$$\dot{q}/q = f_2(r_1, s) - f_2(q, s)$$

$$\dot{q} = q[f_2(r_1, s) - f_2(p, s)] = q(1-q)[(L - \Delta R) - (L - K)]$$

Let $q = 0$, which can be properly $q = 0, 1$ or $p = (L - \Delta R)/(L - K)$, the proportion of platforms adopting the "no violation" strategy tends to be stable.

(3) The dynamic evolution of the behavior of regulatory authorities and P2P online lending platforms can obtain a systematic Jacobian matrix:

$$J = \begin{pmatrix} (1-2p)(E-C-Eq) & -Ep(1-p) \\ -q(1-q)(L-K) & (1-2q)[L-\Delta R-p(L-K)] \end{pmatrix}$$

Solution: 5 local equilibrium points, (0,0), (0,1), (1,0), (1,1), and $\left[\frac{L-\Delta R}{L-K}, \frac{E-C}{C} \right]$

Table 4. Equilibrium point structure of the game model of regulatory benefits

Equilibrium	J The determinant (symbol)	J	Result
$p = 0, q = 0$	$(E - C)(L - \Delta R)$ (+)	$(E - C)(L - \Delta R)$ (+)	Unstable point
$p = 0, q = 1$	$C(L - \Delta R)$ (+)	$-C(L - \Delta R)$ (-)	ESS
$p = 1, q = 0$	$-(E - C)(K - \Delta R)$ (+)	$-(E - C)(K - \Delta R)$ (-)	ESS
$p = 1, q = 1$	$-C(K - \Delta R)$ (+)	$C(K - \Delta R)$ (+)	Unstable point
$p = \frac{L - \Delta R}{L - K}$, $q = \frac{E - C}{C}$	$\frac{C(E - C)(L - \Delta R)(\Delta R - K)}{E(L - K)}$	0	saddle point

(0,1), (1,0) are the stability points of the system and the evolutionary stability strategy of the system, namely ESS.

(0,0), (1,1) are the unstable points of the system, and $\left[\frac{L-\Delta R}{L-K}, \frac{E-C}{C} \right]$ is the saddle point of the system.

If the initial state falls within the area A, the system will converge to (0,1), that is, the regulatory authority adopts a loose supervision strategy, and the platform adopts a non-violation strategy. If the initial state falls within the area B, the system converges to (1,0), that is, the regulatory authority adopts a strict supervision strategy, and the platform adopts a violation strategy.

(4) Parameter analysis

If the initial state randomly falls within $D=\{(p, q)|0 \leq p, q \leq 1\}$, the system will evolve in different directions. For $p = \frac{L-\Delta R}{L-K}, q = (E-C)/E$ let $\alpha = \frac{\Delta R}{L}, \beta = \frac{K}{L}, \delta = C/E$ get $p = \frac{1-\alpha}{1-\beta}, q = 1 - \delta$

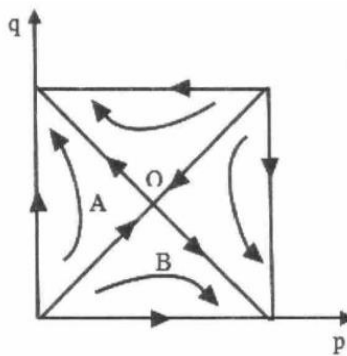


Figure 5. Phase diagram of system dynamic evolution

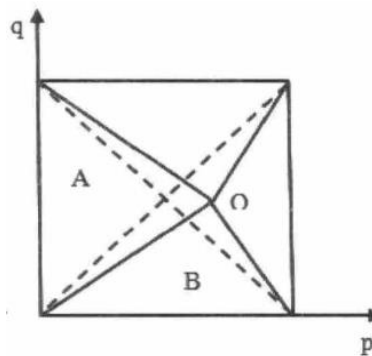


Figure 6. Changes in relative area when the P coordinate becomes larger

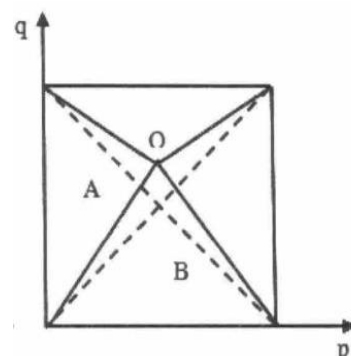


Figure 7. Change of relative area when the Q coordinate becomes larger

The analysis is as follows:

I. $\alpha = \Delta R/L$ is the profit and loss ratio of the platform's illegal operations. When (α) becomes larger ΔR becomes larger or (L) becomes smaller), the p-coordinate of point O becomes smaller, and the q-coordinate remains unchanged, so that the area of area A becomes smaller and the area of area B becomes larger, and vice versa. When the P2P platform obtains higher profits through illegal operations or the platform suffers a small loss (L) due to the outbreak of the crisis, the platform P2P will choose to violate the regulatory provisions, otherwise, the platform will choose not to violate the regulations.

II. $\beta = K/L$, is the conversion rate of platform internal risk cost to external loss. $p = \frac{L-\Delta R}{L-K}$ therefore, the change of L or K has the same effect on the change of p coordinate. When K or L becomes larger, the P coordinate of the O point becomes larger, and the q

coordinate remains unchanged, so that the area of area A becomes larger, and the area of area B becomes smaller, and vice versa. When the platform bears the risk cost K due to violations, the platform suffers losses L when the crisis breaks out. In order to reduce the loss, the platform will choose a non-violation strategy.

III. δ : $\delta = C/E$ is the profit and loss ratio of supervision by the supervisory authority. When C becomes larger or E becomes smaller, the p coordinate of point O remains unchanged, and the q coordinate becomes smaller. At this time, the area of area A becomes larger, and the area of area B becomes smaller, and vice versa. When the additional cost C of the platform accepting strict supervision is high or the loss E caused by the regulatory authority is small in the case of loose supervision, the regulatory authority will choose a loose supervision strategy.

3.3. Evolutionary game model of P2P network lending regulators and guarantee institutions

(1) Model assumptions

There are two groups of P2P online lending platforms, those who accept guarantees and those who do not accept guarantees. The regulatory authorities also have two strategies to supervise and not supervise P2P online lending platforms, that is, the number of individuals in the online lending enterprise platform group is N, N Sufficiently large and satisfying: The P2P network lending enterprise platform accepts guarantees and does not accept guarantees and the supervision departments interact with each other, and it is random and bounded rationality. Regardless of whether the P2P platform accepts the guarantee or not, the decision-making time when choosing supervision is the same, the same group has the same selection supervision strategy, and there is information asymmetry between the two.

Table 4. Game income matrix of guaranteed and unguaranteed by regulators and online lending companies

Regulators	P2P Platform				
		no guarantee (x)		guaranteed ($1-x$)	
Be regulated (y)	$U_a - V_a$	S_a	$U_d - V_d$	$S_d - W$	
Not regulated ($1-y$)	U_a	S_a	U_d	S_d	

S represents the income of the online loan platform; S_a represents the unsecured income of the online loan enterprise, S_d is the guaranteed income of the online loan enterprise, and the supervision income of the supervision department is $S_d - W$, where W is the supervision fee and fine, $S_d > S_a$

When the regulatory authorities supervise, investors do not pay much attention to whether there are guarantee factors for online loan platforms, but online loan companies that take guarantees will increase the cost of guarantees, so $S_d > (S_a - W)$

V represents the cost of supervision; V_a is the supervision cost of the unsecured government supervision department of the online loan enterprise, V_d is the supervision cost of the government supervision department with the guarantee of the online loan enterprise, $V_d > V_a$,

U represents the income of the supervision department, U_a is the income of the unsecured government supervision department of the online loan company, U_d is the guaranteed income of the government supervision department of the online loan company, $U_a > U_d$

When $x < \frac{V_a}{V_d - V_a}$, $x^* = 0$, $x^* = 1$ are still two stable strategies, but $F'_{(0)} < 0$, $x^* = 0$ is an evolutionary stable strategy.

When $x = \frac{V_a}{V_d - V_a}$ all (y) are in equilibrium. Because of $V_d > V_a$ when $x > \frac{V_a}{V_d - V_a}$ no matter what strategy the platform adopts (guaranteed or not), the best choice for regulators

is regulation, and when $x < \frac{V_a}{V_d - V_a}$ no matter what strategy the platform adopts (guaranteed or not) regulation The best option for the sector is to not regulate.

By analyzing the replication dynamic equation of online loan platform enterprises,

When $y > \frac{S_d - S_a}{W}$, $x^* = 0$, $x^* = 1$, two stable strategies, but $F'_{(1)} < 0$ i.e. $x^* = 1$ is an evolutionary stable strategy;

When $y < \frac{S_d - S_a}{W}$, $x^* = 0$, $x^* = 1$, are still two stable strategies, but $F'_{(0)} < 0$ i.e. $x^* = 0$ is an evolutionary stable strategy;

When $y = \frac{S_d - S_a}{W}$ all y are in equilibrium.

Because of $S_d > S_a$ when $y > \frac{S_d - S_a}{W}$ i.e. no matter what strategy the government adopts (regulatory or not), the platform chooses the unsecured model, and when $y < \frac{S_d - S_a}{W}$ i.e. no matter what strategy the government adopts (regulatory or not), the platform's maximum The preferred option is the secured model.

4. Discussion and Conclusion

Through the construction of the above two models and the deduction and analysis of the relevant parameters, the following conclusions can be drawn:

Conclusion 1: Without the intervention of regulatory authorities, only relying on the adjustment of market interests and the improvement of platform social responsibility awareness, the standardized development of P2P online lending platforms will not reach an ideal state.

Conclusion 2: In the early stage of the implementation of regulatory policies, it is necessary to protect the competitive advantages and operating income of formal platforms, optimize the market competition and development environment through legislation

"rectification", and support and promote the construction of a social credit system, so that most platforms consciously accept supervision.

Conclusion 3: The regulatory authorities should increase the penalties for violations of the platform, so that the cost of the platform being investigated and punished for the illegal operation is far greater than the income obtained by the illegal operation, so as to eliminate the impulse to violate the regulations; the platform itself should also strengthen corporate governance and improve internal control management. level, prevent the risk of violation, and reduce the cost of violation.

Conclusion 4: The regulatory department should reduce the cost of supervision through the comprehensive use of various channels and methods. The first is to improve supervision capabilities and reduce supervision costs through collaborative supervision, informatization of supervision methods, and diversification of supervision methods; the second is to strengthen the information disclosure of the platform, and improve the efficiency of supervision through market supervision; The construction and management of the organization, strengthen the standard operation of the platform itself to reduce the cost of supervision.

The development of online lending companies is not yet ripe, borrowers will use the platform to raise capital illegally, and the online lending platform can self-finance and become become a semi-financial intermediary (or act as a credit converter). Since most of the Investors are risk-averse, will be interested in P2P companies To maximize, attract investors and expand market share, P2P companies will choose underwriting model to collect attract more user groups. However, it is impossible not to mention the potential problems behind the guarantee model such as the unknown subject of the guarantee, the company. underwriters are affiliates, problems like self-financing are loopholes in oversight and even false underwriting platforms will emerge. In the evolutionary game between the studied P2P enterprise and the supervision of the regulators, it is found that whether the Firm has an underwriter under the underwriting model as an associate depends largely on the extent of regulatory oversight and the degree of sanctions. Certainly, the deterrence of companies in the regulatory policy of the regulator affects the income of the business, which in turn affects the choice of operation method of online lending businesses. Regulators need to improve the supervision system, increase the supervision density, raise the industry threshold, evaluate the credit platform system, develop risk monitoring indicators for online lending businesses, etc and establishing a good P2P network funding environment is essential.

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THE EFFECTS OF SOCIAL CAPITAL ON STUDENTS' ONLINE IMPULSE BUYING

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Abstract

This study aims to examine the influence of social capital as well as other factors (peer communication, utilitarian value, hedonic value, and browsing activity) on consumers' online impulse buying, by applying the stimulus-organism-response (SOR) paradigm and social capital theory. This study conducted structural equation modeling (SEM), used online questionnaires to collect data, and got 230 responses from students of universities in Hanoi. The results of this study have pointed out that social capital consists of bridging social capital and bonding social capital has significantly affected impulse buying through the mediator factor - peer communication. Besides, utilitarian value, hedonic value, and browsing activity have not influenced impulse buying in this research context.

Keywords: *Social capital, social commerce, impulse buying, impulsiveness, impulse buying behavior*

1. Introduction

Over the past few years, the income of Vietnam's consumers has increased substantially, so expenses for goods or services consumption have also grown dramatically, especially online shopping. Verhagen and van Dolen (2011) pointed out that impulse buying occurs in about 40% of all online expenditures. The estimated e-commerce market size of Vietnam in 2021 is 13,7 billion \$, and the conjectured average growth rate of the e-commerce market of Vietnam is 16%. Online marketing information easily attracts users' attention and stimulates their desires to buy something during the online shopping, or e-tail process. As such, social commerce will be mainstream (Liang & Turban, 2011). It was used to incorporate commercial features and take advantage of the size and stickiness of social media users to offer a variety of value-added services or create e-commerce-based business channels to promote ads and transactions. Recently, more and more customers have tended

to interact to share product information on the Internet and buy products recommended by friends and relatives (Cheng et al., 2019).

Applying social capital to explain impulse buying is a new and growing trend in the world, but there are still not many scholars studying this field. Li-Ting Huang (2015), together with Putnam (2000) agreed to divide social capital into two types: bridging social capital - loose or less close relationships and bonding social capital - close relationships, and they strongly and positively affect consumers' urge to impulse buying through peer communication - interactions among other consumers in their network of relationships. The author has shown that people who have a lot of social networks or relationships and often interact with others tend to buy more impulsively. The views of friends, relatives, and other consumers have a strong influence on consumers' impulsive buying intentions. In Vietnam, researchers have not yet focused on exploring the relationship between social capital and impulse buying. Therefore, this paper will develop into the analysis of the impact of social capital on online impulse purchases and provide the results to suggest solutions for online retailers to push impulse buying.

2. Literature review and hypothesis development

2.1. Impulse buying and the SOR paradigm

There were a lot of definitions for impulse buying, Stern (1962) defined impulse buying as “any purchase which a shopper makes but has not planned in advance”. Furthermore, Rook (1987) indicated impulse buying is a sudden and strong desire to buy when consumers are stimulated. But in general, it is basically recognized that impulse buying has three characteristics: first, it is unplanned which means consumers have no prior purchase plan; secondly, it occurs when consumers are affected by external stimuli that lead to impulse reactions; the third is an emotional response. Consumers are often accompanied by strong emotional reactions in the process of impulsive purchases. These emotional reactions such as desire, excitement, and pleasure make them temporarily irrational and produce impulsive buying behavior.

The SOR paradigm was developed by Houston and Rothschild (1977). It is a micro-theory of how different types of involvement arise from the consumer, the situation, and the decision process interact, providing a rich explanation of how the purchase decision may be affected by different types of involvement. According to this model, a stimulus can provoke action, and an organism initiates internal processes to prepare for making the final response. Scholars have applied the SOR paradigm in explaining consumers' impulse buying behavior. For example, Li et al. (2014) explored consumers' purchase intention on social networking websites based on the SOR paradigm. Dholakia (2000) found out that marketing stimuli, situational factors, and the impulsivity trait of consumers usually lead to impulse buying.

2.2. Social capital theory and peer communication

Social capital

Through the years, scholars have researched social capital and its macro and micro influence on the economy. Nahapiet and Ghoshal (1998) defined social capital as “the sum

of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit” (p. 243). They pointed out that there is a structural connection between individuals, through that connection individuals can have more information, knowledge, and material support from people in the network. Social capital includes bonding social capital and bridging social capital (Putnam, 2000). Bridging social capital refers to “loose ties” through which individuals can gain more new knowledge, information, and perspective. Therefore, the more bridging social capital consumers possess the more information and opportunity they will gain throughout interacting with members of diverse backgrounds. Accordingly, the following hypothesis is proposed.

H1: *Consumers’ bridging social capital is positively associated with their perceived peer communication in a social network.*

In the contract, bonding social capital exists in “strong ties” that provide individuals with both material and emotional support. Individuals tend to interact with their close friends frequently and can have discussions and emotional support through intensive communication. Accordingly, the following hypothesis is proposed.

H2: *Consumers’ bonding social capital is positively associated with their perceived peer communication in a social network.*

Peer communication

During communicating with others, individuals gain more information, knowledge, and skills relating to the product that helps them understand the product and the seller better, form a certain emotional expectation such as trust or intimacy for the product, thereby promoting their behavior. Lueg and Finney (2007) have emphasized that peer communication strongly influences consumers' online purchase behaviors. Based on the above discussion, the following hypothesis is proposed:

H5: *Consumers’ perceived peer communication is positively associated with their urge to buy impulsively*

2.3. Utilitarian Value, hedonic Value, and Browsing activity

Utilitarian Value

Zhang et al (2018) defined utilitarian value as consumers’ perceptions regarding the extent to which online reviews can provide instrumental value and fulfill their needs. The more utilitarian value that consumers receive the higher possibility they will buy the product. Consumers perceive obtaining useful information from online reviews, then they are more likely to do browsing (Kusmaharani and Halim, 2020). Thus, the following hypothesis is proposed:

H3: *Utilitarian value of online reviews positively influences browsing of consumers*
Hedonic Value

Hedonic value focuses on the entertaining such as fun and delightful aspects of shopping behavior, and positively influences consumers’ impulse buying behavior (PPark, Kim, Funches, & Foxx, 2012). Consumers who enjoy reading online reviews are likely to

spend time browsing the reviews. Moreover, searching for information online is believed to be a way of self-reward by giving themselves (consumer) leisure and escapism (Mathwick et al., 2001). Accordingly, the following hypothesis is proposed.

H4: *Hedonic value of online reviews positively influences browsing of consumers.*

Browsing activity

Browsing is defined as the activity of scanning product information for either information-seeking purposes or entertainment-seeking purposes, without having buying intention (Verhagen and Van Dolen, 2011). Youn and Faber (2000) have pointed out that browsing activity has the potential to exert a greater influence on the urge to buy impulsively of consumers. Therefore, the following hypothesis is proposed.

H6: *Browsing activity positively influences the urge to buy impulsively.*

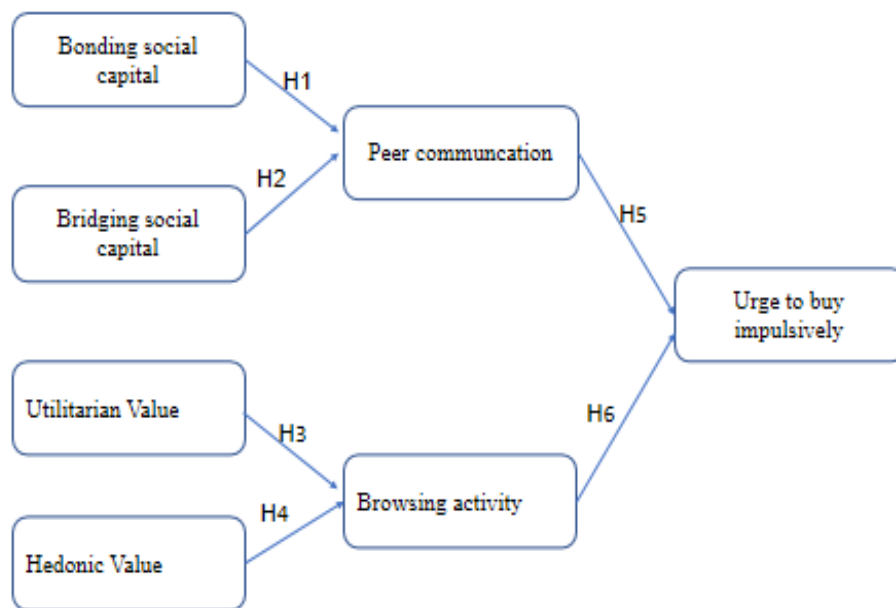


Figure 1. Modified Research Model

3. Method

3.1. Research design

This study was conducted through a quantitative survey method, using structural equation modeling (SEM). All items in the measurement scale were measured with a 5-point Likert scale, ranging from strong disagreement to strong agreement. The study adapted items from previous studies and adjusted them to fit with this research context with 24 items in total: Urge to buy impulsively (3 items), bonding social capital (3 items), bridging social capital (5 items), peer communication (4 items), hedonic value (3 items), utilitarian value (3 items).

3.2. Sample and data collection

The hypothesis was examined through the data of 230 respondents. This study employs an online questionnaire, the link of the questionnaire was posted on Facebook groups and other social media for three weeks. The details of the respondents' characteristics were shown in table 2.

Table 1. Sample characteristics

Sex	Male	22.6%
	Female	77.4%
Years of university	First year	30 %
	second year	10.4%
	Third year	53.9%
	Fourth year	4.8%
	Others	0.9%
Time using the internet	less than 1 hour	0.9%
	1-3 hours	12.2%
	3-5 hours	31.7%
	More than 5 hours	55.2%
The amount of money spent for online purchasing per month	Under 500.000 VND	47%
	500.000-1000.0000 VND	37%
	1000.000-3000.000 VND	13%
	More than 3000.000 VND	3%

4. Results

This article used SPSS 20 and AMOS 20 software to analyze the collected data. Before testing the hypotheses, the reliability and validity of these items have been evaluated. To begin with, all variables are useful because Cronbach's Alphas are close to or above the standard threshold of 0.8. Moreover, all items have the value of Cronbach's Alpha if Item Deleted is smaller than the Cronbach's Alpha, so no variables are eliminated.

Then, by carrying out exploratory factor analysis (EFA), VXHBC2 (item 2 for bridging social capital) was abolished (Factor loading < 0.5). After that, confirmatory factor analysis (CFA) was applied for further tests of the measure validity. The results of CFA indicate acceptable fit: Chi-square/df = 1,886; GFI = 0,876; TLI = 0,906, CFI = 0,922; RMSEA = 0,062. The results exhibited that factor loadings of all items are higher than 0,5, while the average variances extracted (AVE) of all constructs are higher than 0.5. Therefore, the measures can be considered to have adequate convergent validities (Hair et al, 2018). The results show that all variables have the maximum shared variance (MSV) smaller than the average Variance Extracted (AVE), ensuring the test requirements.

Likewise, this study was conducted to plan and adjust the SEM model on AMOS for qualitative analysis to exact test and confirm the theoretical model theory of assessing the influence of social capital (VXH) to urge impulse buying. Model fits data studied by Chi-square/df = 1,945; TLI = 0,901; CFI = 0,914; RMSEA = 0,064; GFI= 0,868. Based on the below SEM analysis table, there are 3 hypotheses (H3,H4,H6) which are not supported as p value is smaller than 0.05.

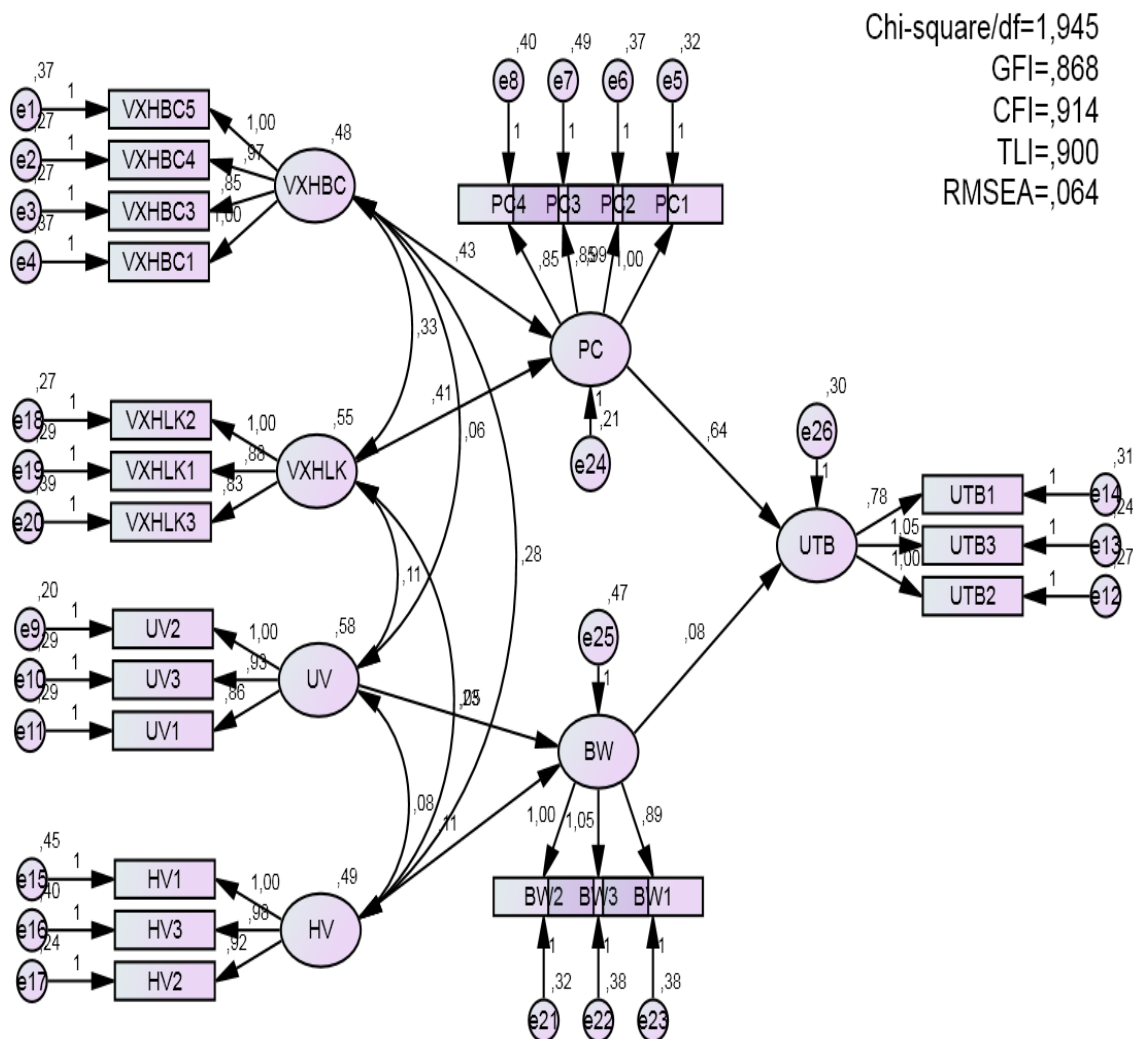


Figure 2. Regression Weights

The hypotheses were tested as described in Figure 3 and the result of hypothesis testing are shown in Table 2. From Figure 3, concerning H1 and H2, both bridging social capital ($\beta=0.425$, $p < 0.005$) and bonding social capital ($\beta=0.41$, $p < 0.005$) has a significant positive effect on peer communication. Therefore, H1 and H2 are fully supported. Additionally, supporting H5 peer communication was found have significant positive effect on urge to buy impulsively ($\beta=0.693$, $p < 0.05$). With regard to H3 and H4, we found that both utilitarian value ($\beta=0.046$, $p > 0.005$) and hedonic value ($\beta=0.106$, $p > 0.05$) are also found to generate a significant positively effect on browsing activity, but their p-value were bigger than 0.05, which means H3 and H4 are unsupported. In the same way, H6 ($\beta=0.079$, $p > 0.05$) is also unsupported. Furthermore, the model successfully accounted for an amount of variability in urge to buy impulsively with an R-squared value of 41.1 %, peer communication with an R-squared value of 58.2%.

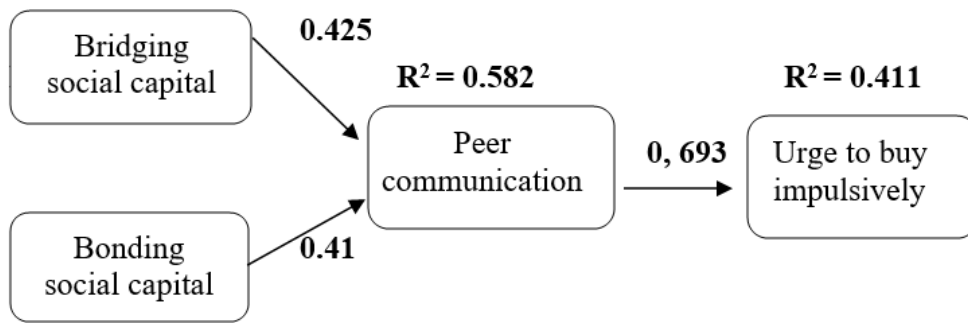


Figure 3. Results of the Research Model Tests

Table 2. Estimated results analysis table

			Estimate	S.E.	C.R	P
PC	<---	VXHBC	,425	,094	4,498	***
PC	<---	VXHLK	,410	,089	4,617	***
BW	<---	UV	,046	,073	,639	,523
BW	<---	HV	,106	,082	1,299	,194
UTB	<---	PC	,639	,081	7,889	***
UTB	<---	BW	,079	,071	1,106	,269

5. Discussion and Conclusion

In conclusion, the results of this study have confirmed the significant influence of social capital on impulse buying. First, the results of this research accord with the results of prior studies (Li-Ting Huang, 2015; Kusmaharani and Halim, 2020). Research confirmed the contributions of social capital in impulse buying and has strengthened the influence of bridging social capital over the influence of bonding social capital. Relationships in social networking enabled consumers to converse with peers, through that they can get more support from peers and discuss the product, therefore, resulting in impulse buying.

Second, utilitarian value, hedonic value, and browsing activity did not impact impulse buying in the context of Vietnam. This result was not in contract with previous research. Zhang et al (2018), Wang (2010), Kusmaharani and Halim (2020) have shown that utilitarian value, hedonic value, and browsing activity had slightly impacted impulse buying.

Thus, this study has contributed to the academic framework of impulse buying's overview when studying the influence of social capital on impulse buying in the context of Vietnam and the research subject - students who have low income but tend to buy goods impulsively (Nguyen Thi Phuong Anh and Vu Huy Thong, 2020)

In terms of practical implications, the research results are the basis to propose some solutions to help increase sale revenue for online retailers. The results of the research implies

that in order to create students' online impulse purchases, it is crucial for those brands to acknowledge the importance of two social factors that can cause impulse buying through the mediator factor - peer communication, namely: bridging social capital and bonding social capital. Many brands should actively monitor peer communications of potential consumers in social media. By monitoring, these brands can quickly detect and take care of negative peer communication. Furthermore, these retailers also can create communities of the brand in social media (for example, Facebook groups) or official websites to connect peers and non-peers with those of the same interest. Based on the findings, they can promote bridging social capital between consumers by taking advantage of the influence of KOL or online reviews. In addition, they could lead consumers to impulse purchases of their products by improving bonding social capital. For example, those brands can apply referral programs which is a system that incentivizes previous customers to recommend your products to their family and friends. Retail stores create their own referral programs as a way to reach more people. Besides, "Groupon" which is a portmanteau of the words group and coupon, can also be promoted and further developed by retailers.

Limitations and Recommendations

Like any other research, this study also has limitations. Firstly, this study used the convenience sampling method for collecting data, and the diversity of the respondents is limited, only focusing on the students (aged 18-22 years old). Secondly, this study has not focused on the difference between people of different ages or incomes or examined it in a particular type of product. Further work could broaden the sample of research and investigate more about the distinction among different ages, sex, and incomes.

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YOUTUBER'S EFFECT ON PURCHASE INTENTION OF YOUNG VIETNAMESE

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Abstract

With the current development of technology, people tend to communicate and exchange through social networks. Since then, more and more companies have invested in audiovisual content, as part of their product/brand outreach strategy. Youtube is one of the most used social networks in recent years. This study focuses on the extent to which Youtubers influence the purchasing intention of young Vietnamese through the products/brands advertised by Youtubers based on consumer brand engagement theory. A survey with 8 factors was conducted by 503 young people in Vietnam. The survey results were then analyzed by SPSS and AMOS software to determine the correlation between independent and dependent variables. The analysis results show that Youtuber has the strongest influence on the shopping intention of young Vietnamese through trust. Youtubers need to increase the trust of their followers through making a good impression and making followers remember and think more about the YouTuber's creative content.

Key words: *purchase intention, Youtuber, young Vietnamese*

1. Introduction

As media grows, influencers through digital platforms will have the opportunity to interact with their fans (Kowalczyk & Pounders, 2016), thus establishing interaction points where has a mix of consumer value, influencers and brands (Hinson et al., 2019) is important. The media provides a networking space that allows consumers to recommend products, express dissatisfaction, express opinions, convince or relieve doubts from the help of other users in the brand community (Yusuf, 2018).

In 2019, YouTube ranked as the second most visited website in the world (after Google), with 23 minutes of average user time (SimilarWeb, 2020). Besides that, YouTube provides a space for YouTubers and followers to discuss about brands and products (Burgess & Green, 2018). In this space, YouTubers produce and share content that positively influences the online community, thus leading to the establishment of strong relationships with their followers as well as with companies that refer to their videos to implement new market strategies (Sabich & Steinberg, 2017). Because YouTubers have the ability to create

content that is viewed by millions (SocialBlade, 2020), brands also want to be able to use YouTubers as a channel to promote their brands.

However, a new problem: how to make communication activities through youtuber most effectively? This study will help those have interest, answer this question through the theory of consumer brand engagement as well as measuring the influence of youtubers on the buying intention of followers and bring out practical solutions.

2. Literature review and proposed model

2.1. Literature review

2.2.1. Definition

Consumer brand engagement focuses on the interactive experience during a customer journey, and it is also defined as “a consumer's positively valenced brand-related cognitive, emotional and behavioral activity during or related to focal consumer/brand interactions” (Hollebeek et al., 2014). The dimension of cognitive processing is described as “a consumer's level of brand-related thought processing and elaboration in a particular consumer/brand interaction”. An emotional dimension of engagement is “a consumer's degree of positive brand-related affect in a particular consumer/brand interaction”. Whereas, the behavioral dimension is defined as “a consumer's level of energy, effort and time spent on a brand in a particular consumer/brand interaction” (Hollebeek et al., 2014). In short, it can be said that customer engagement is a customer's voluntary resource contribution to a firm's marketing function above and beyond financial patronage (Pansari & Kumar, 2017).

In the study on engagement, Hollebeek (2014) stated that it represents a motivational, individual-specific, and context-dependent variable emerging from two-way interactions between relevant engagement subject(s) and object(s). Therefore, engagement can be viewed as a state in which pragmatic values, as well as social aspects, are embedded in the consumption experience and can be beyond purchase. This concept is in great agreement with findings of many studies related to engagement, however, some other researchers provide a different viewpoint. They point out that customer engagement, including non-commercial and direct engagement, begins with a customer's first interaction with your brand (Pansari & Kumar, 2017), tailored to each social media platform (Voorveld et al., 2018).

2.2.2. Components

There are three ways to determine consumer engagement (Abdul-Ghani et al., 2012). Specifically, it includes: (i) Cognitive Processing: Cognitive processing is defined as the degree a particular brand builds positive thoughts, impression to customers; (ii) Affection: refers to the degree of a consumer's positive influence on a brand in interactions with a particular brand. (Hollebeek et al., 2014); (iii) Activation: is defined as the level of energy, effort and time a consumer spends on a brand in interaction with a particular brand (Hollebeek et al., 2014)

2.2. Proposed model and research hypothesis

2.2.1. Proposed model

Based on the consumer engagement theory by Hollebeek & Chen (2014), this study has synthesized and modeled (Figure 1). This model is also completely suitable based on the

assessment of Correa (2020). When customers have greater interaction, their intention to use will increase (Hollebeek, 2014).

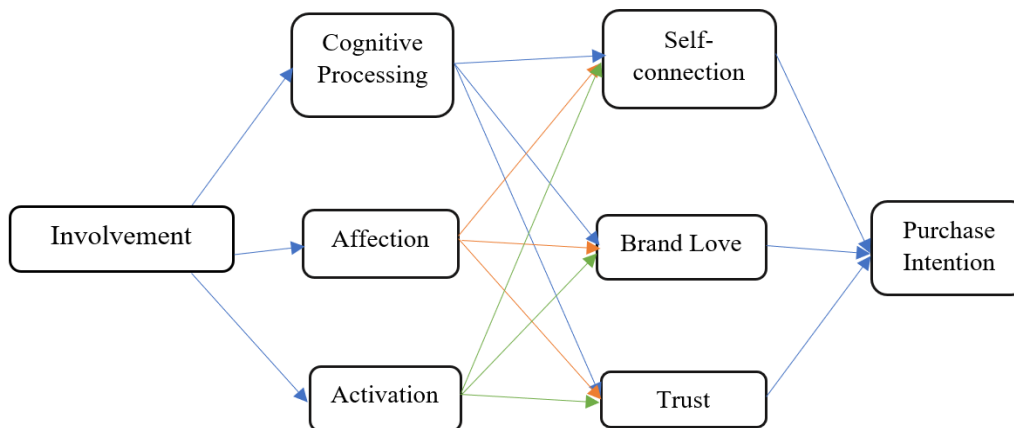


Figure 1. Proposed model

Source: Our group selected and summerized

2.2.2. Research Hypothesis

Involvement is “a person’s perceived relevance of the object based on inherent needs, values and interests” (Zaichkowsky, 1994). The engagement in an object has been closely linked to the participation and connection with it (Vivek et al., 2012). YouTubers are influencers, providing consumers with trusted content about the products they share. Therefore, the authors can assume that:

H1a. The involvement of the public with the YouTuber of his preference impacts the cognitive dimension of the engagement positively.

H1b. The involvement of the public with the YouTuber of his preference impacts the affective dimension of the engagement positively.

H1c. The involvement of the public with the YouTuber of his preference impacts the behavioural dimension of the engagement positively.

Hollebeek (2014) argues that self connection is a consequence of the interactive, co-creative experiences between followers and Youtubers. The basic values, goals, and self-concept of Youtubers are in relation with that of their followers (Hollebeek, 2014). Brands in general and YouTubers in particular tend to become more important to consumers when cultivating the brand-consumer relationship (Escalas, 2004). Therefore, the following hypothesis can be raised:

H2a. The cognitive processing of the public’s engagement with the YouTuber of his preference creates his self-connexion with the YouTuber.

H2b. The affection of the public’s engagement with the YouTuber of his preference creates his self-connection with the YouTuber.

H2c. The activation of the public’s engagement with the YouTuber of his preference creates his self-connection with the YouTuber.

On the social media platforms, YouTubers are seen to be honest and trustworthy by their followers (Rasmussen, 2018). Also, Matos & Rossi (2008) believe that the engagement has a positive and significant influence on the brand loyalty and long-term commitment. In addition, it will build the consumer trust (Bowden 2009; Kumar & Pansari 2016; Ramani & Kumar 2008; Van Doorn, 2010). Chang & Dong (2016) argue that a strong customer engagement will appeal to them, that makes an essential role in further building loyalty when a customer can get necessary information about services or products. Therefore we have the below hypothesis:

H3a. The cognitive processing of the engagement of the public with the YouTuber of its preference results in trust in the YouTuber.

H3b. The affection of the engagement of the public with the YouTuber of its preference results in trust in the YouTuber.

H3c. The activation of the engagement of the public with the YouTuber of its preference results in trust in the YouTuber.

When being provided participation and engagement with brands, customers who experience brand engagement can develop brand love (Vernuccio et al., 2015). In this study, the brand is the YouTuber and the consumer is the follower. In addition, according to Minjung Shin et al (2019), engagement has an effect on brand love, however, in previous studies, this hypothesis was rarely mentioned. Research by Minjung Shin et al (2019) shows that brand love comes not only from content (product quality) but also from customer engagement with images or text on social networks, for example. Therefore we have the below hypothesis:

H4a. The cognitive processing of the engagement of the public with the YouTuber of its preference results in YouTuber brand love.

H4b. The affection of the engagement of the public with the YouTuber of its preference results in YouTuber brand love.

H4c. The activation of the engagement of the public with the YouTuber of its preference results in brand love for the YouTuber.

An engaging brand will be the self-image of a customer. When a consumer decides to be associated with a brand, it indicates that he (or she) finds certain similarities of values between them and the brand. He/she is satisfied with the brand, as it represents him/her in a symbolic way to his/her social group by determining who he/she is (Hollebeek & Chen, 2014). This proposal supports the following hypothesis:

H5. Self-connection of the public to the YouTuber of his preference determines its use intention of the brands indicated or used by the YouTuber.

According to social exchange theory, relationships characterized by trust are beneficial for maintaining this series of exchanges (Cropanzano and Mitchell, 2005). Therefore, it is suggested to build a strong relationship based on customer trust and loyalty, given the fact that customer trust has a positive effect on retaining repurchase intention. This relationship is represented by:

H6. The public's trust in the YouTuber if its preference determines its use intention of the brands indicated or used by YouTubers.

Customers who are in a brand love are more prone to transform their love into loyalty (Alnawas and Altarifi, 2016), same as the intention to incorporate the brand. In this direction, H7 was formulated:

H7. Brand love of the public to the YouTuber of its preference determines its use intention of brands indicated or used by the YouTuber.

3. Method

3.1. Measuring Scale

The study was carried out by using a questionnaire consisting of questions about factors with a scale of 1 to 5 (1: completely disagree, 5: completely agree). Then, the group uses SPSS software to run the model to show the level of influence between the factors.

3.2. Research data

Gender

Table 1. Gender of survey

Gender	Number of people	Percentage
Female	354	70.4
Male	149	29.6

Source: Author group surveyed (2021)

In terms of gender, it can be seen that the Female gender accounts for a higher proportion of 70.4%, the remaining 29.6% are Male gender. In particular, of the 503 survey applications, there were 354 Girls and 149 Men participating in the survey.

Age

Next, the age of the survey participants is as follows:

Table 2. Age of survey

Age	Number of people	Percentage
15 - 20	142	28.2
21 - 25	305	60.6
26 - 30	56	11.2

Source: Author group surveyed (2021)

The primary age of respondents is 21 to 25 years olds, this is the age of university students who are the juniors, the seniors, and new commuters. This group accounts for 60.6% corresponding to 305 participants. In addition, the age of 15 - 20 accounts for 28.2% corresponding to 142 participants. This is the age of school students or the freshmen, the sophomores. The bottom line is the young people at the age of 26 - 30. This is the stage that they are focusing on their career.

Occupation

Table 3. The occupation of the respondents

Occupation	Number of people	Percentage
Entrepreneur	19	3.8
Student	346	68.8
Freelancer	54	10.7
Employee	77	15.3
The unemployed	7	1.4
Total	503	100

Source: Author group surveyed (2021)

From the table above, the main occupation of the survey participants is Student, which accounts for 68,8%. Next is Employee with 15.3%. In third place is Freelancer with 10.7%. The bottom line is Entrepreneur with 3.8% and the unemployed with 1.4%.

Time duration of following favorite Youtuber

The highest percentage of 1 year with 47.1% corresponding to 237 participants. The second place with 42.3% corresponding to 213 participants. The other is a three-year tracking which is dramatically low at 10.5%. It can be found that the more participation in the Youtube platform, the greater the number of people who want to become YouTubers, so the following Youtubers is getting popular and loving a Youtuber faithfully for a period of time will become shorter. Therefore, the level of loyal followers to a favorite Youtuber is mainly for a period of 0 - 3 years.

The frequency of following a favorite Youtuber

Table 4. The frequency of following favorite Youtuber

The frequency of following	Number of people	Percentage
Under 3 times a week	348	69.2
7 times a week	112	22.3
Over 7 times a week	43	8.5
Total	503	100

Source: Author group surveyed (2021)

People who follow under 3 times a week take the highest rate with 69,2%, corresponding to 348 participants. Next, people who follow 7 times a week accounts for 22,3%, corresponding to 112 participants. People who follow over 7 times a week take the lowest rate with 8,5%, corresponding to 43 participants. From the table above, it can be seen that from 0 to 7 times a week is the primary period of time that Followers watch the Youtuber they love.

The purpose of following Youtuber

The purpose of following favorite Youtuber is mostly Entertainment. Next is to Learn that accounts for 37,2%. Updating the information is in the third place with 12,1%. Occupation accounts for 7,8%. The rest are other purposes such as socializing,...

4. Results

4.1. The results of the scale testing by Cronbach's Alpha coefficient analysis

The results of Cronbach's Alpha analysis show that the following factors: Involvement deletes 3 variables, Self-connection deletes 2 variables. The remaining variables meet the requirements, with the result shown in Table 3.

Table 5. Synthesize data to test the scale by using Cronbach's Alpha analysis

Order number	Factors	The number of variables	Cronbach's Alpha	Corrected Item-Total Correlation (min)	Cronbach's Alpha if Item Deleted (max)
1	Involvement	8 (delete 3)	0.900	0.691	0.891
2	Cognitive Processing	3	0.808	0.628	0.766
3	Affection	4	0.804	0.609	0.759
4	Activation	3	0.825	0.670	0.770
5	Self-connection	7 (delete 2)	0.819	0.533	0.806
6	Trust	4	0.854	0.682	0.822
7	Brand love	4	0.808	0.539	0.800
8	Use intention	4	0.816	0.626	0.774

Source: Results from SPSS 22.0.

4.2. Scale test results by exploratory factor analysis

The test results of the coefficient KMO = 0.879 prove that the data is very good and meets the requirements for EFA analysis (Kaiser, 1974; Kaiser & Rice, 1974).

The results of the Bartlett test show that the coefficient Sig = 0.000 < 0.05, which means that the observed variables used to measure the total variable are correlated with each other (Bartlett, 1937; Bartlett, 1950).

After removing the SC3 variable, the remaining variables all meet the reliability requirements as shown in Table 4 below

Table 6. Variables and measuring indicators of variables

Items	Factor Loading
IN1: Youtuber X's video content is absolutely important	0.738
IN2: Youtuber X's video content is completely appropriate	0.802
IN4: Youtuber X's video content is absolutely captivating	0.853

Items	Factor Loading
IN5: Youtuber X's video content is absolutely valuable	0.774
IN6: Youtuber X's video content is absolutely worth watching	0.857
CP1: The more I watch the YouTuber of my preference, the more I think about him (her)	0.741
CP2: I think a lot about the YouTuber of my preference as I keep watching him (her)	0.826
CP3: Watching the YouTuber of my preference stimulates my interest to learn more about him (her)	0.682
AF1: I feel very positive when I watch the YouTuber of my preference	0.705
AF2: Watching the YouTuber of my preference makes me happy	0.723
AF3: I feel good when I watch the YouTuber of my preference	0.655
AF4: I'm proud to watch the YouTuber of my preference	0.773
ATC1: The more I watch the YouTuber of my preference, the more I think about him (her)	0.769
ATC2: I think a lot about the YouTuber of my preference when I watch him (her)	0.790
ATC3: Watching the YouTuber of my preference stimulates my interest in learning more about him (her)	0.797
SC2: I identify myself with the YouTuber of my preference	0.617
SC3: I feel a personal connection to the YouTuber of my preference	Deleted
SC4: I consider that the YouTuber of my preference helps me (or could help me) to be the person I wish to be	0.779
SC5: The YouTuber of my preference meets my needs	0.649
SC7: I watch the YouTuber of my preference to communicate to other people who I am	0.770
BL1: I love the YouTuber of my preference	0.695
BL2: I have feelings towards the YouTuber of my preference	0.595
BL3: I am in love with the YouTuber of my preference	0.711

Items	Factor Loading
BL4: I am a loyal fan of youtuber X	0.755
TR1: I lean on the YouTuber of my preference	0.780
TR2: I rely on the YouTuber of my preference	0.787
TR3: The YouTuber of my preference is an honest person	0.761
TR4: The YouTuber of my preference makes me feel secure	0.672
INT1: It makes more sense to use brands indicated or used by the YouTuber of my preference than other ones, even if they are similar.	0.733
INT2: Even if other brands have the same characteristics, as those indicated or used by the YouTuber of my preference, I still prefer the brands he (she) uses or indicates	0.716
INT3: Even when there are brands as good as the ones indicated or used by the YouTuber of my preference, I still prefer to use the brands he (she) uses or indicates	0.704
INT4: Even if other brands are no different in any way to the ones indicated or used the YouTuber of my preference, I still find it wiser to wear the brands indicated or used by him (her)	0.759

4.3. The results of confirmatory factor analysis CFA

According to Joreskog (1969), Bagozzi (1981), Brow & Cudeck (1993), Hair et al. (2010), the standards for model testing by AMOS are as follows:

chi/ square/ df = 1,846, which is less than 3, so the conclusion is good. CFI = 0,951 (> 0,95) is good. GFI = 0.915 is considered normal. RMSEA = 0.041 (< 0.06) shows that the model is suitable. TLI = 0.944 (> 0.9) is satisfactory.

In conclusion, from the parameters, we can conclude that the model meets the requirements as shown in Table 5 below

Table 7. Analyze CFA

Chi – square = 749.337	TLI = .944
df = 406	CFI = .951
Chi-square/df = 1.846	RMSEA = .041
GFI = .915	P = .000

Source: Results by Amos 21.0.

4.4. Hypothesis test results

Table 8. Results of estimating the relationship between the factors in the model

	Estimate	S.E.	C.R.	P
AF ← IN	.228	.064	3.564	***
CP ← IN	.449	.069	6.456	***
ACT ← IN	.518	.073	7.076	***
SC ← AF	.407	.056	7.336	***
SC ← CP	.285	.045	6.327	***
SC ← ACT	.068	.039	1.762	.078
TR ← AF	.293	.049	5.953	***
TR ← CP	.399	.047	8.395	***
TR ← ACT	.183	.040	4.638	***
BL ← ACT	.337	.044	7.733	***
BL ← AF	.206	.049	4.229	***
BL ← CP	.435	.049	8.962	***
INT ← TR	.352	.065	5.437	***
INT ← BL	.198	.054	3.695	***
INT ← SC	.222	.061	3.627	***

From Table 6 can take out some conclusions:

P-value of SC ← ACT = 0.078 (> 0.05). Therefore can conclude that ACT has no effect on SC.

Besides that, Involvement (IN) has the most influence on the factor Activation (ACT) with 0.518, ranked second is Cognitive Process (CP) with 0.449, and last is Affection (AF) with 0.228. This means that when followers are interested in their favorite YouTuber, followers tend to be influenced by that YouTuber the most in terms of action.

Next in terms of factors affecting Self-connection (SC), Affection (AF) has the most influence on SC with 0.407, followed by cognitive process (CP) with 0.285.

Regarding the factors affecting Trust (TR), Cognitive Process has the strongest influence on Trust with a coefficient of 0.399, ranked second is Affection with 0.293, and finally is Activation (ACT) with 0.183.

Regarding the factors affecting Brand Love (BL), the highest is Cognitive Process (CP) with the strongest influence on BL with 0.435, followed by Activation (ACT) with 0.337.

Regarding the factors affecting Use Intention (INT), the strongest influence is Trust (TR) with 0.352, followed by Self-connection (0.222) and finally Brand Love (0.198)

5. Discussion and Conclusion

The research shows that if Youtubers want to influence the purchasing intention of young Vietnamese through the products/brands advertised by them, it is essential to gain followers' trust. Therefore, Youtubers need to create helpful and unforgettable content to impress their followers. In addition, the effect of other factors on each other is approximate. Depending on this research, the authors would like to recommend several solutions to help entrepreneurs use Youtuber well as a communication channel to increase the purchase intention of young Vietnamese:

It is important for businesses and organizations to understand that the YouTubers who represent a brand must build a personal connection (in terms of emotions, interests, and behaviors) with their followers as well as with the brand. They need to recognize the self connection with customers because individuals tend to include important brands as part of their self-concept if they identify themselves with the brand (Dwayne Ball and Tasaki, 1992). When customers build their self-concepts by human brand of Youtubers, it is easier for brands and Youtubers to reach customers and enhance purchase intention.

Besides, the cognitive, emotional, and behavioral aspects of the engagement also affect the customer's trust and love with Youtuber, thereby positively impacting the purchase intention. It shows the importance of maintaining customer engagement with Youtubers of the brand. It is necessary for brands to make sure that their human brand, Youtubers, regularly engages with their followers or creates chances to boost the audience interaction. It is the reason why Youtubers need to develop and create content on a regular basis and engage with their followers such as replying to comments, liking comments under videos, live streaming, running giveaway programs, etc. Also, in order to help the human brand (Youtubers) and products approach, impress, and attract more potential customers, brands need to follow and create favorable conditions for Youtubers in engaging activities with followers. It, thereby, makes a contribution to boosting consumer engagement to drive purchase decisions.

If that YouTuber is cared but receives a lot of negative interactions, causing a lot of controversy in the online community, then choosing that Youtuber will not bring any impact to the brand. Therefore, when deciding to cooperate with KOLs, brands need to be very careful to choose the right partner because a Youtuber with a large awareness but follows a negative trend will not bring effective marketing to the enterprise.

Brands need to create a personal, emotional and trusting connect with their customers first before getting them to use their products. Companies need to pay attention to how Youtuber brings messages to customers, the similarity between Youtuber's image and brand value, previously built brand image. There are many factors that customers go through before they make a purchase decision. Enterprises should also note that YouTuber is just one of the reference channels between thousands of information sources on the internet and mass media, companies need to understand this to allocate media budgets in a reasonable way.

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IMPACT OF TECHNOSTRESS AND TECHNOLOGY SELF-EFFICACY ON THE INTENTION TO USE FINTECH SERVICES OF YOUNG PEOPLE IN HANOI

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Abstract

Financial technology (Fintech) is developing strongly and comprehensively in recent years, which is expected to change the face of the world financial industry. However, that development is causing increased stress, reducing consumer confidence in the use of new technologies such as Fintech. To clarify the impact of Technostress and Technology Self-efficacy on intention to use Fintech services, the study uses Exploratory factor analysis (EFA) and Multiple linear regression based on 328 valid observations of young people living, studying and working in Hanoi. The results show that most of the factors of Technostress have a negative impact on the intention to use Fintech services. Meanwhile, Technology self-efficacy was found to not only increase the intention to use but also have a moderating effect on the impact of technology overload and uncertainty on the intention to use Fintech.

Key words: *Technostress, Technology Self-Efficacy, The intention to use Fintech services*

1. Introduction

Fintech (Financial Technology) is defined as “the use of technology to provide financial solutions” for the first time by Arner, Barberis and Buckley in 2015. It can be understood as the application of modern, creative and innovative technologies into the financial services sector, to effectively improve financial services, to meet the needs of users quickly and conveniently, such as: e-wallets, QR pay, online lending, mobile banking, online payments,... In recent years, the world has witnessed a boom in the Fintech field. Vietnam has also recorded outstanding development of the 2021

Vietnamese market with activities ranging from online payment to wealth management, online lending, investment,...; the number of users of Digital financial services skyrocketed, creating a premise for the Fintech industry to develop diversified, becoming a fertile ground for investors.

With favorable conditions such as young population, large percentage of people owning smartphones, and being paid great attention by the state, Vietnam is a potential market to exploit for the development of FinTech. In which, representing creativity, adapting and catching up with modern technology trends, young people are expected to lead in using Fintech services. Especially in Hanoi, the economic, political, cultural and technological center of Vietnam. Young people here have access to knowledge and advanced technology applications in the most complete and fastest way.

However, today's young people are facing a lot of pressure from all aspects of life, including Technostress - the perception that they are not capable of meeting all the requirements in terms of technology (Craig Brod, 1984). This negative emotion tends to discourage people from using technology, so it is important if Fintech businesses want to promote the use of advanced financial services. In addition, each individual has a unique assessment of his or her ability to perform an action, which affects the choices they will make, the effort they put in, and their perseverance in the face of challenges. called self-efficacy (Venkatesh and Davis, 1996; Rogers, 2010). This is also a psychological factor that greatly influences the decision to use Fintech services, depending on the assessment, information analysis as well as confidence in one's ability to complete the task.

However, the impact of these factors on the intention to use Fintech services has not been really interested. Previous studies on the intention to use Fintech have mainly focused on factors such as usefulness, ease of use, or perception of risk,... Therefore, the topic "Research on the impact of Technostress and Technology self-efficacy on young people's intention to use Fintech in Hanoi" was selected, thereby helping to have a more comprehensive view of the motivation to use Fintech services for young people, promoting the development of the Fintech industry in Vietnam.

2. Literature Review

2.1. Fintech Growth in Vietnam

According to the global Fintech center ranking in 2021, Vietnam's Fintech market has made leaps and bounds, ranking 70th in the global rankings, ranking 14th out of 50 in Asia, with Ho Chi Minh City and Hanoi ranked 28th and 33rd respectively in the Asia - Pacific region. Vietnam's fintech ecosystem is divided into many areas of activity, such as payment, P2P lending, insurtech, crowdfunding, retail investment & wealth management, blockchain/cryptocurrency, creditscoring, SMEs Financing, Comparison, POS... According to statistics, Fintech in Vietnam is the strongest development in the payment, in which the type of e-wallet is mainly. While a wide range of sectors have been heavily affected by the COVID-19 epidemic, e-wallets in particular have a great opportunity to break through. Electronic payments are said to grow stronger and will become inevitable trends in the

future. E-commerce enterprises account for 31% of the number of existing enterprises. This is considered the main field with typical applications such as Momo, Zalopay, Viettelpay, Moca, Vnpay, ShopeePay, Napas. The development of digital technology has played an important role, promoting a new online lending method of peer-to-peer lending (P2P Lending). It was followed by businesses operating in the blockchain/cryptocurrency sector accounted for 13% of the existing Fintech enterprises. However, Fintech enterprises operating in the field of Investment and Asset Management accounted for only 7.5%, showing that the "supply" of technology solutions for this field is still in short supply, as well as a potential field for startups in the coming time. Businesses that have successfully developed this field can mention Finhay, Fmarket, Tikop, Fireant ...

2.2. Technostress

Technostress is mentioned in a variety of terms, such as computer anxiety, negative attitudes toward computers, computer stress, fear of technology, computer phobia and cyberphobia. Technostress was first used by Craig, Brod (1984), who defined it as a disease adapted to modernity caused by the inability to cope with the development of computer technologies in a healthy manner. According to Tarafdar et al. (2007), technostress consists of 5 factors: techno-overload; techno-invasion; techno-uncertainty; techno-complexity; techno-insecurity. Technostress is characterized by the stress and anxiety an individual feels when using technology. This negative emotion is considered important because it tends to discourage people from using the technology in subsequent times.

Often depending on different user characteristics, each individual will accept innovation at different times on the basis that when they first experience it without all individuals simultaneously accepting innovation (Roger, 1995). Research by Sanjaya et al. (2018) concluded that technological stress has a negative impact on fintech intent. This conclusion is similar to the conclusions of Son (2019) and Lee (2021). Accordingly, the higher an individual's level of technology stress, the less likely that individual is to use Fintech. In addition, Lee's research (2021) that divides technostress into four factors: techno-overload; techno-invasion; techno-uncertainty; techno-complexity also shows that these four factors all have a direct negative impact on Fintech usage intention.

Hypothesis 1: Techno-complexity is negatively related to the intention to use Fintech services

Hypothesis 2: Techno-overload is negatively related to the intention to use Fintech services.

Hypothesis 3: Techno-invasion is negatively related to the intention to use Fintech services.

Hypothesis 4: Techno-uncertainty is negatively related to the intention to use Fintech services.

2.3. Technology Self-Efficacy

Venkatesh and Davis (1996) defined computer self-efficacy as a self-assessment of an individual's ability to use information technology or one's belief that humans could use computers or Internet-related technologies. Meanwhile, Rogers (2010) found that technology self-efficacy is a characteristic that can vary from level to the individual's level and has a positive effect on the adoption of new technologies, and that technology self-

efficacy has a positive relationship with the innovation and acceptance of new technologies by the leader. In organizations.

Self-efficacy affects acceptance directly as well as indirectly through other variables. Self-efficacy has a positive impact on ease of use (Venkatesh, & Davis, 1996), which in turn positively affects technology adoption (Hill, Smith, & Mann, 1987). When users have the confidence to use technology as they have the necessary skills or help, they will likely be more likely to accept using the technology. The higher the level of effectiveness of people for technology, the more motivated they are to use it (Liaw, 2002). In addition, self-efficacy positively affects enjoyment and usefulness, which in turn positively affects acceptance (Liaw, 2002).

Jumardi et al. (2019) have the same conclusion that self-efficacy positively impacts the intent to use Fintech services, the higher the self-effectiveness of an individual, the higher the intention that the individual desires to use technology.

Hypothesis 5: Technology self-efficacy is positively related to the intention to use Fintech services.

Internet stress has a negative impact on the self-effectiveness of the Internet (Bandura, 1997). Previous research has shown that new users who have been using the Internet for two years or less experience stress issues than online and are also less satisfied with their Internet skills than veteran users (GVU, 1999). Son (2019) has concluded that self-efficacy has a positive impact on reducing technostress. This means that the higher the self-efficacy of a technology user, the less stressed he or she is about the technology. In addition, Lee (2021) has broken down technological tensions into four factors from which to study the impact of technology self-efficacy on the relationship between the factors of technostress and the Fintech usage intention of Gen Z China. The above research indicates that technology self-efficacy significantly reduces the negative impact of techno-overload and techno-complexity on Fintech usage intention, but the above factor do not affect the relationship of the two factors of techno-invasion and techno-uncertainty with the intention to use Fintech.

Hypothesis 6: Technology self-efficacy lowers the negative impact of techno-complexity on the intention to use Fintech services.

Hypothesis 7: Technology self-efficacy lowers the negative impact of techno-overload on the intention to use Fintech services.

Hypothesis 8: Technology self-efficacy lowers the negative impact of techno-invasion on the intention to use Fintech services.

Hypothesis 9: Technology self-efficacy lowers the negative impact of techno-uncertainty on the intention to use Fintech services.

The author offers a research model based on the following hypotheses, which are presented in Fig. 1:

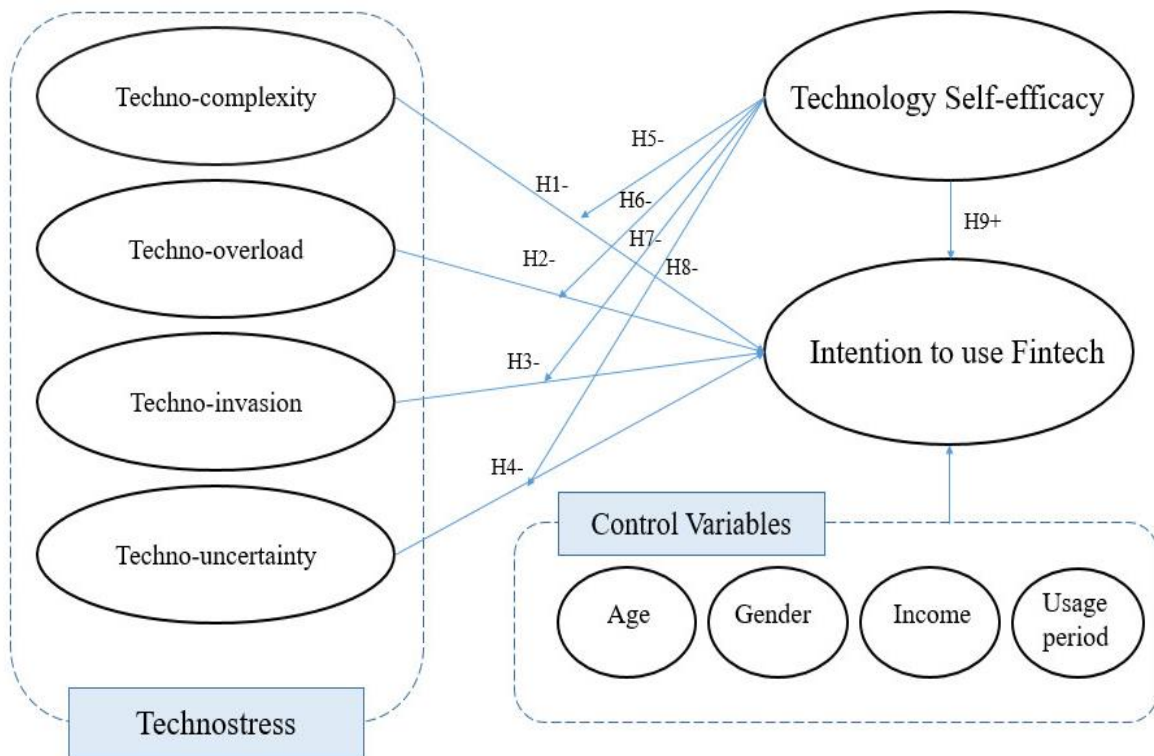


Figure 1. Research Model

3. Method

First, we conducted a pilot survey to check the accuracy and intelligibility of the questionnaire's content, and at the same time to evaluate the effectiveness of the survey in collecting and exploiting data before completing the survey conduct a formal survey. Accordingly, the group distributed questionnaires to 10 respondents in Hanoi. In general, the survey was accepted, easy to understand, and only needed some terminology to be adjusted to avoid misunderstanding the meaning of the questions. After editing, we conducted a large-scale online survey through a Google form. The questionnaire was sent directly to the survey subjects, and posted on websites and study groups of schools. After collecting the necessary number of samples (specifically 343 samples), we checked and cleaned the samples to ensure objectivity. According to statistics, there were 15 invalid votes and were discarded, the final number of valid votes was 328 votes, equivalent to 95.6%. The survey processed from February 21, 2022 to March 20, 2022.

The scales are based on previous studies and have certain adjustments to suit the objectives and context in Vietnam. To measure cognitive-related variables, the research team selected a 5-level Likert scale. The scale of Technostress is measured with 4 factors: Complexity (4 observed variables), Overload (4 observed variables), Invasion (4 observed variables), Uncertainty (3 observed variables). Scale of technology self-efficacy (4 observed variables). Scale of Fintech usage intention (5 observed variables).

Data analysis methods were performed including: Descriptive statistical analysis, Cronbach's Alpha reliability test, Exploratory factor analysis (EFA), Pearson correlation analysis, Regression analysis.

4. Results

4.1. Cronbach's Alpha reliability test

The reliability test results show that the scales used in the study all have Cronbach's Alpha coefficient > 0.6 . This proves that 6 scales are all satisfied. The detailed results of reliability analysis are shown in Table 1.

4.2. EFA exploratory factor analysis results

For independent variables (CPL, OVL, IVS, UCT): KMO coefficient > 0.5 shows that the factor analysis is consistent with the data and Sig. = 0.000 < 0.05 , showing that the observed variables are correlated with each other in the population. Factor Loading of all observed variables are satisfactory (> 0.5). Eigenvalues of the first 4 factors > 1 , so 4 factors are kept in the model and these 4 factors explain 64.098% of the variability of the data.

For the moderating variable (TSE) and the independent variable (FUI): The KMO coefficient of the two variables > 0.5 shows that the factor analysis is consistent with the data and Sig. = 0.000 < 0.05 , showing that the observed variables are correlated with each other in the population. Factor Loading of all observed variables are satisfactory (> 0.5). The Eigenvalues of the first factor in both variables are > 1 , so 1 factor is retained for each variable and these two factors explain 70.378% and 65.575% of the data variability respectively. The research model is considered suitable.

Table 1. Measurement item's loading and construct's convergent validity

	1	2	3	4	5	6
CPL4	0.882					
CPL2	0.870					
CPL3	0.869					
CPL1	0.800					
UCT2		0.926				
UCT1		0.909				
UCT3		0.843				
IVS3			0.821			
IVS4			0.806			
IVS2			0.786			
IVS1			0.617			
OVL3				0.711		
OVL2				0.707		
OVL4				0.652		
OVL1				0.616		
TSE4					0.862	
TSE3					0.858	

	1	2	3	4	5	6
TSE1					0.838	
TSE2					0.797	
FUI2						0.880
FUI1						0.839
FUI3						0.823
FUI4						0.754
FUI5						0.745
Cronbach's Alpha	0.879	0.879	0.756	0.601	0.859	0.865
KMO		0.738			0.787	0.821
Eigenvalues	3.154	2.363	2.300	1.798	2.815	3.279

CPL: complexity; OVL: overload; IVS: invasion; UCT: uncertainty; TSE: technology self-efficacy; FUI: fintech usage intention.

4.3. Pearson correlation analysis results

The data in Table 2 shows that most of the independent variables have a correlation with the dependent variable, except for CPL and IVS. However, in this step, we do not remove the variables, but only evaluate their correlation with the dependent variable. It can be seen that UCT, TSE, OVL, and FUI have only a weak correlation, although non-linear relationships between them may still exist. The values show a weak correlation between the independent variables, which demonstrates that there is little chance for multicollinearity to exist between the constructs.

Table 2. Correlations matrix between constructs

	age	gen	inc	year	CPL	OVL	IVS	UCT	TSE	FUI
age	1									
gen	0.047	1								
inc	0.005	-0.095	1							
year	0.010	-0.045	0.352*	1						
CPL	0.027	0.099	0.020	-0.048	1					
OVL	0.051	-0.103	0.003	-0.064	0.035	1				
IVS	0.041	-0.103	0.096	0.003	0.070	0.043	1			
UCT	0.031	0.049	0.016	0.017	-0.104	-0.086	-0.026	1		
TSE	-0.037	0.043	-0.009	0.007	-0.026	-0.040	-0.075	0.383*	1	
FUI	-0.031	0.035	0.016	0.080	0.033	-0.208*	-0.042	0.462*	0.442*	1

Note: * $p < 0.01$. gen: gender; inc: income; year: smartphone usage period; CPL: complexity; OVL: overload; IVS: invasion; UCT: uncertainty; TSE: technology self-efficacy; FUI: fintech usage intention.

4.4. Multiple regression results

This study uses a quantitative approach to identify the relationship between Technostress, Technology Self-efficacy and Fintech usage intention. Technology Self-efficacy is simultaneously used as independent variable and moderating variable. Besides, this study uses 4 control variables, namely: age (age), gender (gen), income (inc), smartphone usage period (year). Multiple linear regression is used to determine the effect of the independent variables and moderating variable on the dependent variable. The model of analysis is represented by the following equation:

$$FUI = \beta_0 + \beta_1age + \beta_2gen + \beta_3inc + \beta_4year + \beta_5CPL + \beta_6OVL + \beta_7IVS + \beta_8UCT + \beta_9TSE + \beta_{10}CPL*TSE + \beta_{11}OVL*TSE + \beta_{12}IVS*TSE + \beta_{13}UCT*TSE + u_i$$

Where, β_0 : Intercept; $\beta_1, \dots, \beta_{13}$: regression coefficient; CPL*TSE, OVL*TSE, IVS*TSE, UCT*TSE: interaction variables showing the moderating impact of TSE on the relationship between independent variables and dependent variable; u_i : error.

- Result of the first regression:

Regression results show that the Adjusted R Square of the model is 0.337, which means, 33.7% of the variation of the dependent variable FUI is explained by the variation of the independent variables. $F = 13.811$, $Sig. = 0.000$ shows that the given linear regression model fits the data set.

Sig. value of UCT, OVL, TSE, UCT*TSE, OVL*TSE are 0.000, 0.000, 0.015, 0.036 respectively, all < 0.05 , showing that these 5 variables are statistically significant and have a certain influence on the dependent variable FUI (significant level of 5%). The control variables are not statistically significant because of $Sig. > 0.05$ so that they will be excluded from the model. Simultaneously, CPL, IVS, CPL*TSE, IVS*TSE did not guarantee statistical significance, so the research team decided to remove these variables and run the regression model again.

- Results of the second regression:

After removing the variables that were not statistically significant in the first regression, the multiple linear regression equation was adjusted as bellows:

$$FUI = \beta_0 + \beta_1OVL + \beta_2UCT + \beta_3TSE + \beta_4OVL*TSE + \beta_5UCT*TSE + u_i$$

The results in Table 3 show that Adjusted R Square = 0.335. This means that the variation of 3 independent variables OVL, UCT, TSE and 2 interaction variables OVL*TSE, UCT*TSE explain 33.5% of the variation of the dependent variable. Sig. value of the F test = $0.000 < 0.05$, which means that the research model fits the population. At 5% significance level, all variables in the model are Techno-overload (OVL), Techno-uncertainty (UCT), Technology Self-Efficiency (TSE), and two interacting variables OVL*TSE, UCT*TSE have a certain impact on the dependent variable Fintech Usage Intention (FUI). Besides, VIF < 2 , so it can be concluded that this model does not have multicollinearity.

Table 3. Multiple Regression Results

Variables	FUI				
	Unstandardized Coefficients	Standardized Coefficients	t	p-value	VIF
Constant	0.033		0.718	0.473	
UCT	0.311	0.311	6.198	0.000	1.241
OVL	-0.164	-0.164	-3.615	0.000	1.016
TSE	0.286	0.286	5.688	0.000	1.240
UCT*TSE	-0.086	-0.136	-2.820	0.005	1.137
OVL*TSE	-0.027	-0.030	-2.001	0.045	1.067
Adjusted R Square = 0.335; F = 33.883; Sig. = 0.000					

Hence, based on the regression results in Table 3, the research team draws the final regression model showing the impact of Technostress and Technology Self-efficiency on the intention to use Fintech as below:

$$\text{FUI} = 0,033 - 0,164*\text{OVL} + 0,311*\text{UCT} + 0,286*\text{TSE} - 0,086*\text{UCT}*\text{TSE} - 0,027*\text{OVL}*\text{TSE}$$

4.5. Hypotheses Test

Regression results in Table 3 show that CPL and IVS have Sig. = 0.159 and 0.930 > 0.05 respectively, show that Techno-complexity and Techno-invasion does not affect the usage intention of fintech services, so the hypotheses H1 and H3 are rejected. Simultaneously, the two interacting variables CPL*TSE and IVS*TSE of these two factors were also eliminated, so the hypothesis H6 and H8 are also rejected.

Factor Techno-overload has Sig. = 0.000 < 0.05, $\beta = -0.164$ proves that the degree of overload has a negative impact on the intention to use Fintech services, so the hypothesis H2 is accepted. Specifically, in the absence of other factors, when Techno-overload increases by 1 unit, the average of Fintech services usage intention will decrease by 0.164 units. The value of the Standardized coefficient shows that Techno-overload has an effect of about 16.4% on the intention to use Fintech services.

Hypothesis H4 assumes that Techno-uncertainty has a negative impact on the intention to use Fintech. Regression results with Sig. = 0.000 < 0.05, $\beta = 0.311$ proves that Techno-uncertainty has a positive impact on the intention to use Fintech services, so the hypothesis H4 is rejected. Simultaneously, the hypothesis H9 that "Technology self-efficacy lowers the negative impact of techno-uncertainty on the intention to use Fintech services" is also rejected. However, Technology self-efficacy still has a moderating effect on the relationship between Techno-uncertainty and intention to use Fintech (Sig. = 0.005 < 0.05).

Regression results for Technology self-efficacy with Sig. = 0.000 and $\beta = 0.286$ show that Technology self-efficacy has a positive effect on the intention to use Fintech services, so hypothesis H5 is accepted. The value of the standardized coefficient shows that technology self-efficacy has an influence of about 28.6% on the intention to use Fintech services.

Finally, about the interaction variables, Table 3 shows that OVL*TSE has a negative impact on the intention to use Fintech services (Sig. = 0.045, β = -0.027), in other words, Technology self-efficacy has a negative moderating effect on the relationship between Techno-overload and Fintech usage intention, so hypothesis H7 is accepted.

5. Discussion and Conclusions

5.1. Discussion

Research results show that users aged 18-30 in Hanoi show quite positive psychological responses to technology. According to them, whether Fintech products and services are complex and invade their lives does not affect their intentions in deciding to use these services. But besides that, if they feel technology is making them too receptive, they are less likely to use those technologies. However, the results indicate that the more technology changes, the more users use them, which is contrary to the research team's expectations. It seems that users are not afraid of constantly having to accept change and they feel that technology has changed in a good way, so they will use them more. Besides, the study also found that technology self-efficacy has a moderating effect on the impact of techno-overload and Techno-uncertainty on intention to use Fintech. This seems to be because consumers in this age group have a high level of confidence in responding to the impact of techno-overload on individual users' intention to use Fintech. In contrast, the study shows that technology self-efficacy has no moderating effect on the relationship between Techno-complexity, Techno-invasion and intention to use Fintech. It seems because these two factors are problems that are difficult to control from the perspective of individual users.

5.2. Conclusion

Based on the research results, the authors see the influence of Technostress and Technology Self-efficacy on the intention to use Fintech services of young people living, studying and working in Hanoi. From there, here are some recommendations:

Firstly, Fintech marketers should continue using approaches such as images, animations or videos,... which is easy to remember, easy to understand, easy to create trends to attract young people and create excitement. Simultaneously, it is necessary to design an intuitive application interface that is easy to understand from the first time without instruction and optimize the transaction processing steps.

Secondly, Fintech marketers should improve the verification steps when making transactions so that customers feel secure when pressing confirm, and send timely notifications about fluctuations in customer accounts. In addition, information about applications and services should be sent to customers to increase awareness and understanding of the product, however, the information must be personalized, that is, based on needs and interests. on survey questions, the consumption behavior of each customer is different.

Thirdly, companies creating Fintech products need to carefully consider, integrate and limit the constant exposure of consumers to technological updates or changes. On the other hand, before applying new technologies to Fintech, it is necessary to consider carefully, and consult customers, avoid unnecessary updates to users. Besides, Fintech companies should use experts to analyze and assess the relevance of technology over time. This will

help minimize technological change that comes from obsolescence. Establishing a more meticulous marketing strategy reduces the increased cognitive and emotional burden on consumers caused by technological stress.

Fourthly, Fintech companies should focus on strategies that can increase technology self-efficacy of young people because this study has found a significant direct positive effect of this factor on the intention to use Fintech services among them. Therefore, Fintech marketers should provide various ways for young consumers to understand and learn new technologies easily and with pleasure through different media to raise the confidence level of young people, thereby motivating consumers to use the services.

Finally, the Government also needs to understand the influence of Technostress and Technology Self-efficacy on young people's intention to use Fintech services. Therefore, in order to promoting the development of the Fintech industry in particular and the information technology industry in general, it is advisable to promote the technology self-efficacy of people by organizing training courses on computer and Internet applications. to increase people's familiarity with computers, software, applications and information technology.

Although the study has completed, there are still some limitations. Firstly, due to time and cost constraints, the convenient sampling method is used, so the results of the study are not representative. Future study should use probability sampling to increase the representativeness of the study. Second, the Technostress variable will have big differences by age group and region. Therefore, further study should compare the different effects of Technostress on the Fintech usage intention across age groups and regions. Finally, the study has not analyzed the difference in each type of Fintech service. Therefore, the suggestion for further study is to pay attention to the differences of each type of Fintech service.

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**THE EFFECT OF DURATION AND THEMATIC CONGRUENCE
ON PODCAST ADVERTISING ON BRAND AWARENESS:
AN EXPERIMENTAL RESEARCH ON UNIVERSITY
STUDENTS IN HANOI**

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Abstract

This research uses an experimental research method to study the influencing factors of Podcast advertising. Based on the theory of brand awareness, this paper shows the influence of the duration and thematic congruence of Podcast advertising on the brand awareness of Ha Noi university students. The results show that Podcast ads of different lengths have different effects on listeners' brand awareness, and the thematic congruence between advertising messages and Podcast content also impacts the audience's brand awareness.

Key words: *Advertisement, Aided brand recall, Brand recall, Brand recognition, Brand awareness, Duration, Podcast, Podcast advertising, Thematic congruence, Unaided brand recall.*

1. Introduction

Podcast is defined as audio files that can be downloaded to a media player or computer and then play whenever and wherever the user wants (Harris & Park, 2008; Potter, 2006). The term Podcast, a neologism that combines the words "broadcast" and "iPod," was first coined in 2004 (McClung & Johnson, 2010). Podcast is highly relevant as a new form of media and has grown to become an effective channel for marketing investment since it was first introduced in 2000 (Haygood, 2007). In Vietnam, Podcast is gradually being exploited and expanded with more and more new channels in recent years. Podcast advertising also gradually appears more on reputable channels with large followers like Vietcetera, The Present Writer, etc.

Podcast ads are audio ads that appear in Podcast programs. Brands pay to place their ads in various Podcasts, and Podcast ads can be purchased directly from Podcast owners (Ad Results Media). Although there are no specific statistics on Podcasts' potential and development scale in Vietnam, it promises to be a strong development of advertising on this medium.

According to a 2017 Nielsen study on the ability to remember names and make purchases of brands appearing in Podcast ads, 62% of listeners can correctly read the brand name appearing in the Podcast ad. Almost 65% of listeners would consider buying the brand's product advertised on that Podcast channel. Another piece of evidence from Edison Research, a market survey company in the US, shows that up to 54% of survey respondents tend to search again for the brand name advertised that they heard from an episode of their favorite Podcast channel. This result shows that Podcast advertising is gradually becoming the new and potential means for businesses to promote their brands and products. Therefore, researching how to make Podcast advertising effective is essential to businesses.

Previous studies on Podcast advertising have only focused on Podcast development trends and the motivation for users to listen to a Podcast (Steven McClung & Kristine Johnson, 2010; Siobhan McHugh, 2016; David Nelson & William V. Faux II, 2016). However, there have not been many studies related to the effectiveness of Podcast advertising and other factors affecting the effectiveness of Podcast advertising. The effectiveness of Podcast advertising can be measured through the ability of customers to perceive the brand, attitude towards the brand, or purchase behavior afterward. Meanwhile, many factors affect the effectiveness of Podcast advertising, such as duration, location, similarity, and the host's voice (Daniel M. Haygood, 2007). On the other hand, currently, studies on factors that affect the effectiveness of Podcast advertising only focus on the location or context congruence (Eric A. Ritter & Chang-Hoan Cho, 2009; Nina Sophie Ettmüller, 2021), but there is no research on the duration factor or a combination of many factors to measure the effectiveness of the ad.

Moreover, current studies on the effectiveness of Podcast advertising do not design Podcast content and advertising messages by themselves but instead use available content that does not ensure accuracy and objectivity because the respondents may have heard the advertisement before. Therefore, to get more accurate results, it is necessary to use a method that has better control over the respondents' responses.

2. Literature review and hypotheses model

2.1. Literature review

2.1.1. Brand awareness

Consumers' decision to buy a certain product or service is often based on their understanding of the brand. Brand awareness helps consumers decide which brand they will buy and where they will go to buy. Brand awareness reflects the ability of customers to recognize, distinguish and name a brand under different conditions (Keller, 1993). Brand awareness includes brand recall and brand recognition.

2.1.2. Brand recall

Brand recall includes Aided brand recall and Unaided brand recall regarding advertising message, product category, or brand name. Aided brand recall occurs when a person reminds of the brand through a clue or cue. In contrast, Unaided brand recall is when a person can recall the brand without prompting. Most advertising researchers believe that Unaided brand recall is generally better than Aided brand recall (Clow & Baack, 2004; Riebe and Dawes, 2006). Furthermore, Axelrod (1968) found that brand name recall due to product category was a good predictor of purchasing behavior.

2.1.3. Brand recognition

Brand recognition is understood as the ability of consumers to distinguish brands they have seen or heard of before (Keller, 1993). In other words, consumers have been exposed to the brand before, and when it comes to brand suggestions, they will recognize the brand. According to power theory or threshold theory (Kintsch, 1970), recognition requires lower memory robustness than recall. Various studies have shown that people often choose things that are familiar to them (Coates et al., 2006; Hoyer & Brown, 1990; McDonald & Sharp, 2000), and at the same time, they are just looking at them without realizing it (Bornstein, 1989 & Zajonc, 1968). Goldstein & Gigerenzer (2002) have shown that when the correct answer is unknown, people tend to choose answers they find familiar (Barreda, Bilgihan, Nusair & Okumus, 2015) because they believe that the familiar answers are more reliable. Brand recognition is an equally important component of branding, explained by Lin (2009) as the consumer's perception of a brand through prior product experience plus known information. According to Aaker (1996), brand recognition is arguably more important for new brands or niche markets.

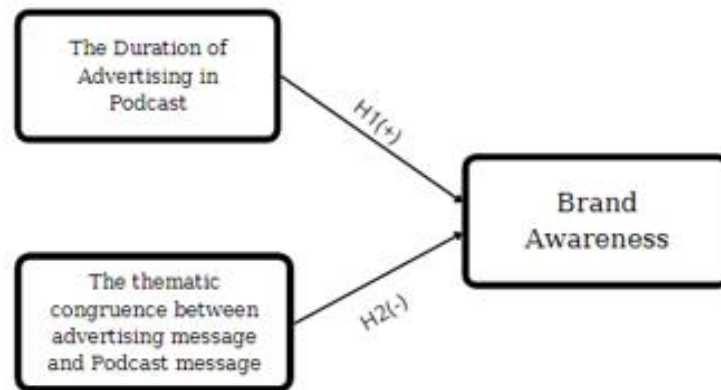
The influence of ad position on brand recall and brand recognition was reported by Erica Riebe & John Dawes (2006); Pieters and Bijmolt (1997); Li (2010) examined and found that ads played at the beginning or end have a higher impact on brand recall than ads placed in the middle. Next, the host's voice also affects the listener's perception; specifically, those who listen to voices with normal syllable speed will pay attention to the advertisement and recall a lot more advertising information than those who listen to advertisements with high syllable voices (Darren W. Dahl, Robin JB Ritchie, Kimary N. Shahin, 2003). Several studies have shown that advertising recorded by hosts makes the products feel more authentic, sophisticated, and believable (McKnight, 2019) because the listeners place a part of their trust and love to go to that Podcast channel. In addition, Hewitt & Associates (2020) concluded that pre-recorded advertisements were perceived as less attractive, while those recorded by the host were more successful and attracted more attention. Kellaris et al. (1993) found that advertising recall and recognition improved by the presence of music can attract attention only when it matches the advertisement's message. The relevance of music to the message also affects advertising effectiveness on three levels: cognitive, affective, and conative (Josefa D. et al., 2015). According to a study by Rainer Hasenauer et al. (2012), using sound and music for advertising on TV, radio, and the internet is important in increasing brand awareness.

A study on radio ads examined the effect of thematic congruence between advertising messages and Podcast content on ad recognition to see better accurate results with thematic incongruence (Martín-Luengo, Luna, & Migueles, 2014). A new radio study by Beatriz Martín-Luengo, Karlos Luna, and Malen Miguélé (2015) measured the results of better recall of respondents in advertisements with thematic incongruence with new products.

David Allan (2007) study showed that in terms of advertising message recall, the effectiveness of 60-second ads outperformed 30-second ads. On the other hand, if the advertiser's goal is only brand name recall, there is no significant difference between the two types of advertising. According to research by Vinith Johnson et al. (2021) on audio ads, ads under 10 seconds are a viable option to raise awareness about the brand's name, product name, and company location, all while listeners are driving or playing games. Generally, longer advertisements outperform the memory retention of advertising messages than shorter ones (Allan, 2007; Danaher & Mullarkey, 2003; Martín - Santana et al., 2016; Pieters & Bijmolt, 1997).

From the review, few studies on the influence of the two factors, Duration and Thematic congruence. Thus, this study will examine the influence of these two factors on Podcast advertising and compare the influence of Duration and Thematic congruence on brand awareness, a combination that no other research has done. In addition, previous studies only used existing advertisements and Podcast content, so the results were limited in accuracy and objectivity. For this study, the content of the Podcast and advertising is completely original, which helps the experiment become more controlled than in previous studies.

2.2. Research model



Hypotheses

H1: 30-second advertising has a greater impact on Podcast listener Brand Awareness than 15-second advertising.

H1: Brand Awareness will be significantly more accurate for 30-second advertising than for 15-second advertising.

H1a: Brand Recall will be significantly more accurate for 30-second advertising than for 15-second advertising.

H1b: Brand Recognition will be significantly more accurate for 30-second advertising than for 15-second advertising.

H2: Brand Awareness will be significantly more accurate for advertising with the message that is not similar to Podcast content than for advertising with the similar message to Podcast content.

H2a: Brand Recall will be significantly more accurate for advertising with the message that is not similar to Podcast content than for advertising with the similar message to Podcast content.

H2b: Brand Recognition will be significantly more accurate for advertising with the message that is not similar to Podcast content than for advertising with the similar message to Podcast content.

H3: There is a distinction between the effects of duration and thematic congruence between advertising message and Podcast content on brand awareness.

H3a: The effects of advertising duration and thematic congruence between advertising message and Podcast content on brand recall are not the same.

H3b: The effects of advertising duration and thematic congruence between advertising message and Podcast content on brand recognition are not the same.

3. Method

The study uses a combination of primary data collection methods, including survey, experiment and interview.

Survey

First, the authors listened to 50 episodes of Podcasts in Vietnam via Spotify to determine the ad duration and ad position of the most popular ads. The authors then conducted a quantitative survey, asking 63 students in Hanoi to list 5 issues they are currently interested in to determine the topics that students are most concerned about today. This was done to choose the most representative Podcast content and advertising message for the experimental research.

Experiment

From the survey result, the most popular issue (education, health...) was then chosen to be the topic of the Podcast. The authors then produced a Podcast used to examine the effect of advertising duration and the thematic congruence on listeners' Brand Awareness. It compared the impact of 30-second and 15-second advertising and the thematic congruence and the thematic incongruence between Podcast content and advertising message on aided brand recall and brand recognition of the listeners. The experiment included 146 participants divided into two phases, each lasting three days and consisting of 11 interviews per day. Among 146 participants, 140 results were accepted.

Table 1. Podcast conventions surveyed

Podcast	Duration of advertising	Message of advertising	Sample size
1	30 seconds	Health	35
2	15 seconds		35
3	30 seconds	Education	35
4	15 seconds		35

The results of the experimental research were coded and analyzed using SPSS. The obtained results are Chi-squared test with hypotheses H1 and H2 to test the impact of independent variables' Duration and thematic congruence on Brand awareness. Hypothesis H3 was examined by using the Independent Sample T-Test method.

Interview

After the experiment, an in-depth interview was conducted to discover the causes and motives behind respondents' responses to experimental research, allowing for reliable findings of brand recognition through Podcast advertising. Twenty-eight respondents were chosen from 4 groups and asked a series of questions based on their replies to learn more about the reasons behind the results, specifically why they recalled the brand name in the advertisement after listening to the Podcast. The results show that the reasons why it is not Brand awareness are frequently caused by respondents paying more attention to the Podcast content than at the beginning of the advertisement or by placing it right at the beginning, causing respondents to miss information about the advertised brand, or by respondents not knowing what the first paragraph is advertising, etc. On the other hand, Respondents have brand awareness because the advertisement theme is distinct from the Podcast content or the advertisement duration is longer.

4. Results

4.1. Quantitative research results

After conducting two quantitative surveys to determine the duration of advertising on Podcasts and the areas of most interest today, the results show that in survey 1 - Podcast advertising duration: The author's group collected 50 samples, and the results showed that Podcasts advertising with a duration from 15 seconds - 30 seconds appeared the most with 32/50 advertising accounting for 64%. In survey 2 - Podcast content and advertising message: the topics "Education" and "Health" are the two most interesting topics, with 39/63 answers being "Education" accounting for 62%, 20/63 answers "Health" accounted for 32%.

Therefore, the group selected the advertisement's message in 2 fields: Education and Health; and Health-themed Podcasts; simultaneously, the advertising duration will be 15s and 30s.

4.2. Chi-squared test analysis

In analyzing the impact of the duration factor on brand awareness, in the Podcast with the ad message related to Health, there is one variable: Unaided brand name recall with the Asymp. Sig. (two-sided) < 0.05 , the recall rate of this variable in the 15s advertising is greater than in the 30s advertising. In the Podcast with the ad message related to Education, there are 2 variables: Unaided brand name recall and Unaided the advertised categories recall with Asymp coefficients. Sig. (two-sided) < 0.05 , the Recall rate of these 2 variables in a 15 - second advertising is greater than in a 30 - second advertising. This result shows a difference in 15s and 30s advertising effectiveness on brand awareness. 15-second ads are more effective than 30-second ads in unaided brand name recall and Unaided the advertised categories recall.

In the analysis of the impact of thematic congruence on brand awareness, in the 30-second advertisement, 2 variables have a relationship with the Thematic congruence variable, namely the variable Unaided brand name recall and Unaided the advertised categories recall. There is only one variable in ads with a duration of 15 seconds; Unaided brand name recall has a relationship with the Thematic congruence variable with the Asymp coefficient. Sig. (two-sided) < 0.05. This result shows a difference in the thematic congruence between advertising message and Podcast content and the thematic congruence between advertising message and Podcast content. Therefore, advertising with the thematic incongruence between advertising message and Podcast content has a stronger impact on Podcast listeners' ability to recall brand names; but is worse than the thematic congruence in unaided the advertised categories recall.

In analyzing the difference between the effect of the duration factor and the thematic congruence on brand awareness, when comparing Podcast 1 and Podcast 4, there are two variables: Unaided brand name recall and Brand name recognition with Asymp. Sig. (two-sided) < 0.05. Moreover, when comparing Podcasts 2 vs. 3, there is only 1 variable that has an impact, Unaided the advertised categories recall (Asymp. Sig. (two-sided) < 0.05). The results show a difference between the effects of Ad Length and Ad thematic congruence on Unaided brand name recall and Brand name recognition.

Table 2. Results of Chi-squared test on brand awareness among Podcasts

		Names of variables	Asymp. Sig. (two sided)
Analyze the impact of the duration factor on brand awareness	Compare the effectiveness of 15-second advertising and 30-second advertising in the field of Health	Unaided brand name recall	0,027
		Unaided the advertised categories recall	0,584
		Brand name recognition	0,192
		Brand name recognition through the feature	0,122
Analyze the impact of thematic congruence factor on brand awareness	Compare the effectiveness of 15-second advertising and 30-second advertising in the field of Education.	Unaided brand name recall	0,044
		Unaided the advertised categories recall	0,016
		Brand name recognition	0,284
		Brand name recognition through the feature	0,122
	Compare the effectiveness of the thematic congruence between advertising	Unaided brand name recall	0,025
		Unaided the advertised categories recall	0,016
		Brand name recognition	0,06
		Brand name recognition	0,806

		Names of variables	Asymp. Sig. (two sided)
	message and Podcast content and the thematic incongruence between advertising message and Podcast content in 30 - second advertising.	through the feature	
	Compare the effectiveness of the thematic congruence between advertising message and Podcast content and the thematic incongruence between advertising message and Podcast content in 15 - second advertising.	Unaided brand name recall	0,025
		Unaided the advertised categories recall	0,584
		Brand name recognition	0,101
		Brand name recognition through the feature	0,771
Analyze the impact of the duration factor and thematic congruence factor on brand awareness	Comparison between Podcast 1 and Podcast 4	Unaided brand name recall	0,000
		Unaided the advertised categories recall	1,000
		Brand name recognition	0,04
		Brand name recognition through the feature	0,068
	Comparison between Podcast 2 and Podcast 3	Unaided brand name recall	0,811
		Unaided the advertised categories recall	0,03
		Brand name recognition	0,550
		Brand name recognition through the feature	0,192

4.3. Test the mean difference between Podcasts by Independent Sample T-Test

Test the average difference between Podcast 1 and Podcast 4

For two variables, Brand name recognition and Unaided recall brand name recall, the results show a statistically significant difference in the recall level of the respondents in Podcast 1 and Podcast 4.

The remaining two variables, Unaided the advertised categories recall and Brand Name Recognition through feature, showed no statistically significant difference in the recall level of Podcast respondents. 1 and Podcasts 4.

Test the average difference between Podcast 2 and Podcast 3

For the advertised Unaided the advertised categories recall variable, the results showed a statistically significant difference in the recall level of the respondents on Podcast 2 and Podcast 3.

The remaining three variables are Brand name recognition through feature, Unaided recall brand name recall, and Brand name recognition. The results show no statistically significant difference in the recall level of the respondents on Podcast 2 and Podcast 3.

Thus, there is a difference between the effects of Ad duration and Ad thematic congruence on unaided recall brand name recall and brand recognition. **H3 is supported.**

4.4. Qualitative research results

After finishing the interview, the responders were divided into 4 groups on brand awareness, as shown below.

Table 3. Brand awareness statistics from responders

	Unaided brand name recall	Recognition brand name	Recognition brand name through the feature	Reason
Group 1	Incorrect	Incorrect	Incorrect	Not focused, didn't know there was ad
Group 2	Incorrect	Correct	Incorrect	Remember the content, impress the brand name but did not remember the features and uses (mostly respondents listen to the 15s ad)
Group 3	Incorrect	Correct	Correct	Host's voiceover, long feature talk (30 seconds ad)
Group 4	Correct	Correct	Correct	The thematic incongruence between advertising message and Podcast content, brand name repetition, ad placement

Based on the results of qualitative in-depth interviews, the authors found that the thematic incongruence between advertising message and Podcast content is one of the reasons that help listeners recall the unaided brand name, recognize the brand name and recognize the brand name through the feature. Besides the Duration factor, listeners can recognize the brand name with the 15 - second advertising but can't remember the useful features of the advertised product, whereas, with the 30s ad, the listeners just recognize the brand name and just recognize the brand through the feature.

5. Discussion and Conclusion

5.1. Summary of research results

Regarding the effect of length on brand awareness, a 15-second Podcast advertising has a stronger impact on Podcast listeners' ability to recall the brand than an advertisement on Podcasts that are 30 seconds long. **Hypothesis H1 is not supported.**

Regarding the thematic congruence factor affecting brand awareness, advertising with the message that is not similar to the Podcast content affects the ability to recall the brand without reminders and recall the field advertised without prompting of Podcast listeners stronger than the thematic congruence between advertising message and Podcast content. **Hypothesis H2a is supported**

Regarding the effect of length and thematic congruence on brand awareness, the results show a difference between the effects of Ad Length and Ad Thematic congruence on recall. The brand name does not remind and recognize the brand. **Hypothesis H3 is supported.**

5.2. Discussion

First, the results proved that Podcast Ads of 15 seconds have a stronger impact on Podcast listeners' brand recall than advertising 30 seconds in length. However, for the recall of the Advertised Category, a 30-second ad performed better than a 15-second ad with a message related to Education.

Second, the results show that an advertised message that is not similar to Podcast Content will have a more effective impact on brand recall and brand recognition. However, for the recall of the Advertised Category, the advertising message similar to the Podcast content will work better. It can be explained as follows: the brand's category will be more familiar and memorable than the brand name. In addition, the content throughout the Podcast is similar to the advertising message, creating opportunities for listeners to remember. It is much easier to advertise a domain than a brand name.

Third, research shows that a suitable combination of ad duration and thematic congruence between ads and Podcast content will bring high efficiency in brand recall and brand recognition. Moreover, if the ad is 15 - second length and the message is not similar to the Podcast content, it will perform better.

5.3. Recommendations

The research results suggest to businesses and advertising companies that if the advertising purpose of the business is for the audience to recall the brand name or brand

recognition, it can select 15-second-long ads and have messages or topics that are not similar to the Podcast content. Moreover, it should be emphasized that if the purpose of advertising is to increase brand awareness, businesses should choose Podcasts with content or topics that are not similar to the advertisement's message, and 15 - a second-length advertisement is optimal.

Research still has some limitations, such as Podcast content examined is only about health; the two advertising brands are also in the fields of health and education, so they are not enough to represent all businesses; Podcast listening is done online, so it is not possible to control the listener's concentration and other distractions. This study also evaluated the influence of the Duration factor and the thematic congruence of advertising messages to Podcast content on brand awareness, so it can be suggested that the following studies examine the influence of other factors such as the Voice of the Host, Position of the advertisement, Music in the advertisement... on brand awareness.

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FACTORS INFLUENCING ONLINE SHOPPING INTENTION BASED ON THE EXPANDED TAM

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Abstract

The article analyzes the factors influencing purchase intention through online retail websites. The proposed research model is based on extending the Technology Acceptance Model (TAM) to examine a number of factors affecting customers' online purchases in Vietnam (an emerging country). In addition to the basic factors of TAM, what is different from the previous literature in Vietnam, is the introduction of variable "perceived enjoyment". This study was based on a fairly large sample size, compared to the requirements. EFA analysis and SEM analysis show that TAM's factors, particularly perceived enjoyment, have strong influences on attitude towards online purchasing.

Keyword: *Online purchasing intention, Theory of technology acceptance, Perceived enjoyment.*

1. Introduction

Online retailing has seen a rapid increase in scale and speed in Vietnam and in the world. 2020 & 2021 E-Conomy SEA report predicts that by 2025, Vietnam's e-commerce can achieve the highest growth rate in the region at 34% and will become the second largest economy in Southeast Asia, reaching 220 billion US dollars in gross merchandise value by 2030.

In order to attract customers and improve competitiveness, e-commerce website must constantly understand the behavior of online consumers. The online business of e-commerce website involves the use of the internet platform, so the study of consumer behavior based on models related to technology application is of interest to many researchers in the world as well as in Vietnam. Some previous literature has studied online purchase intention in the Vietnamese context based on fundamental theories such as Theory of technology acceptance (TAM) (Ahamed, Limbu, Pham, & Van Nguyen, 2020), Extended Unified Theory of Acceptance and Use of Technology (UTAUT) (Nguyen, Tran, Pham, & Le, 2019) or a combination of TAM with TPB (Toan Duc Le et al., 2020).

This paper builds up a research model of online purchase intention derived from the TAM theory of Davis (1989). Like other domestic studies, the model in this paper inherits two basic factors of TAM, which are perceived usefulness and perceived ease of use. Besides, one more factor was included in the model is perceived enjoyment by Richard et al. (1992), this factor has not been studied for review and testing in Vietnam.

2. Literature Review and Hypotheses

2.1. Online purchase intention (IN)

Behavioral intention is the motivating factor that drives a person to be willing to do things to perform a behavior (Ajzen, 1991). Regarding online shopping, purchase intention is when a consumer is willing and intends to make an online transaction (Meskaran, Ismail, & Shanmugam, 2013). According to the theory of planned behavior - TPB by Ajen (1991), intention is considered the main predictor of actual behavior. In the online context, many studies also confirm this relation (Nguyen et al., 2019; Rehman, Bhatti, Mohamed, & Ayoub, 2019; Sultan, Tarafder, Pearson, & Henryks, 2020). Therefore, this study does not reexamine the relationship between intention and real behavior but focuses on examining online purchase intention as influenced by factors derived from the extended TAM model.

2.2. Attitude (AT)

According to the theory of planned behavior, attitude is one of the determinants of behavior. Several factors can influence consumer attitudes, such as perceived services, information, and risks in use (Akroush & Al-Debei, 2015; Aldousari, Delafrooz, Ab Yajid, & Ahmed, 2016). Online purchases are on the internet, which is a high-tech environment, so the attitudes of online shoppers are influenced by factors related to this environment. Davis (1989) applied the TAM technology acceptance model to present factors affecting customer attitudes towards the use and adaptation of new technologies. According to the model, there are several factors influencing attitudes, including perceived ease of use, perceived usefulness, and enjoyment of online purchases (Childersa, Carrb, Peck, & Carson, 2011). This study also evaluates the influence of these factors.

In online shopping, an attitude refers to consumers' positive or negative judgments about using the internet to purchase goods or services from retail websites (Lin, 2007). A positive attitude will promote online consumer purchase intention (Aldhmour & Sarayrah, 2016; Aqila et al., 2016; Bilal, Akram, Rasool, Yang, & Tanveer, 2021; Ha, 2015; Peña-García, Gil-Saura, Rodríguez-Orejuela, & Siqueira-Junior, 2020; Toan Duc Le et al., 2020). Therefore, this study proposes the hypothesis:

H1: Online consumer attitude positively affect purchase intention.

2.3. Perceived easy of use (EOU)

Perceived ease of use is “the degree to which a person believes that using a particular system will be effortless” (Davis, 1989). Concerning e-commerce, perceived ease of use is often related to the website navigational properties (Maditinos, Sarigiannidis, & Dimitriadis, 2010), which represents a convenient search function for customers and allows them to easily and quickly navigate through the pages (Parasuraman, Zeithaml, & Malhotra, 2005; Ramanathan, 2011).

Many other studies in B2C e-commerce have tested the positive relation between perceived ease of use and consumer attitudes (Atulkar & Kesari, 2019; Childersa et al., 2011; H. H. Lee, A. M. Fiore, & J. Kim, 2006; Maditinos et al., 2010; Pena-Garcia, Gil-Saura, Rodriguez-Orejuela, & Siqueira-Junior, 2020). The above grounds are the basis for the hypothesis:

H2: Perceived ease of use positively affects online consumer attitude.

2.4. Perceived usefulness (PU)

In the technology acceptance model, Davis (1989) defined *Perceived usefulness* as “the degree to which a person believes that using a particular system will increase his or her work efficiency or productivity”.

In e-commerce, consumers perceive Perceived usefulness after experiencing it (Monsuwé, Dellaert, & de ruyter, 2004). Therefore, if an online store improves the outcome of the shopping experience, then consumers will rate e-commerce favorably (Peña-García et al., 2020). Many other studies have also demonstrated the link between perceived usefulness to consumer attitudes and tested them in the context of online research (Atulkar & Kesari, 2019; Childers et al., 2011; H. H. Lee et al., 2006; Maditinos et al., 2010). So, the hypothesis is:

H3: Perceived usefulness positively affects online consumer attitude.

2.5. Perceived Enjoyment (EJ)

Perceived Enjoyment was first mentioned in the study of Richard et al. (1992) in general working conditions with computers. In the context of online business via the internet, Semeijn et al. (2005) presented the entertainment aspect, pleasure when shopping online, called "Online Joy" (Semeijn, Gustafsson, van Riel, van Birgelen, & Streukens, 2005). Online Joy is the joyfulness of browsing these retail sites and the comfort of shopping while surfing the web. In other studies, the concept of “enjoyment” is the result of amusement derived from the satisfaction and pleasure of the online shopping experience (Childers, Carr, Peck, & Carson, 2001), not from the completion of the procurement task (Atulkar & Kesari, 2019). Consumer enjoyment motivation is related to the possibility of entertainment from online shopping, which is similar to the concept of “Online Joy”, so they can be used equally. Many studies have confirmed that hedonic motivation (or Online Joy) is a strong influence on attitude (Atulkar & Kesari, 2019; Childers et al., 2011). A more concrete explanation of this relation is that if consumers prefer the online shopping experience, they will have a more positive attitude and are more likely to use the internet for frequent shopping. So, the hypothesis is:

H4: Online pleasure positively affects online consumer attitude.

The set of hypotheses to form the proposed research model is presented in Figure 1.

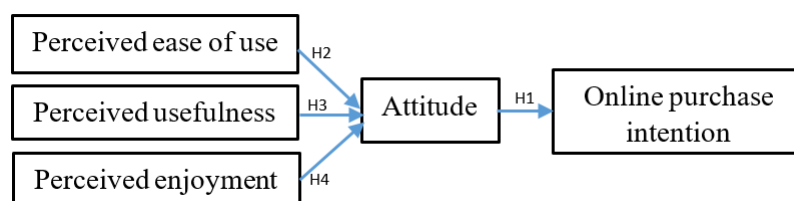


Figure 1. Proposed Research Model

3. Method

3.1. Measures

Based on many previous studies, the author selected the items for each concept (or latent variable) of the model in the questionnaire.

Online purchase intention is measured by three items inherited from the study of (Ling, Chai, & Piew, 2010) and (Gan & Wang, 2017). Online consumer *attitudes* measured by three

observed variables presented in Peña-García et al. (2020) have an inheritance from some prior research (Ha, 2015; Hasbullah et al., 2016). Although the two latent variables derived from TAM are *perceived ease of use* - EOU and *perceived usefulness*- PU, there are differences in the reference sources for constructing the scale. The EOU consists of 4 observed variables inherited from (Childers et al., 2011; H.-H. Lee, A. Fiore, & J. Kim, 2006), while PU includes 3 observed variables inherited from Childers et al., (2011) and Chen et al., (2018). With new variable, the *perceived enjoyment* consisting of 3 observed variables is inherited from the similarities in the scales of the 2 above studies (Chen, Hsiao, & Wu, 2018; Childers et al., 2011).

3.2. Data collection

While the ideal sample size should be in a 10:1 ratio (for example, 10 observations for 1 indicator) (Hair, Black, Babin, Anderson, & Tatham, 2014). The total number of indicators of the observed variables is 16, so the required number of observations is $16 \times 10 = 160$. The actual sample size of this study was 398, which met the above requirements.

A simple random sampling method that does not repeat itself. The subjects of the investigation are consumers who have purchased products online through retail websites in Vietnam. The data collection is conducted entirely through the online survey form. All questions in the questionnaire are "mandatory" except for the last one, which is about the respondent's personal information. There were 446 questionnaires collected. After eliminating 48 incorrect responses due to the respondents' misunderstanding of the presentation, the remaining 398 units with the characteristics are presented in Table 1.

Table1. Respondents Profile (n=398)

Characteristics	Category	Frequency	%
Gender	Male	137	34.4
	Female	261	65.6
Occupation	Student	144	36.2
	Staff-Teacher	121	30.4
	Engineer	37	9.3
	Manager	38	9.5
	Others	58	14.6
Age	< 25	194	48.7
	25 to <40	115	28.9
	≥ 40	89	22.4
Income (VND)	< 10	239	60.1
	10 to <20	107	26.9
	≥20	52	13.1
frequency of purchase	1-3	116	29.1
	4-6	68	17.1
	7-9	39	9.8
	≥10	175	44.0
Total		398	100.0

The percentage of young customers under 25 or the student group has a higher rate than other groups, which is reasonable because they are from Generation Z (Gen Z). And online shopping is increasingly popular among this generation (Veybitha, Alfansi, Salim, & Dart, 2021).

4. Results

From the proposed research model, we perform EFA on SPSS software with a group of 3 factors: EOU, PU, and EJ, affecting AT. The condition for performing EFA through Bartlett and KMO tests for KMO is 0.885, with sigs. <0.05, this result is satisfactory for conducting EFA (Hair et al., 2014). The outcomes of performing EFA analysis by Promax rotation with Kaiser Normalization are in Table 2. According to Hair et al. (2017), factor loading is an indicator to ensure the practical significance of EFA: Factor loading ≥ 0.5 is considered to be of practical significance. The EFA results show that variables all have factor loading > 0.5 , so they all have practical significance. Thus, the results of Table 2 are consistent with some previous studies (Childers et al., 2011; Maia, Lunardi, Longaray, & Munhoz, 2018) and contribute to reaffirming the group of factors constituting consumer attitudes online.

Table 2. Constructs and indicators of the model

Constructs and indicators	EFA Loading	PLS-SEM	Mean	Std.
<i>Perceived ease of use (EOU)</i> Cronbach's Alpha = 0.888				
This website would be clear and understandable.	0.921	0.846	5.477	0.927
This website would not require a lot of mental effort	0.860	0.853	5.342	1.011
This website would be easy to use.	0.870	0.900	5.616	0.945
This website would allow me to shop the way I want to shop.	0.771	0.861	5.583	0.987
<i>Perceived usefulness (PU)</i> Cronbach's Alpha = 0.878				
This website would enhance my effectiveness in shopping.	0.942	0.906	5.173	1.005
This website would be useful in buying what I want.	0.814	0.898	5.389	0.969
This website would improve my shopping ability.	0.907	0.884	5.035	1.078
<i>Perceived enjoyment (EJ)</i> Cronbach's Alpha = 0.899				
If I were online shopping, this web site would be entertaining	0.957	0.882	5.053	1.069
If I were online shopping, this web site would be enjoyable.	0.922	0.943	5.050	0.972
If I were online shopping, this web site would be exciting.	0.844	0.909	5.075	0.970
<i>Attitude (AT)</i> Cronbach's Alpha = 0.904				
Buying on this website is attractive	0.902	0.902	4.955	0.938
I like to buy on in this website	0.931	0.928	5.080	0.941
Buying on this website is a good idea	0.916	0.919	5.193	0.909
<i>Online intetion (IN)</i> Cronbach's Alpha = 0.900				
If the need arises, I intend to shopping online	0.871	0.864	5.138	0.975
Given the chance, I will buy something with this website in the near future.	0.938	0.941	5.221	0.884
I predict that I should use this retailer's website in the future.	0.929	0.932	5.133	0.933

Approaching PLS-SEM to analyze the model, the results are the following: Regarding *Outer Loading*, if the figure is greater than or equal to 0.708, rounded to 0.7, the observed variable is qualified (Joseph F Hair, Hult, Ringle, & Sarstedt, 2017). The Outer Loading coefficients show that all the variables meet the quality standards. Regarding *item reliability*, this feature is evaluated through two main indexes, Cronbach's Alpha and Composite Reliability. Reliability is guaranteed when Cronbach's Alpha ≥ 0.7 , Composite Reliability CR ≥ 0.7 (Joseph F Hair et al., 2017). The results of the coefficients in the above Construct Reliability and Validity table are satisfactory, so the reliability of the scales is guaranteed. Concerning *Convergence*: the evaluation is based on Average Variance Extracted (AVE). If the AVE is 0.5 or higher, the scale is convergent (Joseph F Hair et al., 2017). The obtained AVE coefficients are satisfactory, indicating the model meets the convergence criteria. Regarding *Discriminant*: Fornell and Larcker (1981) recommend that discriminability is guaranteed when the square root of the AVE for each latent variable is higher than all correlations between the latent margins. From the Discriminant Validity coefficients obtained, the data indicates that the model ensures discrimination according to this criterion (Fornell & Larcker, 1981). Moreover, the study by Hair et al. (2017) cited that the discriminant value between two latent variables is guaranteed when the HTMT index is less than 1. The study also suggests that a value below 0.9 of the discriminatory value is warranted, while the more stringent standard threshold is 0.85. The results of the Heterotrait-Monotrait Ratio obtained all meet this standard.

Regarding the *Initial Structural Model*, the results of running bootstrapping at the 5% significance level are presented in fig.2. According to Hair et al. (2017), with this level of significance, the relation in the model is accepted.

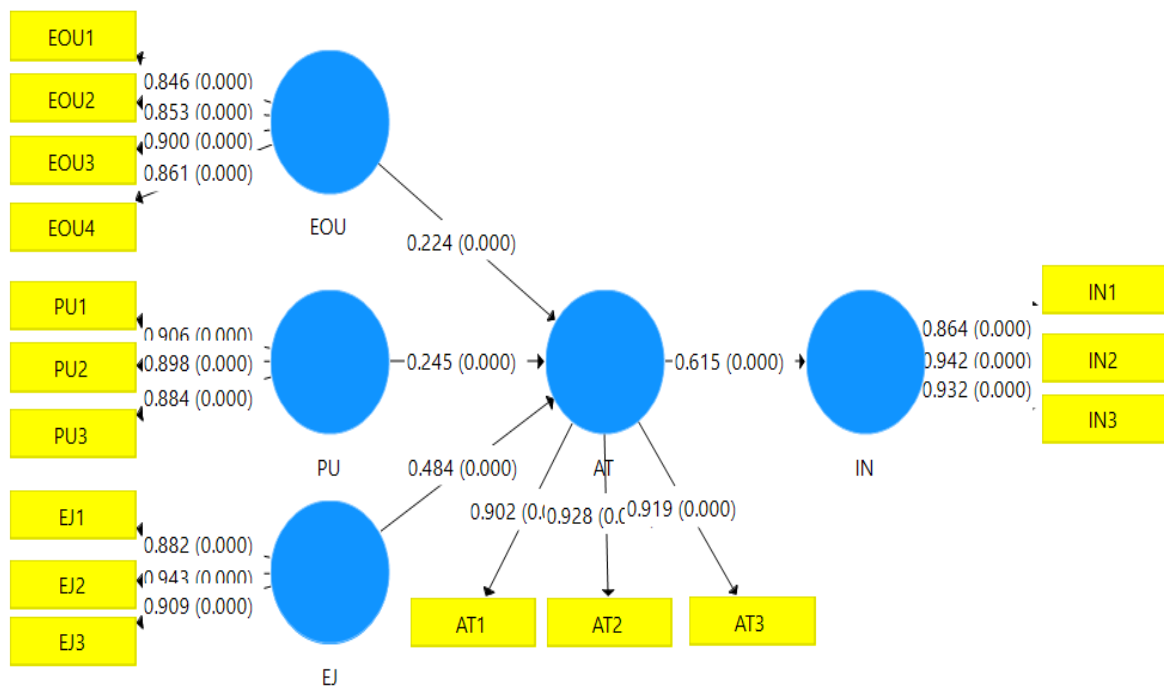


Figure 2. Diagram of the structural model

Evaluation of *model fit* in PLS-SEM can use SRMR (standardized root mean square residual) index to check the model fit (Henseler, Hubona, & Ray, 2016)). Regarding the results of the "Model fit index" of the estimated model, the most significant general criterion of the model is SRMR = 0.066 compared with the standard suggested by Henseler et al. (2016), which is <0.08. Then the model reached the data fit.

Thus, the most important element in this study is reflected in the review and construction of a new variable of perceived enjoyment which has not been found in studies in Vietnam before. In addition, this variable has been adopted in foreign literatures, but a theoretical basis has only been provided (Perea y Monsuwé, Dellaert, & de Ruyter, 2004), (Atulkar & Kesari, 2019). This study performed the primary data test with good results, accepting that new variable.

4. Conclusion

This study tested the extended TAM model in the context of online retail in Vietnam. This study shows that the recognition of relationships in the model is appropriate in the context of an emerging but rapidly growing online retail market. The model is confirmed to contribute to adding important and suggestive aspects for the retail managers of the e-commerce website to focus on the factors of usefulness, ease of use and especially the creation of excitement and joy for customers to participate in online shopping.

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THE IMPACT OF THE INDUSTRIAL REVOLUTION 4.0 ON LOGISTICS BUSINESSES: A CASE IN MEKONG DELTA

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Abstract

The 4th Industrial Revolution is the manufacturing movement that is reshaping the business of building products and strongly impacting related industries. As in the case of most industries, logistics in Vietnam is encountering sustained and profound changes, which demands a rapid shift in processes to accommodate the fundamental of Industry 4.0. This study aims to examine the impact of the 4th Industry Revolution (Industry 4.0) on the logistics industry and enterprises in the Mekong delta. The article also gives an overview in terms of activities of logistics service within the Mekong Delta region and suggests possible solutions to improve logistics services in Industry 4.0 era.

Keywords: *Industry 4.0; enterprises; Logistics 4.0; Mekong delta*

1. Introduction

The 4th industrial revolution (Industry 4.0) is now owning every corner of life, strongly affecting every industry, every field, and every business (enterprise), creating a big change in the way production mode, the convergence of applied physics and digital to form the emergence of the Internet of Things (IoT) that changes rapidly, the entire width of the value chain from R&D to manufacturing, logistics Customer service, reduced transaction costs, and shipping come magically to production and capacity operations. The competitiveness of enterprises is assessed by applying technology in production and management.

The Mekong Delta is identified as a key economic region of Vietnam with the main advantage of agricultural production and has not fully promoted its role to contribute to the promotion of production and export, especially the operation of the product business, which is the strength of the region. In the face of fierce competition at the school, especially the Industrial Revolution 4.0, in order to adapt to the trend of international economic integration, the development of logistics services in the Mekong Delta region will be an important factor in optimally developing the network of supply and application of goods of this rich land with potential for economic development.

2. Literature Review

2.1. Industry 4.0

In the history of technological and industrial development, mankind has witnessed three industrial revolutions. Steam engines were utilized to mechanize production during the

first industrial revolution, which began in the late eighteenth century. The second revolution took place at the end of the twentieth century thanks to the application of electricity to mass production. Electronics and information technology are used to automate production during the third revolution [1], [2]. Unlike previous revolutions, Industry 4.0 is not associated with the birth of a specific technology but rather integrates multiple industries with an emphasis on application [2] [3] [4]. As a result of this revolution, industries in society must shift to become "smarter" and more efficient through boosting automation in connection with the digital system. This is to relieve individuals from manual and intellectual labor in order to fulfill increasing demands in today's society. The speed and scale of impact of modern technologies have accelerated socio-economic development in the industrial and service sectors [2].

In general, Industry 4.0 emphasizes the role of digital production, often known as smart factories [4]. Smart manufacturing is not about replacing people at work; instead, it is about preventing errors and speeding up production by collaborating to share knowledge or data effectively [1] [4]. All information and data sharing processes are managed by humans [1] [4]. Data is the lifeline created in all manufacturing processes, from product development to production to after-sales service, and the amount of data generated is enormous (figure 1) [1] [2]. In the implementation of advanced business models, adaptable data that reflects compatibility between customers and suppliers, if systematically and intelligently integrated, can provide great efficiency [1]. The emergence of several digital technologies such as Artificial Intelligence (AI), as well as the integration of the Internet of Things (IoT) and Big Data or Cloud computing, are indeed implications. The core of digital in the 4.0 industrial revolution has formed a special production platform, that is smart manufacturing. The application of information and communication technologies, as well as computer science IoT (Internet of Things) and IoS (Internet of Services), would have an impact on every aspect of the modern production process, boosting the operational efficiency of the entire supply chain. This helps to transform existing working methods, develop numerous innovative products with different and outstanding quality, reduce time, and protect the environment. [1] [2] [3] [5]. As a result, supply chain management activities, particularly product and information flow management (logistics), are introduced in this article as "Logistics 4.0".

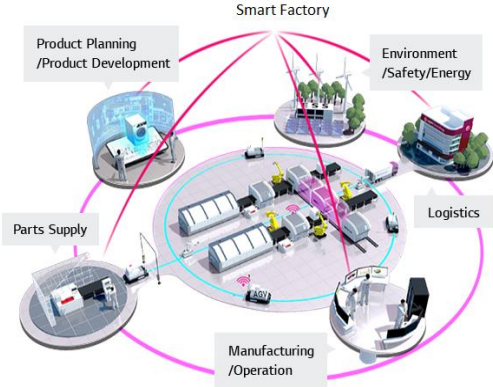


Figure 1. The combined data and digital technology of the value chain form a smart factory

Source: https://www.lgcns.com/LGCNS.GHP.Main/Solution/SmartFactory_En

2.2. Logistics 4.0

Logistics is frequently classified based on the type and level of logistics services provided by a logistics firm (1PL, 2PL, 3PL, 4PL, 5PL) [6]. However, in this case, the development process in logistics is examined. Logistics 1.0 refers to the period of transport mechanization that began in the second half of the nineteenth century when ships and steam engines replaced people and animals as the primary modes of transport [3]. Logistics 2.0 (from the early twentieth century to 1960) was an automation era in logistics that included freight and warehouse mechanization, automated handling systems, mechanical loading and unloading systems (electric power invention), and mass manufacturing [3] [7]. Logistics 3.0 (1960 - 2000), a stage of information technology (IT) application to standardize logistics management. Warehouse management systems (WMS) and Transportation Management Systems (TMS), for example, which automate and efficiently handle logistics, inventory, and transportation, have greatly evolved and improved [3], [7]. Logistics 4.0 (2000 - present) is the logistics development phase in the Industry 4.0 era, mainly focused on the development of the Internet of Things (IoT) and Big Data. The primary purpose of logistics 4.0 is to reduce labor costs and standardize the workforce in supply chain management [8]. Warehouse robots and autonomous vehicles are attempting to replace procedures that do not require human input or decision-making. The aim is to obtain the ideal balance of automation and mechanization [3] [7].

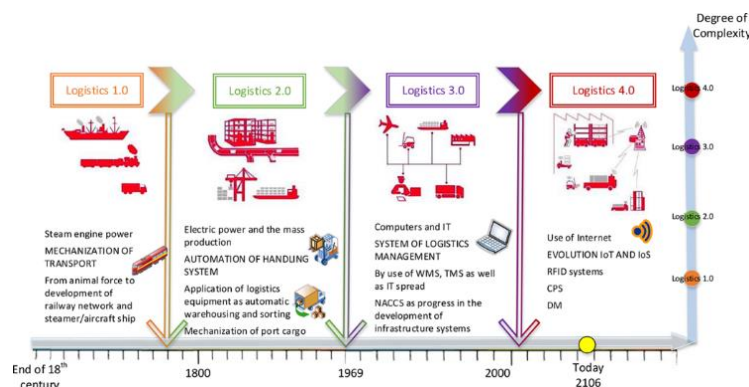


Figure 2. The history of Logistics 4.0's development

2.3. Impact of Industry 4.0 on logistics

Industry 4.0 has been identified as having 4 main impacts on businesses, including i) customer expectations, ii) product quality improvement, iii) new author change, and iv) format organization.

For industry logistics, Industry 4.0 is the core foundation for future development. Show the development trends of logistics can be divided into 3 areas: IT and software (IT & software), robotics and sensor engineering (robot & sensor technology), and network systems (network). The combination of three elements forms the core foundation for the different directions in logistics 4.0 [9].

Industry 4.0 helps logistics businesses improve customer service efficiency while minimizing order fulfillment costs and time, opening new facilities and business types in the field. this. To achieve that, ask businesses that need to change and reorient their development strategies, specifically:

- Data automation and transparency: New technologies applied to data collection and analysis (which are a central part of logistics) provide an opportunity for expert logistics professionals to understand the status, data analysis is a fine way to get the title item. Those technologies are decimal systems and data processing, logistics control, artificial intelligence (AI), ... [3]

- Utilizing innovative modes of transportation, including self-driving cars and drones, to assemble and transport goods by automating devices or vehicles. Warehouse handling machines, delivery drones, automatic delivery trucks, smart forklifts, and so on... [3]

- The use of digital-based devices in the logistics system. Examples, Wi-Fi and Bluetooth-enabled devices for tracking, positioning, navigation, and observation; online barcode scanning apps in warehouse management; cloud-based inventory optimization... [3]

- Latest production methods in the future in terms of 3D printing's influence: can change traditional logistics services, and enhance product output to the market [6, 10].

Furthermore, Industry 4.0 enables businesses to start up with less initial investment and earn higher profits in a shorter time. Firms can effectively access each business unit with the help of IoT, monitoring and evaluating their performance in real-time. Hyperlinking, on the other hand, raises cybersecurity concerns.

3. Method

This paper used both secondary and primary data to discover the problems. Authors gathered the secondary data such as high-quality research papers and industry reports about the current state of logistics in the Mekong Delta, and the benefits and challenges that logistics businesses are dealing with. Primary data are shared by experts from researchers, logistics service providers, and a port manager in a Mekong Delta city, which is collected through in-depth interviews in the year 2021. After collecting data, the authors used the qualitative content analysis method to analyze the gathered data in a systematic approach in order to get insight into the research problem.

4. Results

4.1. Opportunities

- Government's support policies

Joining international trade agreements has created chances to increase the number of commodities imported and exported by the whole country, and by the Mekong Delta in particular. With the benefit of diversified development in agriculture, fisheries, and tourism, the government has adopted policies to invest in the country's transport infrastructure connecting with other regions.

The Prime Minister's approving the long-term strategy for the development of the logistics compartment in the entire country to 2020, with orientation to 2030, would determine sub-regional economic development. The Mekong Delta's central economy will have one Grade II logistics center with a minimum scale of 30 hectares by 2020 and more than 70 hectares by 2030. The scope of strategy mainly includes the 9 provinces and cities

in the Mekong Delta, connecting with inland ports, river ports (Can Tho, My Thoi), airports, railway stations, bus stations, industrial parks, and border gates (in Kien Giang and An Giang provinces) [11].

Moreover, according to Official Dispatch No. 7709/VPCP-CN, dated September 15, 2020, on the request "There's a must-have separated cargo airline (Cargo Airlines) serving Vietnamese agricultural products, for separate routes," [12] several VLA enterprises have aided capital to establish Asian Cargo Gateway Joint Stock Company (ACG), with the first flight on March 6, 2021, providing fixed weekly air freight services from Ho Chi Minh City to several large Asian markets, including – Jakarta, Bangkok, and Incheon. As the largest granary of rice and seafood in the country, it is regarded not only as a significant opportunity for agriculture in the Mekong Delta but also as a big motive to impulse the development of the region's logistics industry.

- Strategic position

The Mekong Delta offers key locations that connect transportation and have enough room to establish a very convenient logistics center. Furthermore, because of the geographical features of the Mekong Delta, which is in an area with international maritime and aviation traffic routes connecting South Asia and Southeast Asia, as well as Australia and other Pacific Ocean archipelagos. To agriculture, the system not only provides water for production activities but also has enormous implications for product transportation. In comparison to roadways, inland waterways provide more efficient delivery with huge volumes of agricultural products.

In general, the Mekong Delta's waterway and land transportation systems are dense and evenly developed. The Mekong Delta's port system spreads across the Hau and Tien rivers. The rivers and canals system is 28,000 km long, with 23,000 km capable of transportation, accounting for 70% of the country's river length. There are two vital waterways from Ho Chi Minh City to Kien Giang and Ca Mau, as well as the Quan Chanh Bo canal, which allows large vessels to enter and exit the Hau River. Five road corridor routes connect the Mekong Delta to the Southeast and the rest of the country. Furthermore, the Mekong Delta's airport system has been upgraded and developed so that it can connect to international flights.

With the advantages of inland waterway transport and the development trend of the Mekong Delta's inland waterway transport infrastructure system, an increase in inland waterway transport is expected in 2030-2040, with an average growth rate of 5%. Report on the Feasibility Study Activity Development Project Southern Regional Logistics and Waterway Corridor of the Ministry of Transport, funded by the World Bank (WB). The implementation survey demonstrates the transformation from road transportation to inland waterway transport in the Mekong Delta regions, consequently increasing the need for inland waterway logistics services as well as the correlating resource requirements, to ensure meeting future development trends.

2030		Long An	Tiền Giang	Bến Tre	Trà Vinh	Vĩnh Long	Đồng Tháp	An Giang	Kiên Giang	Cần Thơ	Hậu Giang	Sóc Trăng	Bạc Liêu	Cà Mau
Gạo	Bộ (%)	30%	30%	25%	25%	25%	25%	25%	20%	25%	20%	20%	20%	20%
	Thủy (%)	70%	70%	75%	75%	75%	75%	75%	80%	75%	80%	80%	80%	80%
Tôm	Bộ (%)	60%	55%	45%	43%	43%	43%	43%	43%	43%	43%	43%	43%	43%
	Thủy (%)	40%	45%	55%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%

2040		Long An	Tiền Giang	Bến Tre	Trà Vinh	Vĩnh Long	Đồng Tháp	An Giang	Kiên Giang	Cần Thơ	Hậu Giang	Sóc Trăng	Bạc Liêu	Cà Mau
Gạo	Bộ (%)	25%	25%	20%	20%	20%	20%	20%	15%	20%	15%	15%	15%	15%
	Thủy (%)	75%	75%	80%	80%	80%	80%	80%	85%	80%	85%	85%	85%	85%
Tôm	Bộ (%)	55%	50%	40%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%
	Thủy (%)	45%	50%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%

Figure 3. Transport model - Forecasting the increase of inland waterway transport 2030 - 2040

Source: [13]

- Market potentials

Currently, the country has almost 300,000 logistics businesses, with a total workforce of approximately 1.5 million workers. Meanwhile, the number of logistics firms operating in the Mekong Delta region is modest, with no significant firms directly participating in this sector. Meanwhile, the demand for logistics services has constantly expanded, both in quantity and quality, particularly since Vietnam's recent membership in FTAs, EVFTAs, and worldwide economic activities.

According to the Annual Economic Report of the Mekong Delta in 2020, the Mekong Delta currently contributes about 40% of agricultural production value, over 54% of rice production, which is 90% of those is exported, 65% of aquatic products, and 70% of fruit production of the country [14]. The region's potential for agricultural and aquatic product export indicates that there is an urgent need for developing the logistics service industry to serve the entire region's agricultural and aquatic products, with major logistics services such as transportation and warehousing, goods, preserving goods, and value-added services. Services such as cold storage, irradiation, and autoclaving for fruit products, for example, to ensure the quality of exported goods as well as merchandise distributed for domestic consumption.

Furthermore, the Mekong Delta's economy is thought to be growing steadily, and the business environment is improving to attract investors. As a result, this is a very promising investment market.

- Opportunities provided by Industry 4.0

Industry 4.0 enables firms, particularly logistics enterprises in the Mekong Delta, to expand their markets, which is the driving force of corporate development. To reach Industry 4.0 standards, businesses must invest in machinery, technology, and automation in production and management operations such as applying digital technology and integrating smart technologies to optimize process and mode of operation.

Automated technology also helps enterprises in combating fragmentation, instability, inconsistent product quality, and noncompliance with quality standards such as Global GAP. Following that, businesses in this region would confidently sign contracts to supply items to big clients with guaranteed quality.

Vietnam is one of the five nations in the world with the fastest growth in over 30 years. Industry 4.0, like earlier industrial revolutions, promises to deliver significant benefits and prospects to the logistics industry, leading to shorter delivery times, reduced shipping expenses, and lower communication costs, then optimizing business costs. At the same time, it will help the logistics system and supply chain of companies be more transparent.

4.2. Difficulties

- Cold chain technology investment limitations

Statistics from 2019 show that, even though approximately 123 factories are producing and processing the main agricultural and aquatic products (rice, fruit, aquatic products) of the Mekong Delta, there are only 6 warehouses in the entire region. Refrigeration is concentrated primarily in Long An, Can Tho, and Hau Giang, with a capacity of approximately 50,000 tons and 93,000 pallets [15].

In the context of the Covid-19 pandemic, the Ministry of Industry and Trade has issued recommendations for logistics companies, particularly those involved in cold storage, to support agribusinesses by prioritizing the preservation of agricultural products that are struggling to export to China and lowering storage and handling costs.

This fact demonstrates the critical need to develop cold storage infrastructure in the Mekong Delta region in order to improve the region's ability to respond to any arising incidents and ensure that they can store and preserve agricultural and aquatic products after harvest while reducing spoilage rates and be proactive in production, export, and distribution for domestic consumption.

- Enterprises in the industry lack interaction with farmers and industry linkages.

It is estimated that more than 90% of farmers consider traders as their sole source of markets, as well as their exclusive buyer of agricultural products. Therefore, traders act as sellers and manipulate prices while businesses are unaware of the supply situation. As a result, businesses lack sufficient information to make accurate forecasts and supply planning decisions. If the output enterprise in a supply chain does not master the plan, the efficiency of the entire supply chain suffers. The Mekong Delta is the country's largest rice and aquatic manufacturer. According to a survey conducted by the Vietnam Logistics Research and Development Institute (2019) among logistics enterprises and shippers about logistics challenges serving agricultural and aquatic products. Some surveyed groups said they handled logistics themselves, which indicates the significance of outsourcing costs, apprehension about information leakage, and a lack of trust in logistics companies. The reason is that the region's logistics enterprises continue to operate independently and without the necessary connections. While the current logistics trend is collaboration and outsourcing, each company should focus on its strengths and consider outsourcing services that are not strengths.

- The Mekong Delta's logistics infrastructure remains deficient.

According to the report for the period 2014-2018, the Mekong Delta region's export growth rate is 10.57 percent, with exports increasing by an average of 9.43 percent per year and imports increasing by 13.1 percent per year. The region's average annual export volume of products is around 17-18 million tons. However, up to 70% of cargo volume must be transported by road to Ho Chi Minh City and Cai Mep ports. This increases shipping costs by 10% to 40% per cargo.

The Mekong Delta is home to 12 seaports, 35 wharves, and 4.9 kilometers of wharves. These seaports function as satellite docks for the ports of Ho Chi Minh City and Cai Mep - Thi Vai, as well as for short-distance inter-regional transportation. Because of the dense waterway traffic, it is considered to have the advantage of waterways for transporting goods. However, at present, inland waterway transport in the Mekong Delta still has to compete with road transportation due to limited infrastructure, which varies depending on the water and the static height of the bridge. As a result, the average transit time for the routes Can Tho - Cat Lai and Can Tho - Cai Mep Thi Vai is 18 hours and 36 hours, respectively, while the average road traffic on the same route is 5 hours and 8 hours. The freight of refrigerated containers by inland water vessel is significantly higher than that of land transport (70 percent higher per 40 feet container, and about 9 percent higher per 20 feet container) [15]. The above issues are huge barriers to promoting transport development of inland waterways that connect the Mekong Delta with the main ports of the southern region.

This situation is due to the fact that the Mekong Delta still lacks seaports and deep-water ports capable of serving the growing number of modes of transportation. A major logistics center and satellite center systems have yet to be built; there are no container yards or cold storage systems for agricultural and aquatic products at ports or airports, which are primarily manufacturer's depots, ...

Furthermore, the transport infrastructure between localities is underdeveloped and asynchronous, particularly in rural areas, making it difficult for heavy-loaded vehicles to enter and pick up goods.

- The application of information technology (IT) in enterprises is still limited.

Most websites of logistics companies simply introduce their services, lacking the utilities that customers require such as track and trace tools, shipping schedules, e-booking, tracking of documents, particularly visibility (the ability to see and control orders). The application of modern IT in businesses, such as warehouse management software (WMS), radio identification technology (RFID), or logistics cloud, is also quite limited. The reason, in this case, is a lot of logistics enterprises in the Mekong Delta primarily provide basic logistics services.

Furthermore, most logistics enterprises in the Mekong Delta have difficulty accessing specialized management software such as warehouse management software (WMS) and transportation system management software (TMS), because they frequently have to buy those products from foreign software developers. The highlight barriers are the

cost of buying from overseas, the highly problematic installation and commissioning process, and the connection standards are not synchronized internally and with customers. Therefore, logistics businesses frequently prefer to use domestic transport management systems, vehicle tracking, and traditional forwarding service management tools developed by domestic suppliers. However, this rate is less than 10% of all businesses. A majority of businesses remain dependent on Microsoft Excel software for management because of no adequate system software for small and medium-sized businesses.

- A lack of highly qualified logistics specialists

This is not only the circumstance in the Mekong Delta region but also in the country generally. According to statistics from the Vietnam Logistics Business Association (VLA), Vietnam's logistics industry has lacked approximately 200,000 high-quality workers with professional qualifications and skills between 2017 and 2020. By 2025, the need will be increased to 300,000 professional employees with professional qualifications, IT, and English proficiency. According to a VLA survey of 108 businesses in September 2017, there are nearly 50% of organizations consider hiring 15-20% more employees in the upcoming years. This situation demonstrates that businesses and colleges have not made a strong bond and effective link.

According to a survey from the General Department of Vocational Education and Training (Ministry of Labour, Invalids, and Social Affairs), there are currently only about 20 colleges and intermediate schools which provide specialized logistics training, and each year provide approximately 2,000 employees over 200,000 recruitment needs. If higher education graduates are counted in, the whole country would only meet 3% of labor demand. In the Mekong Delta, there is only one university that offers advanced education in Logistics and Supply Chain (Can Tho University of Economics and Technology). This amount is insufficient in comparison to societal needs.

5. Conclusion

Industry 4.0 brings significant benefits as well as challenges to logistics service providers in Vietnam in general, and in the Mekong Delta in particular. With an abundant source of raw materials and a large output, the Mekong Delta is the country's largest production center for food, aquatic products, and tropical fruit trees. As a result, Mekong Delta's logistics development is vital to the socio-economic development of the Mekong Delta, as well as the economic development of the Mekong Delta and the overall development of Vietnam's logistics industry. Thus, forming the logistics industry strategy in an organized manner following established requirements of the era is not only the responsibility of enterprises but also demands significant support from the Government and authorities. Innovating business processes to assess the benefits of Industry 4.0, as well as planning a cohesive infrastructure network in management are the fundamental solutions to develop potential business industries such as logistics in The Mekong Delta in the Industry 4.0 era.

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AE-COMMERCE TAX POLICY: INTERNATIONAL EXPERIENCE AND LESSONS FOR VIETNAM

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Abstract

The article analyses the experiences of some countries around the world on tax policies for e-commerce. At the same time, the article also synthesizes the e-commerce tax policy in Vietnam and points out the weaknesses of the tax policy that make the tax management become more difficult. There are no clear regulations on how to verify the authenticity of digital signatures and the integrity of electronic documents as well as the responsibilities of organizations and individuals that directly form and create transactions. electronic translation. There is no difference in tax regulations between e-commerce activities and traditional commercial activities. Some e-commerce activities are not included in the list of business lines. The definition of permanent establishment in Vietnam's Law on CIT is not suitable. Finally, the article offers some solutions to improve the tax policy of e-commerce. It is necessary to study and amend regulations on procedures for declaring and paying VAT and other consumption taxes. The modification is made in order to be able to calculate and collect taxes automatically, to link with the real-time arising of tax obligations and to match the characteristics of digital economic activities. The tax authorities should revise the definition of permanent establishmen. Tax authorities need to build a database and widely deploy electronic tax services such as electronic tax declaration, electronic invoice, online tax payment, business registration. In addition, it is necessary to research and develop an intelligent internet search engine on websites with e-commerce activities to identify e-commerce activities that have not yet been declared tax.

Keywords: *E-commerce, international experience, tax policy, tax revenue*

1. Introduction

The growth of the Internet globally has brought many new types of businesses. Newly-appearing goods and services have different characteristics from those in the traditional way of doing business. Therefore, e-commerce is gradually becoming a popular and widely used business method. The diversity of operation models, participants as well as the supply chain of goods and services with the support of internet infrastructure and modern technology application has made e-commerce an important pillar in the process of national digital transformation. According to S.Bach, M. Hubbert and W. Muller (2000), e-commerce

includes fields that use electronic connections to transmit information in the exchange of goods and services. According to J.Li (2003), e-commerce transactions are classified based on the method of distribution and the participants in the transaction. The global e-commerce market reached to US\$30,981 billion in 2021. The strong growth of e-commerce in the Covid-19 pandemic has brought the share of online retail in total retail sales to 19% in 2020 and over 25% in 2021.

Table 1. Global ecommerce sales growth by region in 2020

No.	Regions	Growth
1.	Latin America	36.7%
2.	North America	31.8%
3	Central and Eastern Europe	29.1%
4	Asia Pacific	26.4%
5	Western Europe	26.3%
6	Middle East, Africa	19.8%
7	Worthwilde	27.6%

Source: Alessandra Sindresten et al, 2021

In 2021, e-commerce continues to expand globally. Among the top 10 countries ranked by e-commerce sales in 2021, China market continue to lead. However, on a per capita basis, the US still has the highest amount of \$2,547 thousand per capita

Table 2. Top 10 countries ranked by e-commerce sales in 2021

No.	Countries	E-commerce sales (billion dollar)	E-commerce sales per capital (thousand dollar)
1.	China	2,779	1,931
2.	United States	843	2,547
3	United Kingdom	169	2,490
4	Japan	144	1,139
5	South Korea	121	2,352
6	Germany	102	1,212
7	France	80	1,226
8	India	68	49
9	Canada	44	1,169
10	Spain	37	794

Source: Alessandra Sindresten et al, 2021

Over the years, mechanisms and policies in many countries around the world have not been improved in time to respond to the rapid change of business forms in the field of e-commerce. Therefore, the business of many goods and services in the field of e-commerce has not fulfilled tax obligations and creates unfairness in the tax systems of countries. Goods and services purchased and sold in the field of e-commerce are subject to the same taxes as traditional goods and services. However, in reality, tax collection for e-commerce transactions is relatively difficult because it is not easily to collect all information on goods and service transactions. Therefore, in the development of tax policies for e-commerce, some countries are oriented to design a simpler tax policy system. Tax collection with e-commerce transactions requires tax administration agencies to coordinate with sellers, businesses providing online business platforms, financial intermediaries and internet service providers. Tax authorities have to build a system of complex software to calculate the amount of tax that people have to pay, write reports and process tax debt payments. In addition, the tax policy for cross-border e-commerce is also built on the basis of trade agreements signed between countries to avoid double taxation for goods and services.

From 2017 to now, e-commerce in Vietnam has grown annually by over 25%. The transition from traditional retail to online business is an inevitable trend, even though the e-commerce market share in Vietnam is still relatively small compared to other countries in the region and the world. Two outstanding advantages of Vietnam's e-commerce are its high smartphone penetration rate and large digitally savvy young population. When the Covid-19 epidemic broke out, it was also an opportunity for e-commerce to develop. In 2020, there are 49.3 million online shoppers. The percentage of internet users participating in online shopping is 88%. The types of goods chosen for shopping the most are food, clothing, shoes, cosmetics, home appliances. The scale of e-commerce activities has reached about 13.2 billion USD in 2021, ie over 3 million billion VND. With such a scale, national budget revenues will increase significantly if tax policies in the field of e-commerce are completed appropriately so that taxes can be collected on all goods and services in this field. .

In Vietnam, e-commerce has made strong development steps in recent years. The growth potential of e-commerce is huge because Vietnam has over 50% of the population using the internet, nearly 50 million subscribers using smartphones and 200,000 enterprises that are doing business on social networks. From 2017 to now, e-commerce in Vietnam has grown annually by over 25%. Vietnam's e-commerce revenue will reach 13.2 billion USD in 2020 and may reach 52 billion USD in 2025 with an average growth rate of 29%. In 2020, there are 49.3 million online shoppers. The percentage of internet users participating in online shopping is 88%. The types of goods chosen for shopping the most are food, clothing, shoes, cosmetics, household appliances.

In summary, e-commerce is a popular global trend. Countries need to change their tax policies to better manage taxpayers and increase state budget revenue. This article will analyze the international experiences on tax policy with e-commerce, summarize the tax policies of e-commerce in Vietnam, detect limitations and propose solutions to improve e-commerce tax policy.

2. Method

The narrative reviews are used in this paper. The research has summarized and synthesized the experiences of some countries on tax policies for e-commerce. The paper has also analysed Vietnam's tax policy of e-commerce and pointed out the limitations. The purpose is to help the readers understand the reality of tax policy in Vietnam for e-commerce. The scope of the research questions being investigated is broad: (a) What are the experiences of some countries on tax policies for e-commerce? (b) What are limitations of tax policy of e-commerce in Vietnam (c) how should the e-commerce tax policy be improved? To provide clear answers to these questions, a literature review has been conducted. Secondary data are synthesized from domestic and foreign researches

3. Results

3.1. Tax policy of e-commerce in Vietnam

Currently, in Vietnam, there are 5 groups of e-commerce objects, including:

Group 1: Individuals, business households, organizations that collect from foreign organizations (Google, Facebook, Apple...);

Group 2: Individuals and business households selling goods online (online);

Group 3: Individuals, business households, and organizations that rent houses online through the application

Group 4: Organizations and individuals paying for electronic services of foreign contractors

Group 5: Enterprises organizing and operating e-commerce trading floors (Sendo, Lazada...), operating payment intermediary applications and shipping intermediary applications.

E-commerce objects must pay VAT, CIT and PIT. Tax regulations on e-commerce activities have been fully promulgated

Tax Administration Law No. 38/2019/QH14, which took effect from July 1, 2020, has established the legal foundation for management of this business. Specifically, the law has added the obligation to register, declare and pay tax for foreign suppliers that do e-commerce or digital-based business but do not have a permanent establishment in Vietnam. The Law also added provisions on the powers and responsibilities of competent state agencies in the management of e-commerce. The Ministry of Finance has issued legal documents to detail and guide the implementation of the Law on Tax Administration. The contents of management of e-commerce are clearly guided in Decree 126/2020/ND-CP, Circular 105/2020/TT-BTC, Circular 40/2021/TT-BTC, Circular 80/2021 /TT-BTC and Circular 100/2021/TT-BTC. According to the provisions of Circular 80, commercial banks and financial intermediaries are obliged to withhold and pay tax on behalf of foreign suppliers that conduct e-commerce business with organizations and individuals in Vietnam. Vietnam. These suppliers do not have a permanent establishment and do not actively conduct tax registration, tax declaration, and tax payment in Vietnam.

Key issues for management of e-commerce have been clearly guided, including procedures for registration, declaration, and tax payment for foreign e-commerce suppliers without a permanent establishment in Vietnam; obligations of organizations and individuals

doing e-commerce business in registration, declaration and payment of taxes; obligations of organizations when cooperating with individuals doing e-commerce business; obligations of an e-commerce trading floor when providing services to organizations and individuals doing e-commerce business...

In addition to the application of conventional management practices, the financial authorities has recently implemented specific operations to control e-commerce transactions, such as issuing Decision No. 2146/QD/BTC on management tax on e-commerce activities. This decision has clearly defined the contents, methods and measures of tax administration for e-commerce activities. The Ministry of Finance has cooperated with the Ministry of Information and Communications and the Ministry of Industry and Trade to develop and perfect the law in the field of e-commerce; sharing databases, connecting to exploit information to serve the state management of e-commerce business activities.

3.2. Experiences of some countries on tax policies for e-commerce

China's experience

The Chinese Tax Agency has built computer inspection support applications on HugeSearch software to search for documents; Access and Excel for data extraction and analysis; Bcp Utility to copy data; PC Tools for disk analysis; Ghost to access images from CDs; PowerIP for system analysis; Easy Recovery to recover data; PL/SQL to load data. Tax authorities have applied software in inspection and selected inspection records according to predefined criteria (including commands such as calculating rate, comparing with average, filtering revenue, payable tax amount, tax amount, etc.) owed...). The tax authority also applies the electronic data extraction of taxpayers and converts it into an application based on Access and Excel tools for analysis and reconciliation...

Since 2010, the state regulatory agency for industry and commerce has required all online retailers to provide real names and ID numbers on open online shopping platforms. In 2012, eight Chinese government agencies issued guidelines to promote e-commerce and e-invoices. Instructions include setting up an electronic invoicing system, an online information platform and an online payment standard. E-invoices are expected to bring benefits to the authorities in e-commerce tax collection and better monitoring of tax revenue.

German experience

German tax authorities face a risk when e-commerce businesses shift profits to countries with lower tax rates such as tax havens, especially for intangible goods. or digital goods and services (S. Bach, M. Hubbert and W. Muller, 2000). This has caused the state budget of Germany to suffer a significant annual loss of revenue. With current technology and technical management equipment, it is very difficult for the German government to manage and monitor e-commerce transactions when the server system is located abroad. For example, tax evasion will occur when customers download paid software, music, and videos from foreign suppliers because there are no links, distribution systems, or production of products within the country for tax authorities to control. Therefore, Germany has asked other countries to sign bilateral trade agreements with Germany to exchange information voluntarily, limit fraud on tax obligations, avoid taxes, as well as avoid double taxation.

However, countries having low tax rates such as tax havens will usually not join the tax agreements with Germany, Helge Sigurd Næss (2019).

In Germany, a bill was passed in 2018 requires that e-commerce platforms are legally liable for unpaid VAT from German sellers. In order to select websites of non-compliant taxpayers, the German tax authority compares information sourced from the Internet with information extracted from an internal database, including information on VAT and tax declarations. CIT and import and export tax. As a result, they compile a risk analysis profile on taxpayers. Germany has also built intelligent search engines on the Internet. Therefore, tax authorities have classified activities between organizations and individuals that have business activities on the Internet but do not declare and pay taxes. Germany uses Xpider tool to detect websites of German organizations and individuals that have e-commerce business activities; identification of e-commerce activities that are not yet subject to tax and collect and store information for tax inspection and examination.

Japan's experience

According to the Japan's Tax Agency, e-commerce transactions, whether partially or completely done via the internet, have such characteristics as high anonymity, ease of implementation, wide scope, digitalized and secured data... To handle these issues, the Japanese Tax Agency has taken the following measures:

- Require banks to provide account numbers used to pay for e-commerce transactions to identify e-commerce service providers.
- Do test shopping to receive emails from sellers and to identify e-commerce service providers.
- Use data recovery software to recover data on magnetic devices or the hard disks of personal computers, thereby preparing in case of future lawsuits.
- Establishing a tax management team for e-commerce activities including information technology experts, experienced inspectors and examiners from regional tax departments and tax sub-departments.
- Building a database collected from e-commerce service providers, internet auction service providers for the purpose of identifying objects participating in electronic transactions.
- Develop an automatic internet detection system to collect information from websites and identify unknown taxpayers.
- Annually organize training for senior inspectors (information technology) of tax agencies on basic skills in using commercial software, general understanding of information systems. Information and basic knowledge about networking, collecting and analyzing corporate data.

4. Discussion and Conclusion

4.1. Limitations of tax policy for e-commerce in Vietnam

Firstly, there are no clear regulations on how to verify the authenticity of digital signatures and the integrity of electronic documents as well as the responsibilities of organizations and individuals that directly form and create transactions. electronic translation. A transaction must ensure the maintenance of "trace" from the beginning to the end of the transaction.

Secondly, there is no difference in tax regulations between e-commerce activities and traditional commercial activities. Some e-commerce activities are not included in the list of business lines. Moreover, there are a number of e-commerce activities that have not yet identified the type of business, leading to difficulties in determining the nature and type to tax. In fact, there have been many individuals making transactions of buying and selling "virtual" money, transferring "virtual" items in games or renting apps to place ads online. These people have a revenue of tens of billions of dong, even hundreds of billions of dong, but they do not declare and pay taxes in full.

Thirdly, state budget revenue from e-commerce is still relatively small. The reason is that e-commerce activities are very diverse and have many areas of activity. Meanwhile, many foreign network operators currently do not have business registration and do not have a representative office in Vietnam. Moreover, the granting of business licenses to e-commerce businesses is still problematic because some types of e-commerce have not been allowed to be deployed.

Table 3. Tax collection from e-commerce in Vietnam

	Units	2019	2020	2021
E-commerce sales	Billion dollar	10.1	13.2	17.03
Tax revenue from cross-border e-commerce	Billion dong	1,167.8	1,143.7	1,314

Source: Ministry of Industry and Trade

Many foreign enterprises that have revenue from advertising activities in Vietnam have not yet paid taxes, causing huge losses to the state budget. For example, Facebook, Inc and Google LLC which have been operating in advertising business in Vietnam and accounting for 70 % market share, have not paid any taxes. In addition, many domestic and foreign organizations and individuals doing business through e-commerce in Vietnam have a large revenue. However, they have not yet declared, calculated and fulfilled their tax obligations. In fact, there are thousands of facebook accounts with commercial transactions via the internet. However, the number of registered accounts and granted tax codes is still very small.

Fourthly, according to Decree 126 and Circular 80, commercial banks and intermediary payment service providers are responsible for withholding and paying on behalf of overseas suppliers' tax obligations. This regulation has raised some unclear issues and confused commercial banks and intermediary payment service providers. For example, determining each product, goods and service provided by a foreign supplier in order to apply the correct percentage of tax rate is a difficult requirement for commercial banks and payment intermediaries. In addition, commercial banks also face difficulties when they have to track the amount of money transferred to overseas suppliers and report to the General Department of Taxation on a monthly basis. For transactions at domestic e-commerce floors, Circular 40 stipulates that e-commerce trading floors are responsible for declaring and paying value added tax and personal income tax on behalf of individuals. The tax amount

declared or paid on behalf of the business person is based on the tax rate of each field applicable to business individuals. E-commerce floor is actually not an income payer, but only provides a technology infrastructure to connect and facilitate transactions between sellers and buyers. The management of the seller's information, providing business information, and declaring and paying taxes instead will also increase the administrative burden as well as the operating costs of the e-commerce floor. It may arise a situation where e-commerce floor owners help customers evade taxes, avoid taxes or do not provide sufficient information to tax authorities on a regular basis.

4.2. Solutions

To improve e-commerce tax policy, Vietnam needs to focus on the following solutions:

Firstly, tax administration agencies need to study the actual development of technology and applications for e-commerce that have been changing daily. At the same time, tax authorities need to forecast and build a specific list of fields that will participate in e-commerce activities. It is necessary to propose tax management policies that are both stable for the type of e-commerce and flexible with the increasing change of online payment in the society.

Secondly, tax authorities need to build a database and widely deploy electronic tax services such as electronic tax declaration, electronic invoice, online tax payment, business registration. In addition, it is necessary to research and develop an intelligent internet search engine on websites with e-commerce activities to identify e-commerce activities that have not yet been declared tax. Recording of results as evidence for use in tax calculation, inspection and examination should be implemented.

Thirdly, the definition of permanent establishment in Vietnam's Law on CIT needs to be revised. A permanent establishment is defined as a production and business establishment through which a foreign enterprise carries out all or part of its production and business activities in Vietnam. This definition is also common in bilateral tax agreements between Vietnam and other countries. The phrase "production and business establishment" is explained as a fixed space such as branches, representative offices, warehouses, construction works. This leads to the fact that multinational companies engaged in e-commerce and digital content business use cyberspace as a way to avoid the formation of permanent bases and avoid taxes in countries.

One more issue, like other countries, VAT in Vietnam is levied on the principle of destination. Accordingly, taxable objects are goods and services serving production, business and consumption in Vietnam. In practice, problems have arisen when determining taxable objects for some intangible products and digital services provided on the internet (except for internet advertising and online training which have been regulated). This requires amending and supplementing regulations on objects subject to VAT which covers all arising products and services.

In addition, it is necessary to study and amend regulations on procedures for declaring and paying VAT and other consumption taxes. The modification is made in order to be able to calculate and collect taxes automatically, to link with the real-time arising of

tax obligations and to match the characteristics of digital economic activities. In the long term, along with the amendment of legal regulations on tax declaration and payment, tax authorities need to develop an automatic tax calculation system associated with the space and real time of transactions in the digital economy.

Finally, in order to improve the efficiency of management of e-commerce, it is necessary to promote the application of technology. Specifically, it is possible to establish a high-tech tax evasion prevention center under the General Department of Taxation. Tax authorities can assign the Information Technology Department (General Department of Taxation) to deploy the management software system for e-commerce. Tax authorities need to strengthen the application of modern technology to the management of e-commerce. Information technology along with other modern technologies helps to control business transactions of taxpayers, building automatic detection software to detect suspicious transactions on the internet. It is necessary to develop an information technology system to support electronic tax declaration, calculation and payment; applying modern integrated technologies (physical, biological, etc.) to detect shipping signs in the cash payment e-commerce model.

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THE DIGITAL TRANSFORMATION OF VIETNAM LOGISTICS SERVICES PROVIDERS: BARRIERS AND RECOMMENDATIONS

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Abstract

The paper presents the literature review of the digital transformation of Vietnam Logistics Service Providers (LSPs) and the fact of their implementation. Five barriers are indicated are the complexity of the logistics service industry, the lack of resources, the hesitation to transformation, difficulties in digital transformation management, and information security threats. Finally, the paper proposes the recommendations for the Vietnam Logistics Association and Vietnam LSP in dealing with barriers and enhancing the digital transformation process.

Keywords: *digital transformation, logistics service providers, LSPs, barriers.*

1. Introduction

Digital transformation has become an indispensable objective for Vietnam Logistics Service Providers for enhancing productivity and generating competitive advantages. The Vietnam government addressed the vital role of the Logistics Industry as a spearhead economic sector and a pioneer in the digital transformation process. Because 40% of total logistics expenditures are directed to outsourcing (Langley et al., 2022) the Logistics Service Providers (LSPs) are main the actors to deal with the objective. Besides, Vietnam e-commerce businesses are pursuing a race to innovate technologies in their in-house logistics processes, which causes challenges for LSPs in Vietnam. Logistics costs in this country account for 20% of GDP (Vy, 2021), which is nearly twice as average logistics costs in the world. It motivates LSP to innovate to minimize costs and improve production efficiency. However, the digital transformation process in this industry is still backward, outdated technologies hinder to exploit locality's geo-economic advantages and potential. The perspective of the study is to propose an insight into the digital transformation of logistics service providers, analyze barriers and suggest recommendations for Vietnam LSPs to enhance the digital transformation process.

2. Literature Review

2.1. Digital Transformation

The term “digital transformation” is more widely known as a goal of businesses toward sustainability. Digital transformation is “an evolutionary process that leverages

digital capabilities and technologies to enable business models, operational processes, and customer experiences to create value” (Morakanyane, Grace & O'Reilly, 2017, p.9). It makes long-term impacts on the business organization, which is not emphasized in single advancement but through significant changes in technologies to create value (Cichosz, Wallenburg & Knemeyer, 2020). The digital transformation process is enabled by drivers which are digital technologies and digital capabilities (Morakanyane, Grace & O'Reilly, 2017). Digital technologies are the basement of the digital transformation process such as social, mobile connectivity, cloud computing, the Internet of Things, artificial intelligence and blockchain (Sayabek & Suieubayeva, 2020). However, using digital technologies is not enough to conduct the long-term transformation that it also uses digital capabilities. Digital capabilities are skills, mindset, and organizational culture incorporated with digital technologies (Morakanyane, Grace & O'Reilly, 2017).

The vital impact of the digital transformation is value creation in three main areas: business models, operational, and customer experience ((Morakanyane, Grace & O'Reilly, 2017). The transformation of three main areas can create great changes in organizations as well as customers. Digital transformation helps business organizations meet the need of customers, increase efficient performance, and survive in the face of the future. It allows all enterprises and organizations to compete better in the fast-changing-technologies era, toward the sustainability goals.

2.2. Digital transformation of Logistics Service Providers

Logistics service providers (LSPs) provide services to customers including warehousing, inventory management, information management, packaging, transportation and product delivery (Dang, Ta, Nguyen & Dang, 2019). LSPs play an important role in the global supply chain by delivering goods and services from suppliers to customers

The logistics service industry is considered a pioneer in implementing the digital transformation process. Technological changes, which are taking place in LSP businesses, are the foundation for moving forward to a digital ecosystem. It helps meet diverse customers' needs, optimizes production, and reduces storage costs. Hofmann & Rusch (2017) has introduced the logistics service model with two aspects: the physical supply chain aspect and the digital value chain aspect. The physical supply chain involves automated and self-managed logistics systems such as automated trucks, automated material handling systems, and automated order processing systems (e.g., smart contracts by technology, and blockchain technology). The digital aspect includes data from sensors and machines in the physical supply chain. Data is the key input for strategic business decisions (Demir et al., 2021).

Junge & Straube (2020) mentioned drivers of the digital transformation process (which are digital technologies and their capabilities) in logistics and supply chain management with different maturity levels and diffusion rates, as shown in Figure 1.

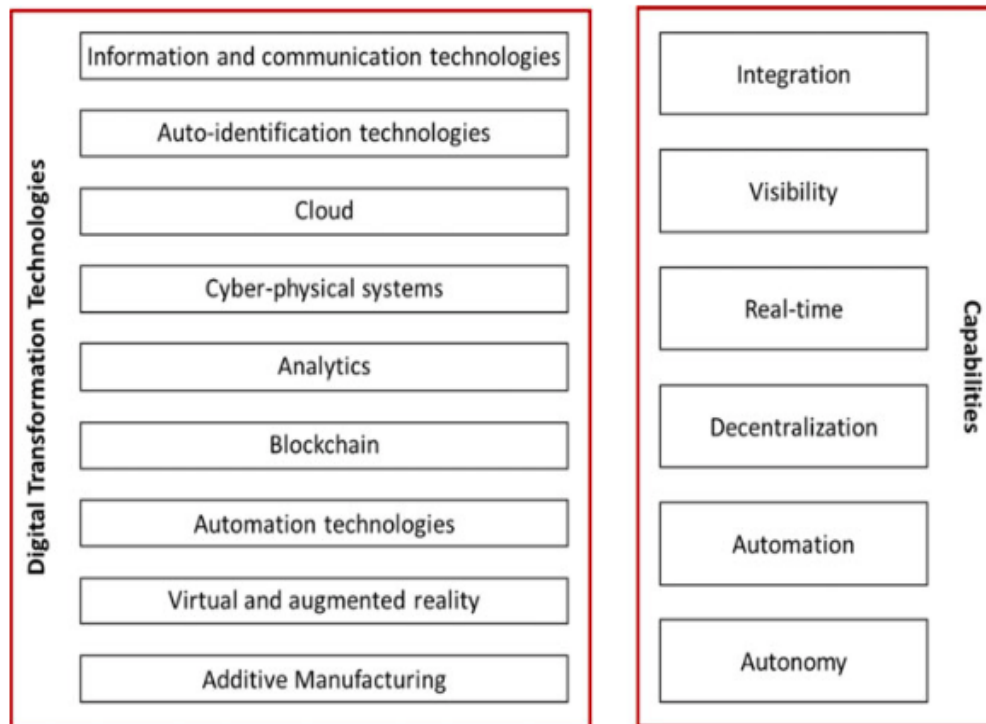


Figure 4. Digital technologies and digital capabilities in logistics and supply chain management

Source: Junge & Straube (2020)

3. Results

3.1. Facts of digital transformation of Vietnam Logistics Service Providers

Due to the Covid-19 pandemic, many factories had to suspend operations, thus, the number of goods that need to be transported decreased, thus, the supply chain was broken in a few months, caused an enormous impact on the business operation of firms. Vietnam's Logistics Service Industry is affected by more than 30 transnational logistic providers, who have close relationships with major shipping lines in the world. The decline in international demand led to a decrease in export orders, and many companies had to lay off workers. LSPs were affected significantly in business performance and operation areas. Therefore, LSPs have faced many challenges in conducting digital transformation objectives. The level of applying LSPs' information technology is still not prominent. 30% of information technology applications are being used at LSPs are basic applications such as logistics management systems, warehousing, data exchange, and customs declaration (Nguyen, 2021)

80% of the LSP members of the Vietnam Logistics Association are small and medium enterprises, thus, the impact of the pandemic has caused businesses to suffer huge economic losses (Vietnam Ministry of Industry and Trade, 2020). Meanwhile, investment costs for digital transformation are immense. Enterprises are almost in the early stage of digital transformation, which means that technologies in some business processes are conducted. International standard software has not been widely implemented in Vietnam because there are more than 17 types of logistics services (Nguyen, 2021). Uniformity in

technology application has not been achieved. Currently, the coordination of Vietnamese LSPs to build a digital transformation ecosystem is not apparent.

3.2. Barriers to the digital transformation of Vietnam Logistics Service Providers

According to the annual report on Vietnam’s business digital transformation carried out by the Ministry of Planning and Investment (2021), there are 9 main barriers of Vietnam businesses in facing digital transformation objectives, including the barrier to investment costs of technology applications; the changing business habits and practices; the lack of skilled-human resources to apply digital technology; the barrier of digital technology infrastructure; the lack of information about digital technology; difficulties in integrating digital technology solutions; the lack of commitment and understanding of the Board of Directors; the lack of commitment and understanding of employees; and the leakage of personal and business data (Figure 2).

These barriers are also identified by firms in the Vietnam Logistics Industry. However, the detailed barriers of LSP firms in implementing the digital transformation process are clearly stated as below:

3.2.1. The complexity of the logistics service industry

The complexity manifests itself in two aspects: the complexity of transactions between LSPs with carriers, warehouses, and operators and the complexity of business processes of LSPs. The characteristic of the logistics service industry is the participation of many parties. Therefore, the goal of digital transformation is called a “mega-project” involving the participation of all members of the system, requiring cooperation between companies, countries, locations and departments. However, this encounters obstacles because LSPs differ in sizes and types. Furthermore, the industry has no standard applications to apply in all Vietnam LSPs because of the difference in the services they provide.

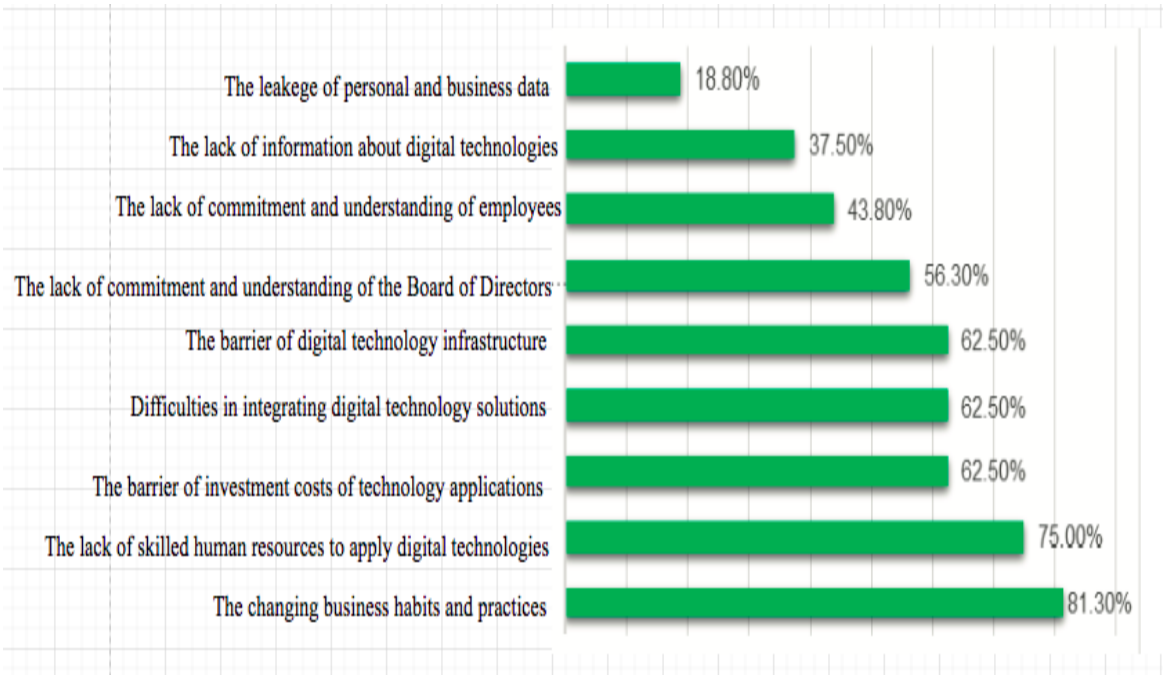


Figure 5. Barriers to digital transformation of Vietnam medium enterprises
Source: Vietnam Ministry of Planning and Investment, 2021

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The differences in the digital transformation process and technologies of each LSPs can create challenges for partners and customers of LSPs. For example, while LSPs make efforts to reduce the transaction of hard copy contracts, many customs procedures in some countries still require signatures and hard copies. Many shippers or authorized persons must be present at the delivery point to receive goods. In addition, LSPs mostly recruit a large number of short-term employees with low payments, which makes the digital transformation-oriented standardization processes chaotic (Cichosz, Wallenburg & Knemeyer, 2020)

3.2.3. The lack of resources

The second barrier is the lack of resources, namely financial resources and skilled human resources. Firstly, LSPs must have the financial capability to carry out the digital transformation program in the long-term. The digital transformation process is divided into 3 periods which include: doing digital, becoming digital, and being digital (Vietnam Ministry of Planning and Investment, 2021). Each period consists of many projects which require stable financial resources used for digital transformation. The investment cost for the process is relatively large, while its effect has not been clearly shown in a short time. Thus, it is difficult for LSPs to achieve their transformation. The cost race creates a major barrier for small and medium enterprises. The technologies used in some LSPs present how businesses innovate as a marketing tool rather than suggest how to solve the problems (Cichosz, Wallenburg & Knemeyer, 2020)

Besides, the limitation of skilled human resources also poses an arduous problem for LSPs. The lack of experts and skilled labours who are knowledgeable about digital transformation is a bottleneck for businesses. For large LSPs, this problem can be solved by providing training programs. However, this is a big barrier for small companies, small carriers, and subcontractor. For example, small LSP often hires experienced drivers who are about to retire, those with low education, and short-term workers, who have difficulty developing digital capabilities.

3.2.4. The hesitation to transformation

Psychology comes from both organizations and individuals. As mentioned in the literature review, digital transformation process is not only the application of digital technologies but also implementation of digital capabilities which include mindset, skills,

and organizational culture (Morakanyane, Grace & O'Reilly, 2017). The Board of Directors plays a vital role in changing the mindset and building a digital transformation-oriented organizational culture. In large LSPs, it is a complicated issue. When all process is running fluently, businesses are skeptical about whether the change is effective or costly.

The unreadiness of digital transformation also comes from employees. They are afraid to change and step out of their “comfort zone”, not open to innovation and, fear changing routines and daily operations. Their psychology is caused by the fear of job loss by the replacement of robots and automation machines. Cichosz, Wallenburg & Knemeyer (2020) indicate an example of a company's implementation of a transportation routing system. Based on the data of delivery points on the same days, the algorithms will suggest the best routes for the shippers. However, in reality, the shippers will not take the suggested routes because they are used to the old routes. The system has been integrated with another system to track the goods and estimated delivery times, which caused causes performance impediments to LSPs.

3.2.5. Difficulty in digital transformation management.

In addition to building a technical team for digital transformation and setting up a digital transformation culture, digital transformation management plays a very important role. They have difficulty in making management decisions about which technologies to integrate into the business apparatus and operating processes (Cichosz, Wallenburg & Knemeyer, 2020). This presents the lack of cooperation between the company's digital transformation team and other departments, which can lead to ineffective solutions to meet business needs. Furthermore, the use of discrete management applications also makes it difficult to build a seamless technology solution system.

3.2.6. Information security threats

One of the biggest hurdles for LSP companies in the digital transformation process is data leakage. When cloud solution helps LSPs store data about transactions with customers, suppliers, and internal information anywhere, anytime, security issues become a great challenge for LSP. If businesses do not manage this problem well, it will cause unpredictable consequences such as loss of customer information, legal problems, or bringing to the brink of collapse.

4. Discussion and Conclusion

4.1. Recommendations for Vietnam Logistics Service Providers to enhance the digital transformation

4.1.1. For Vietnam Logistics Providers Association

The association among Vietnam LSPs is an inevitable solution because they are currently operating on a small scale and lack cooperation. Logistics enterprises should accompany together in choosing international market penetration and applying Electronic Data Interchange (Dang et al., 2019), which is a form of information transfer that replaces physical papers. For small and medium enterprises (SMEs), their small scale of capital và operation depends heavily on partners. Therefore, large-sized enterprises and state-owned

enterprises should be pioneers in this field, conducting each stage such as electronic data connection in warehouse operations, and port before forming the entire transmission line. SMEs, on the one hand, can learn and apply with partners, and on the other hand, should negotiate with large-sized enterprises and state-owned enterprises to share the participation of the transmission line for them at a reasonable cost. Government and Vietnam Logistics Association should give a hand in this affair. This partnership will help business entities save costs in learning and developing in digital transformation roadmap and achieve the ability to deliver high-quality services.

Furthermore, the Vietnam Logistics Association performs the role of association of LSP. Meanwhile, the organization needs to propose applications to build a technology platform serving the LSP community.

4.1.2. For Vietnam Logistics Service Providers

LSP should step by step specialize in logistics operations with their competitive advantages. Vietnam exporters need to develop specialized goods such as leather shoes, woods, seafood, equipment, fibers, steel, etc. By specialization, the LSPs can provide the market with high-quality services and become indispensable suppliers in the import and export businesses.

Building a digital roadmap for businesses to achieve specialization will make it easier to integrate technologies with business models and provide professional knowledge training for employees. They should divide the digital transformation plan into periods with detailed projects. Every project is prepared with an estimated budget, time, and target to manage digital transformation process well. They also pay attention to three below criteria:

People: People act as a pivotal role in the digital transformation process. For building the digital transformation-oriented organizational culture, the Board of Directors needs to be a pioneer in learning and innovating new knowledge of digital transformation. In addition, professional training is needed to be invested, including of internal and external training. There are types of internal training: on-job training, formal courses and learning from peers.

Process: LSPs should pay attention to the way business operating to combine people and technology to enhance customer experience and productivity. LSPs should assess the current status, the business visions; the readiness for digital transformation; review processes and make necessary changes; and demonstrate the digital transformation commitment of the board of directors and the business.

Protection: The core of digital transformation is data. The transformation must always be accompanied by information security, which is in harmony with the goals of the LSPs. They need to ensure the balance between reducing risks and enabling innovation. During this time, LSPs should raise the users' awareness and knowledge of information security for all parties (employees, customers, providers), establish security policies and a reward-punishment system. Besides, LSPs can learn from the experiences of digital transformation LSPs or outsourced information security consulting services.

4.2. Conclusion

Digital transformation plays an important role for Vietnam LSPs to enhance customers' experience and improve productivity. Particularly, the Covid-19 pandemic is an alarm for LSPs against fluctuations in the business environment, thus, the digital transformation is the goal for sustainable development. The paper presents an overview of the digital transformation of LSPs and facts about the process. Five barriers are indicated are the complexity of the logistics service industry, the lack of resources, the hesitation to transformation, difficulties in digital transformation management, and information security threats. Therefore, the Vietnam Association of Logistics Services Providers should connect Vietnam LSPs to build a community of learning digital transformation knowledge and implementing digital transformation projects. In addition, Vietnam LSPs need to build an appropriate digital transformation roadmap with detailed plans and targets. They also need to focus on great changes in people, processes, and information protection. Due to limitations in research scope and time, the paper only collects the secondary data, which may not reflect the exact facts and barriers to the digital transformation process of Vietnam LSPs. Future studies are wished to conduct various methods as quantitative reserach, case studies, to examine the more accurate impacts.

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FACTORS AFFECTING ONLINE PURCHASE BEHAVIOR ON THE PEOPLE'S ELECTRONIC COMMERCE PLATFORM IN HANOI

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Abstract

Research examining the main factors that urges online shopping behavior of consumers on the e-commerce platform. The results of regression analysis surveyed 600 people participating in research in Hanoi, Viet Nam during the time of COVID - 19, show that online buyers behaviors are influenced by three factors: feeling of convenience, risk sensing, and social factors. In which social factors have the most remarkable impact on online buying behavior. The results of research also indicate several solutions to promote online shopping such as businesses that need to be aware of the capacity of the social status that the products and brands represent. In addition, the businesses should suggest solutions to lessen the risk of buying for customers and simultaneously increase the convenience for online buyers' experiences.

Keywords: *feeling of convenience, risk sensing, social factors, intention, online buying behavior.*

1. Introduction

E-commerce has contributed significantly to the economic growth of Vietnam. One of the factors having made a major impact on the development of the e-commerce market is customers. However, customers themselves are often not simple, apart from their basic

needs, they also have many other ones related to psychological characteristics, their lifestyle or culture, society where they reside in. Therefore, analyzing and evaluating the behavior of customers shopping online can help managers predict user's psychology and assess the future growth of the e-commerce industry (Shwu-Ing, 2003).

Many purchasing behavior studies on e-commerce platforms are recognized. Bellman et al. (1999) investigated that income, education, and age have little impact on online shopping decisions. While the experience from previous purchases by individuals has had a relatively large influence. Faith is an important factor in marketing, and especially for e-commerce (Urban et al., 2000). The image of an Internet retailer is important to consumers when they make a purchase (Rust et al., 2002). Many researchers argue that perceived risk in online shopping negatively affects consumers' online purchasing behavior (Martin and Camarero, 2009). Swinyard & Smith (2003) states that more than 70% of people don't engage in online shopping due to risks that could hurt them financially. The scientific research team will continue to clarify and analyze this issue more closely.

In addition, although online shopping participants are of all ages, university students are identified as the most frequent visitors of the Internet market and a source of future online sales growth. (Silvennan, 2000). Nowadays, young generation is very active and has a lot of knowledge about technology. When shopping for a product, they usually think and consider about 5 brands before users buy the product (according to Nielsen research). They may be willing to rebrand for a better experience. What's more important is that young customers when buying products not only consider the price but also consider the benefits that they will receive when buying the product. After that, they pay attention to quality, usefulness and above all convenience and simplicity. It can be said that the online shopping behavior of today's younger generation is constantly changing and is different from previous generations, so it is necessary to supplement and contribute more for previous studies to be completed.

Moreover, COVID-19 has posed unprecedented challenges all over the world and Viet Nam is no exception. The outbreak has taken a toll on business, leading to delays in production, business closures, or a substantial decline in profits. Therefore, Covid-19's regulations have had a major impact on enterprises and customers interests in cybershopping. The General Statistics Office of Vietnam has declared that online shopping is becoming much more popular in the first six months of 2020, especially in the period of restrictions and social blockades. Instead of stocking food and basic needs items, citizens tend to purchase them online. This has created a significant change in the e-commerce industry and the economic growth of Vietnam. Therefore, the study of the factors that affect the behavior of online purchases on the e-commerce platform is very meaningful in practice and reasoning.

2. Literature Review

Research in the e-commerce market on the analysis of consumer behavior has shown that there are many positive and negative factors affecting consumers. Monsuwe et al. (2004) suggested that online shopping is an act of customers making a purchase online via retailers' websites. According to Haubl and Trifts (2000), online shopping is the activity of customers

buying products and services through transactions on computers or electronic devices that have internet access to get access to online retailers.

Feeling of convenience

Cybershopping convenience: Empirical research shows that the convenience of the Internet is one of the factors having a considerable influence on consumers' level of willingness to shop online (Wang et al. 2005). Online shopping is always available for customers to browse and purchase compared to physical stores. As a result, the advantage of shopping online involves making simpler purchases and reducing the time spent shopping (Kim & Lim, 2001). Consumers value the benefits of accessing brands, stores, and products that are not yet available where they work or live.

Website responsiveness: Online shopping participants argue that online sales sites offer higher conveniences in communication, distribution, and outreach. Exceptional website designs can attract consumers and outweigh other competitors. Song and Zahedi (2001) classified website quality factors into 5 categories: promotion, service, influence of information, self-efficacy, and resource facilitation. How handy a website is often depends on effectiveness of technical features, such as advanced search engines and personalized services provided by service providers to consumers (Kim & Song, 2010).

Price: When consumers assess the value of a product from a customer's perspective, they always focus on price. The price directly has a substantial impact on the perception of the benefits and usefulness of trading, thus affecting customer satisfaction (Kim et al., 2012). A competitive pricing strategy should be set to attract online visitors to the site and encourage them to make purchases (Hamza & idalavi, 2014). Customers are always looking for competitive pricing and making comparisons between online retailers before deciding to purchase. Because customers often drive better deals from shopping online, therefore, they can buy the same product for a lower price than in-store purchases (Rox, 2007).

Faith: Trust is one of the factors that plays a key role in the online shopping behavior of users or in physical stores (Chen, 2009). Trust increases the level of willingness to use services (Lu et al., 2011). When consumers have faith in online activity on their website, they leave genuinely good feedback which help customers have a positive attitude and vice versa. Prestigious level not only affects the business itself but also affects the feelings of customers and partners. Moreover, customers' trust is built based on trust in online sellers and online payment methods. Therefore, the hypothesis H1 is designed as:

H1: feeling of convenience has a positive effect on the shopping intentions.

Risk sensing

Financial risks: Financial risk is defined as the risk being related to financial transactions on the Internet. These risks are always presented in every financial transaction on the Internet, no matter how many times it takes place, and it comprises the costs associated with returning products, shipment, prohibitively expensive products, and especially

cybersecurity issues such as the loss of personal information, is the main reason for limiting online shopping behavior (Miyazaki & Fernandez, 2001).

Low-quality product risks: Product risk is defined as the risk that a product is considered to be different in design, style, color, and quality than the product's description by the seller before making a purchase. Comparing to shopping in physical stores, the Internet makes it difficult to assure the actual condition of products which is attributed to limits of retailers' information and images (Jarvenpaa and Tractinsky, 1999). Losses occur when a brand or product is not as expected, primarily because buyers are incapable of accurately assessing the quality of the product online (Bhatnagar et al., 2000).

Security risks: When consumers have the need to shop on e-commerce platforms, the site will ask them to fill out a lot of information such as phone number, address or credit card information. Hence, the customer information may be disclosed resulting in the customer being harassed, or money being stolen from personal credit cards. Previous experiments have shown the risk of personal information being disclosed or exchanged for other businesses has caused a concern for several people when shopping online (Bui Thanh Khoa, 2018).

Shipping risks: In online shopping platforms, many people are brand-new customers, therefore, buyers and sellers do not have trust in each other so it is necessary to avoid risks in delivery process - especially items that are quite the distance, the sellers often ask users to prepay or deposit half of the bill. Dan and Kim (2007) pointed out risks in delivery can be due to loss of goods, damage to goods, and delivering to wrong address. Updating shipment status can help customers reduce their worries about the shipment process and not being able to ship goods (Masoud, 2013). Therefore, we design the hypothesis as:

H2: Risk sensing has a negative effect on online shopping intentions.

Social impacts such as the opinions of other people (family members, friends, colleagues, celebrities, etc.) directly or indirectly influence consumers' trust in retailers. It also refers to the possibility of losing status in the social group of consumers due to the inappropriate product or disapproval of the use of the internet as a shopping method (Stone and Gronhaug, 1993). Consumers normally strive to seek advice or consent from others in their social group to reduce social risk. Kudeshia et al. (2017) conducted research and came to the conclusion that the social impact not only affects the intent to shop online but also significantly affects consumers' attitudes when making online purchases.

H3: Social factors have a negative effect on online shopping intentions.

Intent is a factor in creating a driving force and motivating individuals to engage in future behavior. Delafrooz et al. (2011) pointed out that the intention to shop online is the possibility that a person will have bought a product on the Internet. The stronger an individual's behavioral intentions, the higher their ability to perform such behavior. Additionally, this is a factor to evaluate the importance of psychology affecting the customers' shopping behavior. Hence, hypothesis H4 is designed as:

H4: Intention has a positive effect on online shopping behavior.

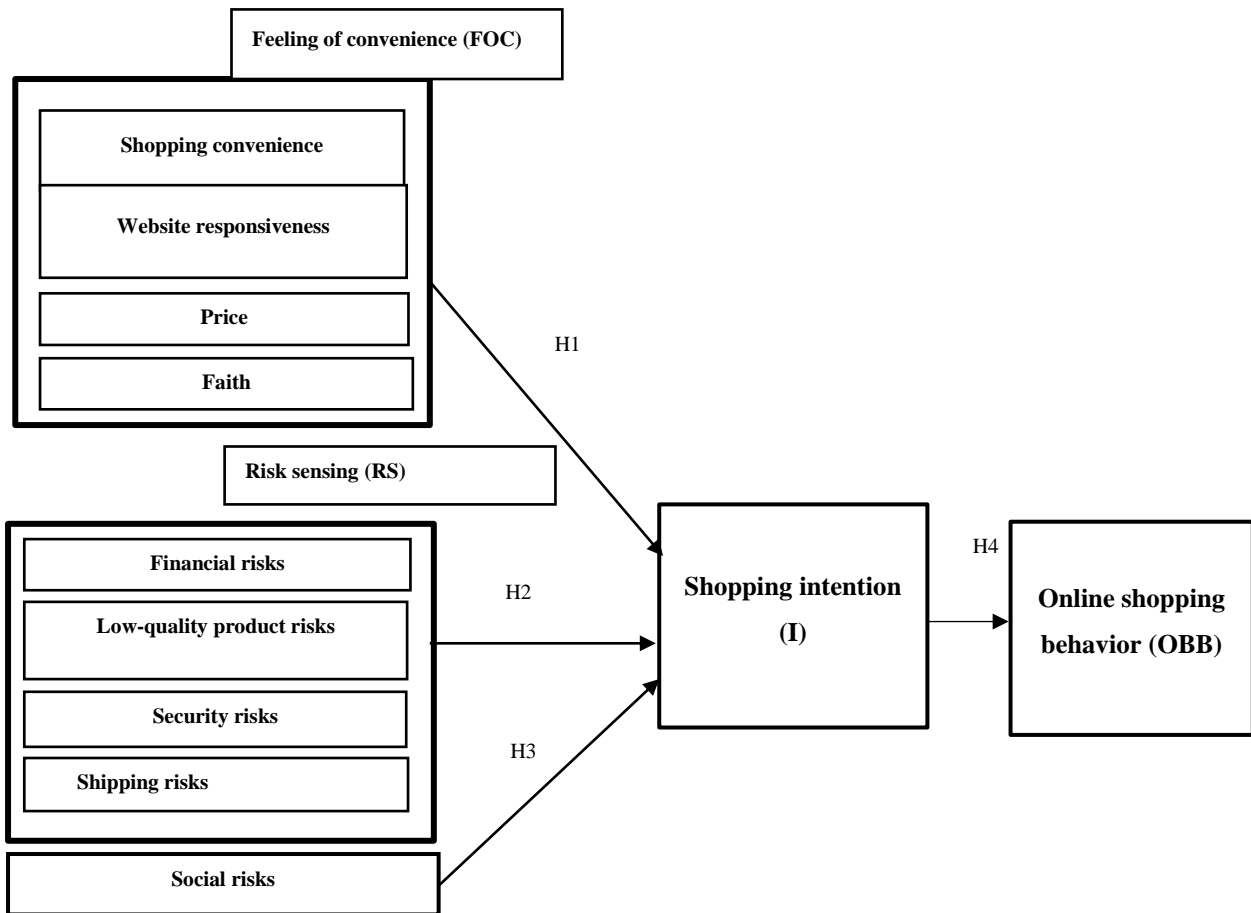


Figure 1. Research model

3. Method

Research and data collection

Research on the convenience sampling method. The questionnaire which is designed on the Google Docs tool, is sent to customers via Email and Facebook. There are 600 of these questionnaires that are qualified for data processing. Details of the research sample are: According to 600 qualified samples, female participants account for 71.9%, and male participants account for 28.1%. In addition, the group (aged 18 to 25) is the highest number of participants. The second is the age group over 40 years old, the third is the age group 26-40 years old. Participants over 40 years old are the second group and those from 26 to 40 years old are the third one.

Measurement scale and table development

The measurement scale used to measure aspects in the factors (measurement of observed variables) is a 5-point Likert scale ranging from 1 representing for being "strongly disagree" and 5 representing for being "strongly agree". The study has summarized the scales in Table 1.

Table 1. Variables and Attributes and Results of Cronbach's Alpha Coefficients

Variables		Scale	Cronbach's Alpha if Item Deleted	Source
Feeling of convenience (FOC) .823	Convenience level (CL)	I can easily find the products I need when I shop online	.818	Rao et al., (2018)
		I choose online shopping because I can avoid crowds and traffic jams .	.810	
		I choose online shopping because it avoids embarrassment if I do not make a purchase.	.814	
	Responsiveness (WR)	I only buy on sites with reliable information about the seller.	.820	Chau (2014)
		I only buy products on websites that have customer feedback system	.811	
		I only buy products on websites where the sellers are retailers, big companies.	.808	
	Price (P)	I opt for online shopping to get reasonably priced products	.805	Chau (2014)
		I regularly make a comparison between prices of products when I shop online	.815	
		After comparing, I usually choose the seller with the lowest price.	.814	
	Faith (FA)	I have trust in online shopping platforms	.803	Chau (2014)
		I have trust in online sellers	.797	
		I have trust in online shopping payments	.804	
Risk sensing (RS) .874	Financial risks (FR)	I feel that my credit card details could be compromised and misused if I shop online.	.865	Sinha & Kim (2012)
		When shopping online, I may be overcharged because the retailer has my credit card information.	.865	
		I feel that my personal information provided for the transaction with the retailer may be compromised to a third party.	.869	
	Low-quality product risks (PR)	I am concerned that the products will not be as effective as they are advertised.	.870	Minh (2018)
		I am concerned that the product will not live up to my expectation	.870	
		Buying online makes me lose the opportunity to buy at brick-and-mortar stores.	.868	

Variables		Scale	Cronbach's Alpha if Item Deleted	Source
	Security risks (SR)	I am concerned that the sales site collects too much of my personal information.	.853	Minh (2018)
		I am concerned that the sales site will use my personal information for other purposes without my permission.	.861	
		I am concerned that my personal information is not securely managed on the sales site.	.858	
	Shipping risks (SHIP)	I do not shop online because there is no reliable and well-equipped delivery person.	.865	Sinha & Kim (2012)
		I may not receive the product I have ordered online.	.862	
		During delivery process, the product might be damaged.	.868	
Social factors (SF) .876	Social media helps me gather information about products to buy online.	.868	Rao et al., (2018)	
	Comments by individuals on the internet have an influence on my online shopping.	.862		
	When I shop online, opinions of friends and family are important to me.	.758		
	Shopping online alleviates the possibility of getting COVID - 19	.798	Complements from qualitative research	
	Shopping online helps me comply with social distancing orders	.835		
	Distance and isolation rules in the context of covid-19 motivate me to shop online	.847		
Intention (I) .719	I only intend to shop online when I have the need.	.713	Nguyen & Hoang, (2020)	
	I will continue to shop online in the future.	.578		
	I will recommend friends and family to choose online shopping platforms	.604		
Online shopping behavior (OBB) .880	I always use online shopping	.852	Nguyen & Hoang (2020)	
	I rather choose to use online shopping platforms than go out shopping in brick-and-mortar stores	.839		
	I will have been shopping on a regular basis	.856		
	I plan to shop online way more in the future	.837		

To collect data for the research, the questionnaire was developed on the basis of indicators measuring concepts in the research model. However, before designing the sample questionnaire with a small sample, the study conducted interviews with 13 customers to verify the concepts of variables and the content of the indicators and explore 3 more indicators in the factors. society. In addition, the questionnaire included questions about demographics, such as gender, age, income, and occupation. The indexes are translated into Vietnamese through the reverse translation process. The questionnaire was then checked with several small response samples to ensure there were no misunderstandings about the content of the question and to finalize the format of the questionnaire.

Data analysis

Before testing the hypotheses, the study carried out testing the reliability of the scale by Cronbach's alpha coefficient and exploratory factor analysis (EFA) for all the indicators of the scale measuring the independent variables and EFA for dependent variable indicators. The results serve as a basis for linear regression analysis and testing of research hypotheses.

4. Results

Evaluate the reliability and validity of the measurement scale.

To evaluate the scales of perceived convenience, perceived risk, social factors, intention, online purchase behavior, the study carried out reliability test with Cronbach's Alpha coefficient and analysis EFA.

Table 1 shows the results of the reliability test for the final scale of 37 observed variables. Indicators measure variables with appropriate reliability. Cronbach's Alpha for each scale ranges from 0.719 (intent) to 0.880 (Online buying behavior). These results show an acceptable level of confidence because the alpha coefficients are all greater than 0.6 and the total variable correlation of the variables is greater than 0.3 (Hair & cộng sự, 1998).

After removing CL1, PR3, SHIP2, SF2, I1 because of the high loading coefficient on both factors, the final results of EFA showed the convergent value and discriminant value of the scales in the study. The results of KMO index are suitable ($0.5 \leq KMO = 0.865 \leq 1$) (Hoang Trong & Chu Nguyen Mong Ngoc). The results of Bartlett's test on the correlation between the remaining variables are significant (Sig.) = 0.000 < 0.005, showing that the variables are closely related. Specifically, exploratory factor analysis was performed on indicators measuring 3 independent variables, namely FOC, RS, SF. Expected results created 4 factors, explaining 65.251% of the total variance, satisfying the requirements. >50% (Anderson & Gerbing, 1998). All measurement indicators have factor loading >0.5. These indicators have a high load on one factor and a lower load on the other.

Table 2. Results of the final factor rotation matrix

	Observable Variables	Factors				
		F1	F2	F3	F4	F5
FOC	CL2	0,949				
	CL3	0,923				
	WR1	0,882				
	WR2	0,810				
	P1	0,790				
	P2	0,906				
	FA1	0,852				
	FA2	0,792				
	FA3	0,860				
RS	FR1		0,790			
	FR2		0,870			
	FR3		0,768			
	PR1		0,711			
	PR2		0,633			
	SR1		0,691			
	SR2		0,950			
	SR3		0,678			
	SHIP1		0,790			
	SHIP3		0,870			
SF	SF1			0,590		
	SF3			0,680		
	SF4			0,768		
	SF5			0,748		
	SF6			0,718		
	I	I2				0,668
I3					0,868	
OBB	OBB1					0,720
	OBB2					0,875
	OBB3					0,763
	OBB4					0,868

Correlation coefficient matrix

The correlation between the concepts was also examined. Result of correlation coefficient matrix shows the matrix of correlation coefficients between variables including perceived support of the organization, sense of responsibility, motivation for scientific research. At 5% significance level, the results show that FOC has a positive relationship with FOC ($r=1$), RS has a positive relationship with RS, SF has a positive relationship with SF ($r=1$). I has a positive relationship with I ($r=$) and FOC has a positive relationship with FOC. Thus, the correlation coefficient shows that the dependent relationship between the dependent variable (I, OBB) with the independent variables FOC, RS, SF and the intermediate is statistically significant (Sig. < 0.05), otherwise it is not. any variable is not statistically significant.

Linear regression analysis results

The results of the regression analysis also confirmed that there was no multicollinearity because all the variance exaggeration factors (VIFs) were less than 10.

Table 3. Regression results

Factor	Coefficient B	Standard deviation	Beta (β)	T test	Level of meaning (Sig.)	VIF
FOC	0,014	0,001	0,015	0,792	0,02	1,526
RS	-0,124	0,051	-0,125	0,192	0,008	1,426
SF	0,432	0,109	0,437	2,717	0,006	1,477
Coefficient R ²	0,600					
Adjusted R ² coefficient	0,696					
Durbin-Watson Coefficient	2,011					
Level of meaning (Sig. F)	0,000					

Note: Dependent variables is : I

Table 4. Regression results

Factor	Coefficient B	Standard deviation	Beta (β)	T test	Level of meaning (Sig.)	VIF
I	0,424	0,061	0,435	0,592	0,0002	1,826
Coefficient R ²	0,800					
Adjusted R ² coefficient	0,886					
Durbin-Watson coefficient	2,000					
Level of meaning (Sig. F)	0,000					

Note: The dependent variable is: OBB

The results of the linear regression model 1 in Tables 3 and 4 show that the significance level of this model (Sig. F) = 0.000 is much smaller than the significance level of $\alpha = 0.05$. The Durbin-Watson coefficients of 2.011 (for the dependent variable model I) and 2,000 (for the dependent variable model OBB), between 1.5 and 2.5, show that this model has no correlation phenomenon (Hoang Trong and Chu Nguyen Mong Ngoc, 2008). The adjusted coefficients $R^2 = 0.696$ and 0.886 show that the independent variable included in the regression explained 69.6% and 88.6% of the change of the dependent variables I and OBB respectively.

All 3 variables have statistical significance are FOC, RS, SF. In which SF has the most influence on I ($\beta = 0.437$ and $p\text{-value} < 0.01$); then the variable RS ($\beta = -0.125$ and $p\text{-value} < 0.01$); the last is FOC ($\beta = 0.015$ and $p\text{-value} < 0.001$). I (Intention) has the most influence on OBB ($\beta = 0.435$ and $p\text{-value} < 0.01$). Thus, hypotheses H1, H2, H3, H4 are all supported.

5. Discussion and Conclusion

Discussion of the results

As the consequences of regression, it is evident that social factors have the most significant impact on consumers' purchasing intentions, especially in the context of the Covid-19 epidemic, online shopping helps to alleviate the possibility of catching Covid-19 and comply with social distancing regulations. Furthermore, social distancing and isolation regulations urges customers to shop online frequently.

The second strongest factor influencing purchasing intent is the perception of risk with a standardized regression. This is the only factor that has a negative impact on customers' intent to shop. This result is identical to the study of Mohammed Saleh et al. (2015), which is explained because this study mainly focuses on young users who do not have a deep awareness of security issues and they only pay attention to the benefits of this kind of payment. Therefore, if the risk increases, their intention to continue (starting) online shopping will decrease because of a common mentality of consumers that they do not want to take any risks and losses when shopping online.

The third factor that positively impacts shopping intentions is the feeling or sense of convenience. The convenience of shopping, website responsiveness, price and trust, all show consistent results with previous studies of customer satisfaction when shopping online (Wolfenbarger & Gilly, 2003).

Research implications

Risk reduction measure: Consumers are likely to face the risk of being violated their personal benefits when shopping online, such as goods received differ from describing images of products, goods that are delayed or not delivered, and disclosing personal information. Enterprises need to be responsible for enhancing the protection of consumers' benefits in e-commerce transactions with the aim of reducing the possibility of customers being scammed when shopping online. Some of the feasible strategies that businesses can conduct to minimize perceived risk include fully providing customers the information of the

product's features, providing flexible, efficient, and free return policies, and ensuring that the credit card payment process is completely accurate and secure. To assure this, businesses need to invest in an effective security mechanism to prevent the intrusion of hackers or black marketeers, ensuring electronic transactions are safe.

Solutions to social factors: Social factors such as family, social status partly influence the online shopping behavior of users. Businesses must endeavor to identify a certain group of customers for reference and need to determine which group of customers are likely to be more affected by online shopping behavior. Each role is associated with a state that reflects the general respect in society and is consistent with that role. As a result, buyers tend to choose products that reflect their role and status in society. Businesses need to be aware of the ability to display the social status of products and brands.

Development of website responsiveness: The fully detailed and accurate provision of information through the brand's website can directly affect consumer psychology and easily get access to customers. Enterprises must ensure the diversity of products or services, the ordering process needs to be simple and straightforward, and eventually, the website itself ensures to provide 24/7 support for the customer with the shortest waiting time.

Increase the reliability of the product: Businesses need to pay attention to the quality of the product to derive positive feedback from customers which helps them enhance the sales of the product. Information from sellers, friends, and other sources is the fundament for users to create expectations. Sellers must advertise their products with accurate quality and condition of the product to build trust for buyers. Otherwise, it would result in not living up to their expectations.

The reasonableness of the price for consumers: Student is one of the most potential group of customers for shopping activities. Due to the possibility to attract these group of consumers, retailers need to offer them a fair deal which is the price that students can be willing to pay for online shopping activities. Therefore, businesses should consider the reasonableness of the price aiming to reach out to consumers.

Development in delivery: It is undeniable that online shopping has a myriad of benefits, but it also contains risks that can significantly affect consumers' shopping behavior. Buyers often face risks such as loss of goods, delayed delivery, goods being damaged or not the same as described, etc. With the aim of limiting the damage and protect the rights of consumers, enterprises must focus on organizing and managing the department of processing goods orderings and delivery, having reasonable return policies, quickly handling consumer complaints about the quality of goods products.

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VIETNAM'S OPPORTUNITIES AND CHALLENGES FROM THE INNOVATION START-UP IN INNOVATION IN DIGITAL TRANSFORMATION

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Abstract

Innovation has become the "key to success" and one of the most important "benefits" in the socio-economic development strategies of most countries and territories. According to statistics, Vietnam currently has more than 1,400 organizations capable of supporting startups, of which 196 co-working zones, 69 business incubators and 28 business promotion organizations have been established. The number of venture capital funds that consider Vietnam as a target market or have operations in Vietnam is currently 108 funds, of which 23 have Vietnamese legal entities and 23 are "purely Vietnamese". In the context of digital transformation, these numbers are constantly increasing, showing the development of the ecosystem. However, innovative start-ups still face many challenges and difficulties. Within the scope of this article, the author deeply analyzes the opportunities and challenges of Vietnam from the perspective of innovation and makes recommendations to improve the effectiveness of innovation in the current digital transformation period.

Keywords: *Challenges, Digital transformation, Opportunities Start-up innovation*

1. Introduction

The fourth industrial revolution with the development platform is digital technology that has shaped the digital trend in all areas. Digital conversions are also ongoing in most sectors, sectors such as banking finance, education, health, transportation, agriculture, and other fields. Innovative innovation activity in digital conversions has opportunities and challenges to be taken to get appropriate solutions.

The concept of "start-up" has been introduced by researchers under many different approaches and research purposes. According to the concept of entrepreneurship as starting something new, entrepreneurship includes activities necessary to create or form a new business (Leibenstein, 1968) or a new organization (Gartner, 1988; Cromie, 2000).

From the perspective of a new entrepreneur/organization (business) owner, entrepreneurship is an individual taking risks to create a new and self-employed business for the purpose of getting rich (Wortman, 1987), or starting a business. Entrepreneurship is starting a new business by investing capital, or opening a business (Macmillan, 1993). Hisrich and Peters (2002) also stated that entrepreneurship is strongly related to some personal characteristics such as creativity, independence and risk-taking.

From the perspective of exploiting business opportunities, entrepreneurship is a process by which an individual perceives and evaluates business opportunities, gathers the necessary resources, and initiates appropriate actions to exploit them effectively results in business opportunities (Nwachukwu, 1990); is the discovery of opportunity and the creation of new economic activities, often through the creation of a new organization (Reynolds, 1995); is the process by which an individual searches for opportunities regardless of the resources they currently control (Baringer & Ireland, 2010) or an individual's willingness and ability to seek opportunities investment; and being able to establish and run a successful business based on recognizing opportunities in a business environment (Okpara, 2000). According to Baringer and Ireland (2010), entrepreneurship is a process by which an individual seeks opportunities regardless of the resources they currently control.

Approaching from the perspective of social responsibility, entrepreneurship is a process of renewing and making a difference with the aim of bringing wealth to individuals and creating new values for society (Kao, 1993). Tan va cong su (2005), said that it is necessary to recognize entrepreneurship from a social perspective, specifically starting a business is not only for the purpose of creating wealth for individuals and it is necessary to see entrepreneurship in terms of values that bring benefits to individuals. back to society

In Vietnam, the concept of "innovation" has been mentioned quite commonly over the past decade and is understood as "the creation and application of achievements, technical solutions, technologies, management solutions to improve the efficiency of socio-economic development, improve productivity, quality and added value of products and goods" (Clause 16, Article 3, Law on Science and Technology, two thousand and thirteen). However, in Clause 2, Article 3 of the Law on Support for Small and Medium-sized Enterprises, 2017, it is stated that "Creative start-up small and medium enterprises (who are supported under the Law) are enterprises established to carry out their ideas on the basis of exploiting intellectual property, technology, new and fast-growing business models".

Keeping pace with the global trend of digitalisation, in Vietnam, the wave of innovative start-ups started very early and won the special attention of the Party, State as well as the whole community. In the spirit of the Government accompanying businesses, over the years, the Government has had many policies to support start-up and innovation related to legal procedures, production premises, working offices, technology, human resource training, credit guarantee, receiving capital from investment funds, consumer market... such as: Resolution No. 35/NQ-CP of the Government on supporting and developing enterprises in the period 2016-2020, with a goal that by 2020, Vietnam will have "one million start-up businesses". The trend of innovative start-ups is one of the driving forces behind the development of innovative technology products, especially in the current digital economy.

Realizing the guidelines of the Party and Government, besides the Law on Science and Technology of 2013 (amended and supplemented in 2018), the Law on Supporting Small and Medium Enterprises of 2017 and many other Schemes, Decrees and Circulars On May 18, 2016, the Prime Minister issued Decision 844/QĐ - TTg of the Prime Minister

approving the project "Supporting the national innovation startup ecosystem until 2025" (Project judgment 844). This is a project developed and chaired by the Ministry of Science and Technology, with a nationwide coverage, the first and comprehensive legal document with the goal of "By 2020, perfecting the system legal system to support innovative start-ups; established the National Innovation Startup Portal; supported 800 projects; 200 startups. By 2025, support 2000 start-up projects, support 600 start-up businesses...". Implement Project 844 through the national channel of Science & Technology topics, schemes and projects under the management of the Ministry of Science and Technology, November 7, 2016, the Ministry of Science and Technology issued Decision 3362/QĐ – BKHCN on promulgating temporary regulations on handling dossiers of participation in Project 844 and on February 7, 2017, issued Decision 171/QĐ – BKHCN approving the list of orders belonging to Project 844. Project 844 began to be implemented in 2017. In recent years, the Ministry of Science and Technology has also participated in developing content on supporting innovation startups and investing in innovation startups from the Development Fund. National Science and Technology Development (NAFOSTED) in Decree 76/2018/ND-CP of the Government detailing and guiding the implementation of a number of Articles of the Law on Technology Transfer; propose solutions to attract domestic and foreign innovation startup investment in Official Dispatch No. 666/BKHCN-PTTĐDN dated March 19, 2018... along with many solutions and key policies to support start-ups and startups innovation, such as: Vietnam - Finland Innovation Partnership Program, Project to promote innovation through research, Science & Technology, Project to develop innovation and development policy developing business incubators...; and start-up events Techfest, Demoday, HatchFair, Venture Cup, Startup Weekend, Stratup Fair Danang... Besides, the Ministry of Science and Technology also directs People's Councils, People's Committees of provinces and cities directly The central government promulgates many Resolutions, Decisions, Plans and Programs on entrepreneurship and innovative start-ups...

The explosion of the digital economy and the industrial revolution 4.0 have had a great impact on the economy - culture - society, especially innovation and start-up activities. The digital economy has opened up many new opportunities and challenges.

2. Method

The study used the method of document analysis. The document includes reports from individual organizations, countries, and articles published in specialized research journals on Vietnam's opportunities and challenges from the innovation start-up in innovation in digital transformation. The data is taken from 14 reports and papers in prestigious magazines to find opportunities and challenges from the innovation start-up in innovation in digital transformation. Materials are publicly available or paid to be free to download. Comparative methods and case studies are used to synthesize, analyze, and compare policy systems. Research using SOWT method to assess Vietnam's opportunities and challenges from the innovation start-up in innovation in digital transformation

3. Results

3.1. Vietnam's opportunities from the perspective of start-ups and innovation in the digital economy

With the strong determination of the Party and Government, the innovation startup ecosystem in Vietnam has been gradually formed and developed, bringing high efficiency in all industries, professions and fields, contributing to part of solving many urgent problems of the Party, State and localities. Specifically:

The innovation startup ecosystem is growing day by day. In which, social sciences and humanities have contributed to the formulation of guidelines, lines and policies, directly the draft documents of the Party Congress; Basic science has achieved a number of achievements, some fields of natural science continue to hold high rankings in the world and in the ASEAN region. In the GII 2021 rankings, Vietnam ranks 44th out of 132 countries/economies (compared to 42nd in 2019 and 2020) after WIPO updated GDP figures according to Vietnam's new calculation (increased). about 36% compared to 2020). Recently, social financial resources for investment in science and technology have increased sharply, the proportion of investment between the State and enterprises has improved in a positive direction with the rate of 52% and 48% ... Number and The quality of S&T enterprises has increased rapidly with thousands of enterprises operating under the model of S&T enterprises. According to statistics of Echelon Magazine (Singapore), as of 2018, Vietnam has about 3,000 innovative entrepreneurship enterprises (innovation). This number is almost double the estimated figure in 2015 (about 1,800 DN). In addition, there are nearly 70 co-working spaces, 50 incubators and business promotion organizations, and a number of venture capital funds have been formed such as the Venture Capital Fund of Vingroup, Startup Viet Partner...

Besides, facing the requirements of the industrial revolution 4.0 and digitizing the economy, Vietnam has many great opportunities to develop the innovation ecosystem, especially in the field of information and communication with more than 72 million people use social networks, equivalent to 73% of the population (as of December 2020). According to Appota's report on "Mobile application market 2021" shared on May 12, 2021, Vietnam is in the TOP 12 countries with the cheapest Internet prices globally and 2nd in the East. South Asia in terms of mobile Internet speed with about 70% of the population using mobile phones, of which 64% of subscribers have 3G and 4G connections. The percentage of the population using the Internet also accounts for 70%, the number of users using the Internet via mobile devices accounts for about 95%, and on average it takes 3 hours and 18 minutes to use the Internet via mobile every day and due to the impact of the Internet. COVID-19 as well as social distancing, the growth of mobile usage per day in 2020 is 25%, from 4 hours/day to 5.1 hours/day.

In addition, with a well-developed information and communication infrastructure system and a system of policies and regulations of the Party and State creating favorable conditions, Vietnam has many opportunities to form an innovative start-up ecosystem. When it comes to innovation in the digital economy, out of about 3,000 innovative start-ups, the majority of these are startups in the field of information technology with great development potential, able to apply Implemented it into practice and achieved many positive results, such as: Project of Cheap Bus Tickets (vexere.com) - an online bus ticket booking system, after a short time of implementation, it was invested by CyberAgent Fund. Ventures, Pix Vine Capital; The Net

Loading project of a group of students from the National Economics University attracted the attention of many foreign investors or M-Service startups with the product MoMo with an investment of more than VND 600 billion from Standard Chartered Investment Fund. Private Equity and Global Investment Bank Goldman Sachs... The above examples show that the innovative start-up market in Vietnam is happening with vitality and potential, integrating early with the trend of innovative startups. creation of the region and the world countries.

3.2. Vietnam's challenges from the perspective of innovative startups in the digital economy

Although startups in the digital economy have had certain successes, however, with the rapid progress of the industrial revolution 4.0, there are still many challenges for innovative start-ups in Vietnam, such as:

Firstly, Vietnam has a large and abundant labor source, but it lacks in-depth expertise and high technology level to be able to actively apply innovation... Research by Thai Development Research Institute Lan (TDRI) research on human resources of enterprises in Vietnam shows that the proportion of research and technical staff in enterprises, including large-scale enterprises, is only less than 40%. small and medium-sized accounts for only 36.4%; support staff with more than 29.5% and the rest are human resources for other common positions. The data also shows that the proportion of enterprises that have not paid attention to R&D activities because most of the enterprises operating in the low-industry group account for 44.2% and the high-tech industry group accounts for only 17.3%. the ratio of S&T human resources is low, the number of innovative start-ups in Vietnam in the field of S&T are still limited (only about 23.9%) and very few of them are considered innovative start-ups.

Second, 97% of Vietnamese enterprises are small and medium-sized, and do not have many conditions to pay attention to investment in science and technology. Although the increase in the number of start-up businesses in Vietnam in the past time is mainly due to the spillover effects of the industrial revolution 4.0 when the ability to connect IoT increases along with many applications and sub-conditions. Other support is available than the qualitative change of the digital economy, because of the following characteristics: (1) Innovative start-ups in the field of information and communication technology do not need too much initial capital like many other traditional fields; (2) enterprises mainly rely on new ideas and highly innovative ways of doing things, fast applicability; (3) the ability to easily connect globally via IoT technology makes it easy for good creative ideas to reach the world and vice versa, businesses can easily learn from experiences from many countries around the world; (4) Enterprises have not yet paid attention to technology investment activities to catch up with the digital economy. Out of a total of 7,450 enterprises participating in the survey, only 464 enterprises confirmed to have research and development (R&D) activities, accounting for 6.23%. This shows that the majority of businesses have not yet paid attention to technology development and application activities.

Third, the shortcomings exist in the implementation of bilateral and multilateral trade agreements into life, so that businesses are aware of and participate in the global chain. The survey results of the Global Startup Network (GEN) show that Vietnam is ranked among the 20 highest start-up economies, but it is in the group of 20 countries with the lowest ability

to implement business plans. best. Part of the reason is that young startups focus on product ideas and forget about the capacity and operational capabilities of the business. On the other hand, language barriers and challenges when calling for investment capital of businesses are still difficult. Therefore, in order to call for investment capital from the world, to integrate into the "common playing field" with countries around the world, especially Vietnam's countries participating in the signing of multilateral and bilateral free trade agreements. In other words, startups, especially young ones, must improve their presentation skills, their ability to conquer customers, and how to market their products to international markets; at the same time, pay attention to international connectivity, the ability to call international experts and investors to Vietnam... to experience, learn and connect is absolutely necessary.

4. Discussion and Conclusion

4.1. Opportunity

The first opportunity for viet nam from the creation of innovative innovation in that digital transformation is an increasingly innovative innovation ecosystem. The party and the state, the government has issued many documents, forms many agencies, organizations and organizations expressing vietnam' s determination to create an innovative creation ecosystem. That creates favorable conditions for successful startup ideas.

The number of internet users is a potential market for innovative innovative innovation projects. With the number of population in the region and in the world, the percentage of internet users leading the region and asia, the internet' s use of the high - end internet demand raises high demand for traditional activities.

The increasingly developed technology infrastructure responds to market requirements and technical requirements during the transition. The technological infrastructure system ensures that the requirements of the technology activities make up the need for the use of security and infrastructure activities that are not overloaded when digital conversion is carried out.

4.2. Challenge

Human resources with scientific and technical qualifications, in fact, the proportion of untrained workers is still large, low - quality training, non - business structure, lack of skilled labor, capacity, skill and skill of skilled and skilled people in the economic, technical and professional sectors, with a high capacity and professional skill shortage ; lack of staff or professional staff. International competition with unskilled labor, cheap labor prices are increasingly inefficient and makes us weak. Low - quality development, high - quality human resource shortage is becoming a major obstacle to industrialization, modernization of the country and international integration.

Small and medium enterprises, not many conditions for scientific and technological investment. The small and medium - sized enterprises of Vietnam are not sufficiently skilled to be able to apply technology to production and business. In fact, small and medium enterprises don' t have much of an understanding of productivity improvement, quality, most of which are unskilled workers so the investment in technology is limited. In particular, for small business areas, it is a major obstacle to capital, which is very difficult to access capital sources to invest in the scientific and technological innovation

Vietnam participates in FTAs, especially the FTAs requires the business to be prepared to take care of the difficulties, challenges when the FTAs takes effect. The implementation requirements of commitments made in the CPTPP agreement are very high compared to the capacity of vietnamese enterprises. Code requirements, intellectual property of products, product quality, and environmental protection are the first problems when Vietnam's business is connected to the world. Legal issues are also complex, in the world many countries exist in parallel with the two laws of the central and local governments that force both ministries to comply with these laws. The fierce competition of other firms in the world is also one of the challenges facing vietnamese enterprises during the international integration process.

4.3. Recommendations

From research and review the difficulties of innovative startups, the article makes some recommendations to support innovative startups as follows:

First, drastically reform the education and training system, focusing on training workers and skilled workers to respond to new technologies, and linking the training of skilled workers to the needs of the workforce. technology and equipment innovation needs of enterprises. Currently, the start-up environment in Vietnam is still too young compared to many countries in the world, therefore, promoting training activities with the goal of creating a spirit of entrepreneurship - innovation - creativity in schools. , whose core role is to create seeds and incubate startup ideas. Accordingly, the State should pay attention to strongly reforming the education and training system, such as sponsoring innovative start-up training programs, supporting young scientists to participate in startup programs. innovation, undergraduate and graduate training in entrepreneurship and innovative start-ups. In addition, it is necessary to reform the education system, combine theory with practice, improve autonomy, especially at vocational training institutions, so that workers and skilled workers can meet the technology requirements. new. At the same time, the State needs to support and promote business consulting and support activities to help innovative start-ups overcome difficulties in business, investment capital, promotion and network connection. ...

Second, building infrastructure bridges and developing capital markets to provide input facilities for businesses. The State needs to build a database, create a quality science and technology business incubator, develop capital markets to provide inputs for businesses; strengthen the exchange of knowledge, experience and investment capital in educational institutions, research institutes and industrial parks; at the same time, technology transfer and technological innovation in the business environment with many developed countries start-up innovation in the world. The State also needs to focus on developing innovative start-ups to stimulate growth through financial support to the State, tax exemptions and reductions for businesses, value-added tax exemption and reduction. social insurance contributions..., develop more capital raising channels for innovative startups, establish venture capital funds, call for private participation in venture capital activities for innovative start-ups, especially during the time when the COVID-19 pandemic is still complicated, economic recovery and development is essential.

Third, amend the legal framework and mechanism, and have specific policies for enterprises to innovate. In order to have a high-tech infrastructure, the State needs to build a

"start-up nation" with a comprehensive national startup program, such as: Building an institutional framework to support start-up activities including policies on procedures for establishment, tax, investment, commercialization of technology products, etc. At the same time, the State needs to study carefully to come up with a national strategy to actively support start-up activities. innovate, enhance online and offline infrastructure; strengthen cooperation between startups, build a platform for finding partners, a platform for networking and events, a virtual portal...

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DIGITAL ECONOMIC DEVELOPMENT EXPERIENCE OF SOME ASIA COUNTRIES AND POLICY IMPLICATIONS FOR VIETNAM

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Abstract

In the context of the fourth industrial revolution, the digital economy is an inevitable development step in line with the development trend of the global economy when the traditional economy is gradually becoming saturated. The digital economy helps businesses innovate production and business processes to an ecosystem model, linking from production, commerce to consumption, etc. to bring about high labour productivity. The digital economy is also the development path which many countries around the world have successfully implemented that Vietnam can learn from. Accordingly, within the framework of the article, the author studies the experience of developing the digital economy of some Asian countries with high growth rates such as Korea, China, and Singapore, thereby drawing some important policies that are valuable references for Vietnam in the coming time.

Keywords: *Digital economy, Experience in developing digital economy*

1. Introduction

Digital economy is an economy that operates mainly based on digital technology, especially electronic transactions conducted through the Internet. Digital economy includes all sectors and economies (industry, agriculture, services; production, distribution, circulation of goods, transportation, logistics, finance and banking, ...) that which digital technology is applied. Essentially, this is the organizational model and mode of operation of the economy based on the application of digital technology. The digital economy is also an inevitable trend of the world's economy in the near future when the value and contribution of many traditional economic fields are showing signs of decline over time.

Recognizing the importance of the digital economy to the country's development, on September 27, 2019, the Politburo issued Resolution No. 52-NQ/TW "On a number of proactive undertakings and policies participating in the Fourth Industrial Revolution", has set a goal: by 2025, the digital economy will reach about 20% of GDP; by 2030, the digital economy will account for over 30% of GDP. To implement the above policies, on June 3, 2020, the Prime Minister issued Decision No. 749/QĐ-TTg "National Digital Transformation Program to 2025, with orientation to 2030", with the following objectives: Vietnam will be in the top 50 leading countries in e-government, related to the development of the digital economy, improving the competitiveness of the economy. To achieve that goal, in addition to the great efforts and determination of the Ministries, Departments and the

whole citizens, it is important to study the experiences of countries with achievements in the development of digital economy such as Korea, China, and Singapore for reference.

2. Method

The article uses research methods including analysis and synthesis, comparison, systematization, etc... to analyze and clarify the development experience of the digital economy in Korea, China, Singapore. In addition, the article also exploits data from research projects on the digital economy in Vietnam and abroad to provide more data on the results achieved by Korea, China, and Singapore in digital economy development.

3. Results

3.1. Experience of Korea

Korea is a country that attaches great importance to developing the digital economy and has become one of the leading countries in the field of digital economy in the world. In developing the digital economy, Korea focuses on the following areas:

Firstly, focusing on building e-government (E-government). E-Government is the application of information and communication technology for government agencies to innovate, work more efficiently and transparently, and provide better information and services to people, businesses and organizations; at the same time, creating more favourable conditions for people to exercise their democratic rights in the process of participating in state management. Based on the application of information and communication technology, the purpose of e-government is to provide more effective administrative services to the people. The more online services are provided, the more people use them and the more influential e-government becomes.

Korea focuses on building e-government to promote the transformation of the digital economy. The first efforts in building e-government in Korea were carried out in the late 80s of the 20th century with the implementation of the National Basic Information System (NBIS) project, which focuses on deploying information technology applications nationwide. Thousands of public services have been performed through electronic forms across central, regional and local government websites.

Korea has been very successful in building e-government and is always in the top 10 most developed countries in terms of e-government. From the beginning, Korea has methodically implemented e-government construction with the issuance of legal documents to create a legal corridor for information-technology application activities to build e-government. The Korean government has designed many development assistance programs for the three basic elements of e-government called: Technology, human resources and standards of e-government, focusing on deploying information technology applications nationwide.

Second, the policy of universalizing the Internet to citizens. In order to develop the digital economy, Korea actively implements internet policies for their citizens. In 2020, the percentage of Korean households connected to the internet reached 99.2%, ranking first among 175 countries of the International Telecommunication Union (ITU). According to the Akamai Internet Research Organization, Korea is currently the country with the fastest internet

connection speed in the world, surpassing both Japan and the US. The success in popularizing high-speed internet in Korea today is, first of all, thanks to the Korean Government's timely and vigorous implementation of initiatives on education and information technology infrastructure, which helps to improve the quality of the Internet. This makes a perfect start and internet universalization policies continue to be effectively implemented.

Along with that, Korea is also a leader in new technology trends, including 5G. According to market research firm Strategy Analytics, the number of 5G smartphone users in South Korea reached 5.5% in 2019 and increased to 10.9% in 2020. This is the highest number among countries globally. It is forecast that 5G technology will contribute \$1.3 trillion to global GDP by 2030, of which South Korea's contribution is \$30 billion (Pwc.com/economic-impact-5g, 2021).

The success in using high-speed internet is due to the Korean government's focus on investing in educational activities to raise people's awareness and skills to use the internet. For example, the project of Internet education for 10 million people through the application of Internet infrastructure for schools to create an educational broadcasting system to provide educational radio programs on the Internet platform. The government also provides many scholarships and study joint programs in developed countries, especially the US, to encourage more people to study this field. As a result, after returning from training, these people have made a certain contribution and influence to the development of Korea, as well as opening up new majors, introducing new industries and leading new industries. important development projects. In addition, the Government also has many activities and programs to improve capacity and skills in using information technology in education such as: Support and development of digital textbooks; Cybersecurity education and electronic signature certification; Strengthening global cooperation for the use of information technology in education; Activities of the National Center for Quality Management of E-Learning, etc. In addition, the Government also has a policy of free information technology education for those who have little opportunity to interact with information technology (people who are not interested in information technology). housewives, soldiers, the elderly, the disabled and even prisoners).

Third, developing e-commerce. With the successful internet universalization policy, Korea's e-commerce sector has exploded. The Korean government allows the use of online signatures in electronic commerce (e-seal system) with full legal status as signatures on paper documents. This regulation was enacted in 1999 and allows electronic signatures to be used as evidence in legal matters. To enhance security in e-commerce, the Korean Government has also developed regulations related to the security of personal information and guided the private sector to use encryption technology. Along with that, e-commerce has grown strongly in Korea, accounting for over 40% of commercial transactions. Korea's e-commerce market size ranks seventh in the world and third in Asia. According to the report of the National Bureau of Statistics of Korea (KS) published on October 5, 2020 on "Online shopping trends in August 2020", showing that the value of online shopping transactions (using computer computers and mobile phones) in South Korea in August 2020 reached 14,383.3 billion won (about 12.37 billion USD), up 27.5% from a year ago. This is a record

high since Korea started implementing this activity in January 2001, and also the second-highest increase after 30.7% in October 2018 (Ministry of Industry and Trade, 2020).

3.2. China's Experience

China is a leader in e-commerce and digital payments. According to the "White Paper on Developing China's Digital Economy (2021)" released by the China Academy of Information and Communications Technology, China's digital economy proportion in GDP has been increased annually from 14.2% in 2005 to 38.6% in 2020. The digital economy in China grew at an average of 16.6% in the period 2015-2020, the highest in the world; and in terms of scale, ranking second in the world (after the US) (Tran Chi Nam, 2021). Compared to other countries in the world, China has an advantage in market size. In terms of changing and creating large-scale consumption habits, this is a big challenge for many countries, but China has succeeded. This outcome depends on many factors, but above all, this is because the Chinese government has created a favourable environment to support digital service providers. Along with that, there are favourable policies to promote the development of the digital economy such as:

Firstly, the Chinese Government creates favourable conditions for businesses in building a legal corridor. The Chinese government encourages inventors and entrepreneurs to invest in digital technology by spending a certain amount of time helping businesses test and perfect their services before the Government applies legal regulations. specific governing law. For example, the Government introduced a ceiling on transfer limits 11 years after Alipay introduced online money transfers (in 2005); in 2010, the government issued a request for a third-party payment service business license after 7 years Taobao - China's most online shopping website made its first online payment transaction (in 2003); in 2016, the Government issued the standard regulations for the barcode-based payment service 5 years after Alipay introduced this type (in 2011) (Mckinsey Global Institute, 2017).

On the other hand, the Chinese Government is gradually completing the legal corridor to protect the benefits of digital service providers by tightening sanctions on intellectual property rights. A 2010 survey found that copyright infringements led to a loss of about \$15 billion in the software sector in China (Mckinsey Global Institute, 2017). However, China has made efforts to promote the opening of specialized intellectual property courts in Beijing, Guangzhou and Shanghai, which has gradually helped shape a healthier digital market and the compliance of intellectual property laws have been significantly improved.

Second, the Chinese government has supported the digitalization of the economy with various roles. The Chinese government is not only a manager but also a participant in the process of promoting the digitalization of the economy with many different roles. First of all, in order to encourage the digitalization of the economy, the Government has pioneered in actively applying the most advanced technologies in the world to the management, operation and distribution of Government's public services. Specifically, in 2015, the Government issued a blueprint to integrate the Internet, cloud computing, big data and the Internet of Things with traditional manufacturing and consumer industries. Accordingly, government agencies are the first pioneers. In June 2017, the city of Shanghai opened its

first web portal, which integrates e-commerce companies providing logistics, data analysis, financial and related legal services,... Zhejiang Province has run pilot programs to roll out an online utility of social security cards that allows citizens to pay for health insurance via the Internet and mobile phones.

Next, as an investor, the Chinese Government provides financial support for digital technology development projects or the application of advanced modern digital technologies. Since 2016, China's National Development and Reform Commission, the government's economic development strategic planning agency, has announced the three-year action plan of Internet Plus Artificial Intelligence, which enables institutions of Government agencies to fund projects related to the plan from budgets controlled by central and local governments. The plan aims to build an artificial intelligence ecosystem, including smart home appliances, smart cars, etc.

Third, develop e-commerce. China's rapidly growing digital economy represents a spike in e-commerce transactions. China is now the world leader in e-commerce and manufacturing. The country has more than 1.3 billion mobile Internet users, the largest online shopping population, the largest volume and the highest rate of mobile payments in the world. According to the China Statistical Yearbook 2020, in 2019 up to a quarter of retail transactions took place online, totalling \$1.8 trillion, and more than 90% of these were mobile payments. Millennials (born in 1980-1994) and Generation Z (born in 1995-2009) make up nearly 40% of China's population, and are netizens who represent the most powerful force in the domestic consumer market. Mobile Internet has become an indispensable part of their daily life. (Thai An, 2021).

China's digital economy is characterized by the strong development of digital media and e-commerce with the presence of 3 giant domestic suppliers including: E-commerce (Alibaba); Online games and social networks (Tencent); Search engines (Baidu). Each year, Alibaba e-commerce Group handles more purchases than that of both Ebay (the American company that runs the eBay.com website) and Amazon (the American multinational technology company)⁶. With strengths in online games and social networks, Tencent is currently the 10th most valuable company globally (about 275 billion USD). Baidu is the dominant company in the search engine segment in the domestic market after Google had to withdraw from the market due to censorship.

Fourth, establishing e-government. In 2004, China advocated the establishment of e-government by developing electronic signatures. State agencies at central and local levels set up their own websites, providing many online services to facilitate people's lives. China strongly develops e-banking, Internet-based P2P (Peer-to-Peer) lending methods. In 2016, China's total P2P transaction volume reached 2.06 trillion CNY, more than doubling in just one year and equivalent to 12% of total bank loans renewed. In 2018, there were about 50 million people participating in the P2P lending platform, with a total outstanding loan of 1.3 trillion CNY (\$192 billion). Currently, China is the leading country in the global P2P lending market. The form of cash payment is decreasing and being replaced by modern electronic payment methods such as scanning QR codes, paying with e-wallets. Many basic products

allow mobile payments. The two most popular electronic payment applications in China are Tencent's Wechat Pay (Tenpay) and Alibaba's Alipay. The size of the mobile payment market in China has increased sharply and reached 1.2 trillion USD in 2018. E-government helps to improve the efficiency of public services through digitalization. According to the United Nations E-Government Index, the digitalization of public services in China ranks 63rd out of 193 countries surveyed.

3.3. Singapore's Experience

Singapore is digitizing its economy on a strong foundation. Singapore ranks first in the Global Fintech Rankings released by the Institute of Financial Services (IFZ), surpassing traditional financial markets such as Zurich and New York, and third in the Bloomberg's 2018 Innovation Index. Over the past time, Singapore has implemented many policies to develop the digital economy.

Firstly, focusing on building digital infrastructure. Improving the digital infrastructure at all 3 levels: Government, businesses and households, Singapore focuses on developing fibre optic systems, improving the speed of information transmission. In the period 2012 - 2016, thanks to the development of 4G mobile networks, the Internet connection speed has increased from 5.4 Megabits per second (Mbps) to 20 Mbps, on par with Japan and Finland, among the top countries with the fastest 4G connection speed in the world. Faster Internet speeds spur Singaporean households to increase digital adoption in their operations.

For 5G networks, the Singapore Information and Communications Development Authority (IMDA) has set aside S\$40 million (US\$29.53 million) to support research and development efforts as well as enhancing application 5G, including vertical-focused initiatives such as urban and maritime mobility. Singapore is expected to start rolling out its 5G network in early 2020 and cover more than 50% by the end of 2022 and the entire country by 2025 (Paul Budde, 2017). In addition, the government of this country also requires that the two initial operators developing the 5G network will have to provide wholesale services to other network operators to increase competitiveness and scalability.

Second, implementation of national initiatives/visions. The "Smart Nation" initiative was launched by Prime Minister Ly Hien Long in 2014 with the goal of making Singapore the world's first smart country and a model for other countries. The smart nation platform is set up with many important features to support individuals, governments and businesses, focusing on 3 aspects: connectivity, income and understanding.

Singapore has developed a specific roadmap for the implementation of the initiative. In the first phase, Singapore identified five key areas including: transport, housing and environment, business efficiency, health and public services with a commitment to facilitate infrastructure and policy so that every initiative and idea has the opportunity to form and test, even if there are risks. Information technology is identified as the core to realize the Smart Nation goal, which focuses on 3 priorities: technology to support society; mobility and intelligent traffic; secure data environment. The government also pledged to invest about 1% of GDP each year in research and development. Those decisions have yielded impressive results. Information technology has become a part of life in Singapore, 75% of households have at least one

computer, over 50% have a broadband connection to access the Internet. The information technology industry has contributed to 6.5% of the country's GDP. (Paul Budde, 2017).

Third, non-cash payment, this is an important condition for the development of the digital economy. To accelerate cashless payments, the Government of Singapore has established a working group with the participation of the Monetary Commission of Singapore and the Information and Communication Development Board of Singapore along with stakeholders such as banks, payment schemes, QR payment service providers, and government agencies to develop a rapid payment system using a common QR code to make universal payments across the country. Previously, the Monetary Authority of Singapore launched an initiative with 2,000 POS systems (machines that accept card payments) for uniform payment at 650 retail stores across the country, POS machines supporting payment of many different services and banks, including payment services of Samsung Pay and Apple Pay. Currently, Singapore is the strongest e-commerce developer in the ASEAN region with an e-commerce index of about 56% - 57%, e-wallet services also developing strongly, the percentage of people using e-wallets doubled in 2015, accounting for 23% of the total population and more than 41% of all online shoppers.

Fourth, developing the information and communication technology (ICM) industry. Singapore develops the ICM industry as a fundamental driving force for the development of the digital economy with 12 sub-sectors that produce or promote the development of digital goods and services (hardware, telecommunications, information technology services, software, games, online services, printing, postal and courier services, publishing, broadcasting, film and video, music,...), thereby playing an important role in enabling conditions for the adoption of digitization among households and businesses.

To develop the ICM industry, the Singapore Government focuses on equipping new skills and enhancing the digital capabilities of the workforce across the economy; strengthening research and innovation capacity; promulgate policies, regulations and standards for the development of the digital economy in line with the development purposes of the country's digital economy, and at the same time ensure compliance with high standards of the world; continuously ensure the development of digital and physical infrastructure to meet the rapid increase of businesses using digital technology. From 2011 to 2015, the nominal value-added of the ICM industry grew at an average of 7.2%/year, faster than the average growth rate of 4.2%/year of the whole economy. Employment growth in the ICM sector in the same period reached 2.5%/year, although it was slower than the overall employment growth of the economy (3.2%/year). Accordingly, the productivity of the ICM industry in terms of nominal value added per worker increased by more than 4.6%/year, much higher than the general productivity growth of the economy (0.6%/year) in the period 2011-2015 (Paul Budde, 2017).

3.4. Digital economy development in Vietnam and suggestions from the experience of some Asian countries

3.4.1. Overview of digital economic development in Vietnam

With a population of nearly 100 million people, as of June 2021, the number of Internet users is 70 million. Vietnam is considered as one of the countries with a good digital

economy development rate in the ASEAN region. The Vietnamese government also clearly shows its determination, orientation and strong action efforts in promoting the development of the digital economy. In the long-term strategic vision, the Report "Vietnam 2035: Towards Prosperity, Innovation, Equity and Democracy" sets out the task of taking advantage of the industrial revolution 4.0 and the digital economy to achieve the goal of exiting the country "middle-income trap", sustainable development, putting Vietnam in top 20 largest economies in the world. Next, Resolution 01/NQ-CP on January 1, 2019, of the Government of Vietnam on the main tasks and solutions to implement the socio-economic development plan and the State budget estimate in 2019, set out tasks to promote the digital economy.

With the Government's efforts, Vietnam's digital economy is making continuous development steps, according to the "Southeast Asian Digital Economy 2019" Report published by Google, Temasek and Bain in October 2019. Vietnam's digital economy in 2019 is worth 12 billion USD (contributing 5% of national GDP in 2019), 4 times higher than the value in 2015 and is expected to reach 43 billion USD in 2025 (up from the forecast previously reported at 30 billion USD) with the fields of e-commerce, online travel, online media and ride-hailing technology. Among the 7 major cities with the strongest digital economy development in the region, Vietnam has 02 representatives, which are Hanoi and Ho Chi Minh City. Vietnam became the third largest investment recipient market in the region (after Indonesia and Singapore), with \$600 million in investment in the period 2018 to the first half of 2019 compared to a total value of \$350 million in 2018 and \$140 million in 2017. Research by Data 61 (Australia), Vietnam's GDP could increase by about \$162 billion in 20 years if Vietnam's digital transformation is successful (Tran Mai Uoc, 2021)

To enhance access to the digital economy, Vietnam has deployed 5G trial licenses for some network providers such as Viettel, VNPT, MobiFone... which are considered launch in reality in Vietnam in 2021 to improve connections and transactions of members in the economy. Fixed broadband Internet rates in Vietnam are among the lowest in the Asia-Pacific region (converted according to purchasing power parity). In addition, in order to have more premises for the development of the digital economy, the postal industry has shifted to developing in the direction of e-commerce, strongly applying digital technology, forming a number of large companies as the core; building a system of postal codes to each address, completing the project of providing public services through the postal system...

Along with that, telecommunications infrastructure has been transformed towards digitalization, increasing transmission capacity, reducing access costs. At the same time, popularizing smartphones, planning 5G frequencies, testing payments via smartphone applications (mobile money), dealing with telecommunications waste problems, etc. The leading companies in the digital platform are and will be moving in the direction of bringing a lot of services on the same application, while still having a core business service to retain users. Some businesses also choose the form of symbiosis, cooperate to expand the inventory of products and services.

However, besides the achieved results, the digital economy in Vietnam is still facing many difficulties and challenges. That is the imbalance between fields and regions,

disadvantaged people in remote areas who have difficulties in accessing the digital economy. Legal issues, network security and ensuring user privacy. Awareness, habits and quality of human resources in Vietnam are not "ready" for the digital economy. The annual Vietnam economic report published by the Vietnam Institute for Economic and Policy Research (VEPR), University of Economics, Hanoi National University published at the end of May 2019 shows that up to 85% of Vietnamese industrial enterprises is still outside the digital economy, only 13% at the beginner level. Vietnam is facing a shortage of high-quality human resources, especially information and communication technology human resources. Awareness of the digital economy, demand and actions in the digital economy is still slow, uneven, and unified from top to bottom, from the government to businesses and people which slow down the trend of digitization of the Vietnamese economy.

3.4.2. Some policy implications for Vietnam

From the practice of developing the digital economy in Vietnam and through studying the experience of developing the digital economy of some Asian countries with a developed digital economy such as Korea, China, Singapore, the article draws some policy implications to promote the development of the digital economy in Vietnam in the near future:

Firstly, the perception of resource allocation for the digital economy. From the lessons of Korea, China, and Singapore, shows that to successfully develop the digital economy, it is necessary not only to promote the development of information technology but also to comprehensively digitize all areas of life, shifting the focus from building digital infrastructure to the application of digital technologies to enhance the value and quality of digital economic development. Digital economic policy is essentially a digital socio-economic policy that covers all aspects of the country's development. Therefore, there is a need for a unified awareness of the position, role and connotation of the digital economy in policy making and formulation in Vietnam, especially in government agencies. Hence, having an accurate positioning and orientation of the digital economy as well as a reasonable and effective resource allocation for implementation in practice.

Second, developing mechanisms and policies to support businesses and individuals to research and test new technologies. Digital technology applications will be leveraged to promote innovation of individuals and businesses, therefore, encouraging businesses to make the most of the power of digital technology must be a high priority. Accordingly, it is necessary to have strong support from the Government with an open management mindset in order to "untie" and support businesses, especially small and medium-sized enterprises to enhance innovation and creativity. At the same time, the Government also needs to support businesses to cooperate with research institutions and organizations in the country and abroad to connect and share in digital business development related fields.

Third, improving the quality of digital infrastructure. Vietnam needs to improve the quality of digital infrastructure to ensure the development of a digital economy that is still in the developing process. There is a need for coordination and investment of both the public

and private sectors in upgrading digital infrastructure as well as modern digital technology solutions to be able to deploy intelligently connected applications, accelerate non-cash payment applications, etc. The government and businesses need to continue to invest in 3G and 4G networks and deploy 5G services to keep up with world technology. 5G technology is going to create good infrastructure for the Internet of Things, opening up many great business opportunities for Vietnamese businesses.

Fourth, paying attention to the training of information technology human resources. The information technology human resource training program should aim to accelerate the socialization of information technology education, especially updating the information technology training curriculum in association with new technology trends such as the connected Internet of Things (IoT), artificial intelligence (AI), robotics technology, creating conditions for students to access this field as soon as possible, promoting connection between training and practice between schools and the business sector in information technology application. Policies to promote information technology and human resources must have clear priorities while taking into account disadvantaged groups in society such as people with disabilities, farmers, women, etc. to promote equal development. At the same time, it is necessary to build a pivotal role workforce, sufficient in quantity and satisfying in quality to serve the requirements of digitalization in all areas of social life.

Fifth, building and perfecting institutions and laws, creating a legal framework for the development of the digital economy. The Government needs to urgently review, amend and supplement legal regulations to improve the legal framework, mechanisms and policies for the development of the digital economy and digital society, including: amending the Law on Electricity Transactions in the direction of adding new contents on the digital economy in line with the developing requirements of the field, formulate the Government's Decree on the management of the platform economy and business on the Internet. finalize and issue the Decree on electronic identification and authentication, finalize and submit for approval the Decree on personal data protection in order to create a safe and secure digital transaction environment., promulgate regulations on codes of conduct in the digital environment as well as regulations to create trust and assess credit in cyberspace.

4. Conclusion

In summary, from the experience of some Asian countries with developed digital economies such as Korea, China, and Singapore, shows that Vietnam can learn experiences from the pioneered countries in the field of digital economy in order to develop an overall strategy for digital economic development which is suitable for each development stage of the country, as well as build a modern digital infrastructure foundation and framework to support businesses and people. Along with that, the open mechanism and the Government's support for businesses, organizations and well-trained and professional staff working in the field of information technology will be the important factor, promoting Vietnam's digital economy to develop rapidly and sustainably.

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DEVELOPMENT OF E-COMMERCE IN VIETNAM: OPPORTUNITIES AND CHALLENGES

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Abstract

Vietnam's e-commerce has had a remarkable development in recent years of the globalization process and international economic integration of the country. However, the development of e-commerce in Vietnam is also facing many challenges that need to be overcome. This study analyzes the current development situation of e-commerce in Vietnam and points out the opportunities and challenges for the development of e-commerce in Vietnam in the coming time. Based on the analysis of opportunities and challenges, the study has made recommendations to develop e-commerce in Vietnam in the future.

Keywords: *e-commerce, development of e-commerce, opportunities and challenges*

1. Introduction

There are many different interpretations of "E-commerce" (Electronics Commerce, E-commerce for short). According to IBM, the company that started the concept "E-commerce" is what happens when combine the vast capabilities of the Internet with information and communication technology systems. Here the scope of the e-commerce system includes personal local area networks (Private Intranets), shared supplementary networks (Shared Extranets) and the Internet. The Web is a tool that links sellers with buyers, suppliers and employees. A broader approach, e-commerce is a form of commercial activity by electronic methods, it is the exchange of commercial information through electronic means that generally do not need to be printed during any stage of the transaction process (called "undocumented trade").

Vietnam's e-commerce has had a strong development in parallel with Vietnam's deep economic integration into the global economy over the past time, and e-commerce development is inevitable help Vietnam take advantage of opportunities brought by information and communication technology. E-commerce offers consumers an advanced form of shopping and business, based on the network environment, eliminating boundaries and distances between countries.

Recognizing the importance of e-commerce. the Party, Government and State management agencies have issued a series of programs, plans and legal documents regulating the activities of e-commerce. In the National E-commerce Development Master Plan for the period 2021 - 2025 approved by the Prime Minister in Decision No. 645/QD-TTg dated May 15, 2020, also identifies It is clear that in the coming time, the role of e-commerce will be one of the pioneering fields of the digital economy, helping businesses

improve their competitiveness and develop export markets, and at the same time, e-commerce will also be an effective tool helping Vietnamese businesses overcome difficulties and promote development after the Covid-19 pandemic. E-commerce businesses are increasingly investing to develop this business in Vietnam in order to capture the opportunities brought by e-commerce. However, opportunities also come with many challenges that require governments and businesses to have new solutions to take advantage of opportunities and turn challenges into opportunities for the development of e-commerce in Vietnam in the future.

2. Method

The article uses qualitative research methods, based on the analysis and evaluation of documents and data of a number of agencies and organizations. The article uses the survey results of more than 5000 businesses by the Vietnam E-commerce Association in 2020 to build the E-commerce Index Report. Statistical results of a survey of more than 8000 enterprises by the Department of E-commerce and Digital Economy - Ministry of Industry and Trade in the E-commerce White Paper 2020. The data is used to assess the development status of e-commerce in Vietnam and see opportunities as well as challenges for the development of e-commerce in the coming time.

3. Results

3.1. The current situation of e-commerce development in Vietnam in recent years

Internet officially appeared in Vietnam in 1997. The period 1997 - 2000 marked the existence and development of the internet in Vietnam. However, at this time, internet access speed was still very slow, and the number of users was limited. The period from 2000 to 2004 marked the formation and development of e-commerce in Vietnam with the introduction of a number of forums that laid the foundation for online advertising and sales activities on the internet.

From 2005 to now, e-commerce in Vietnam has developed rapidly and has undergone many changes, many new e-commerce models have appeared, diverse in terms of participants, complex in nature of operations, and business methods platform-based and take advantage of the unique features of the electronic method. Commercial activities using electronic media are also increasingly diversified, through computers, phones, tablets, and e-commerce activities are not only limited to websites but also to applications on mobile devices.

From 2016 up to now, Vietnam's e-commerce has grown at a much faster rate than in previous periods in many aspects.

Number of business and personal accounts registered on the Portal of Information and e-commerce management activities increased significantly. If in 2016 there were only 19,456 business accounts. In 2020, the number will increase to 52,880, 2.7 times higher than in 2016, and 7,170 personal accounts in 2016, 4 years later it will increase to 17,423, 2.4 times more times compared to 2016.

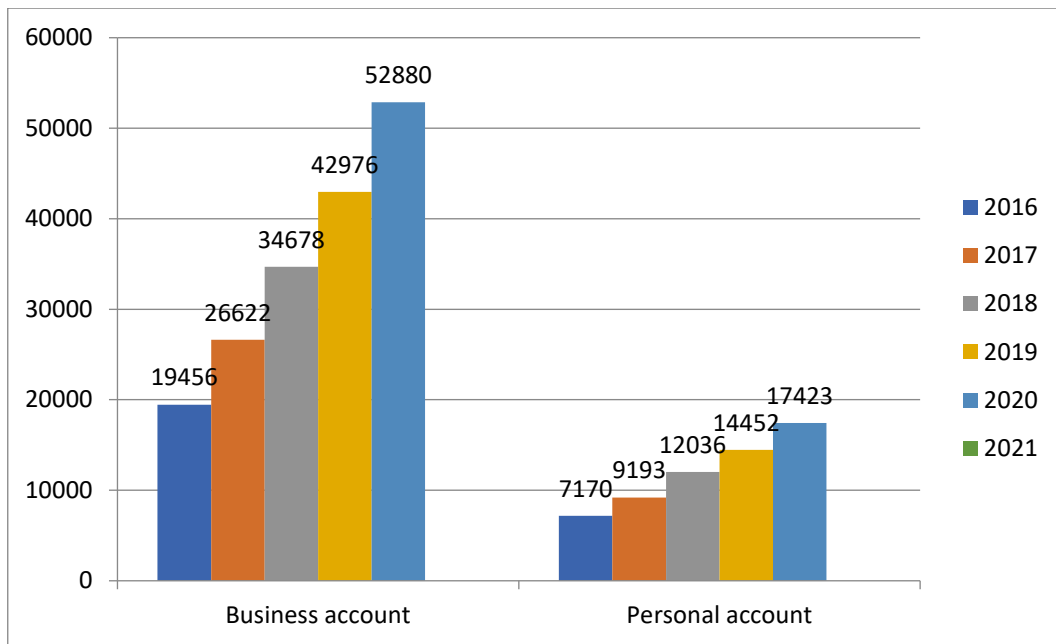


Figure 1. Number of accounts registered on the Portal of Information and E-commerce management for the period 2016 - 2020

Source: iDEA, 2021

In terms of scale, with a low starting point of about 4 billion USD in 2015, but high average growth rate for three consecutive years, the size of the e-commerce market increased to about 11.5 billion USD in 2019. Accordingly, the average growth rate of e-commerce in the period 2016-2019 is about 30%. The e-commerce Index report estimates that in 2020, our country's e-commerce will grow by about 15% and reach a scale of about 13.2 billion USD (Vecom, 2021).

Despite the negative impacts in 2021 due to the COVID-19 pandemic, Vietnam's digital economy in general and the e-commerce sector still have strong acceleration steps, becoming one of the growing e-commerce markets fastest in Southeast Asia. According to the e-Economy Southeast Asia 2021 Report conducted by Google, Temasek and its partner Bain & Company have published specific data on Southeast Asia's digital economy, including the six largest markets, Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam. The report shows that Vietnam's digital economy in 2021 is expected to reach a total value of 21 billion USD - an increase of 31% compared to the previous year. In which, the field of e-commerce increased by 53% ride-hailing and technology food increased by 35%, marketing, entertainment and online games increased by 30%, and online travel alone decreased by 45%. This is a clear proof that Vietnam's e-commerce industry has successfully overcome the difficulties caused by Covid-19 and is thriving in the context of the "new normal life". This development is even more dramatic than in the pre-pandemic era. The report also predicts that Vietnam's digital economy has the potential to break through to 57 billion USD by 2025. With the rapid change towards digital transformation of businesses and online shopping of consumers, it can be identified that Vietnam's e-commerce continues to make steady progress and maintains a fast and sustainable development for the whole period of 2021 - 2025 as predicted by the e-commerce Index report of previous years.

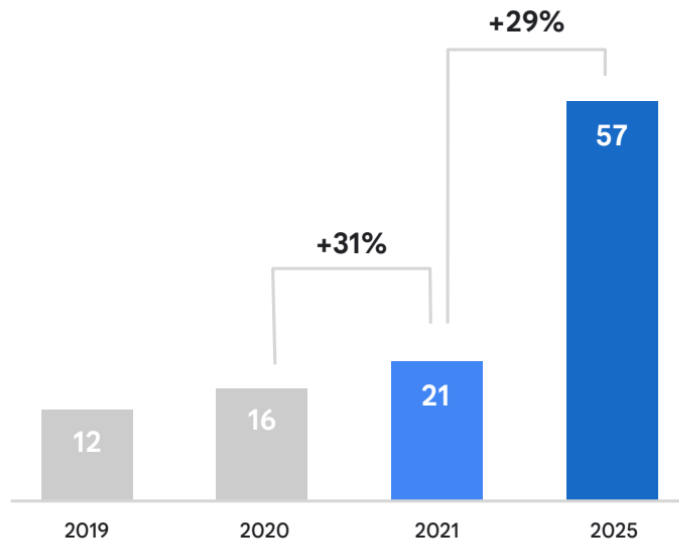


Figure 2. Scale of Vietnam's digital economy

Source: Google et al. 2021

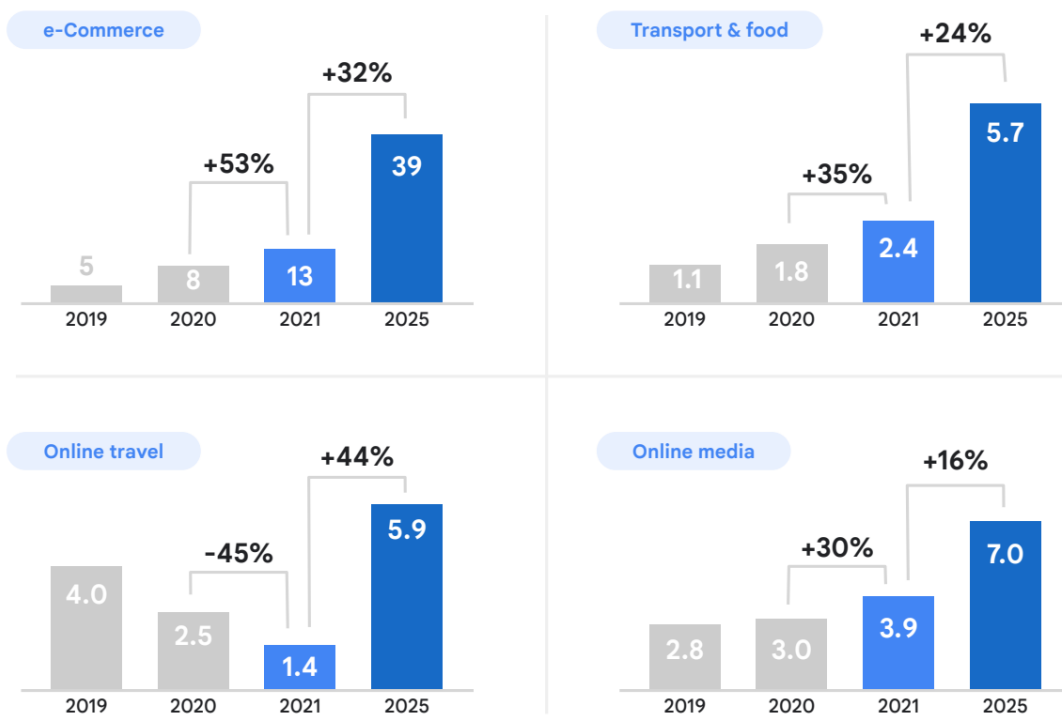


Figure 3. Vietnam's digital economy by sector

Source: Google et al. 2021

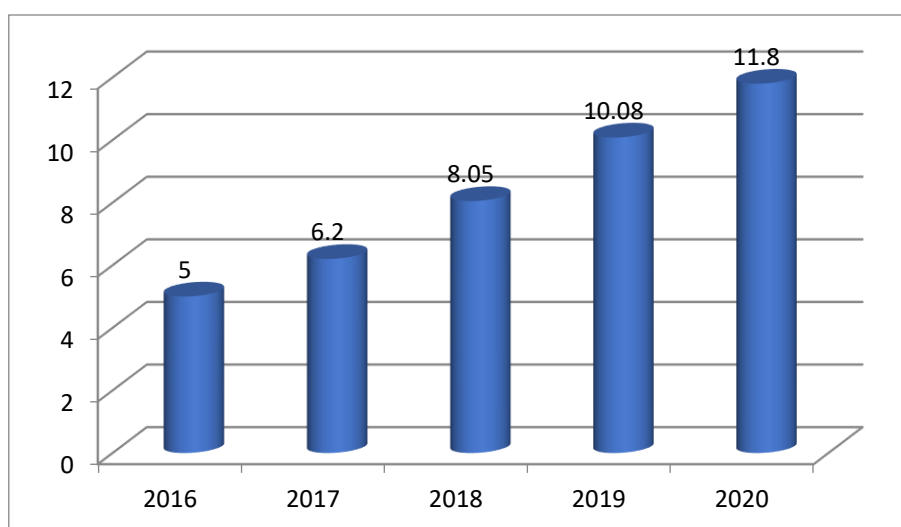
Over the past years, Vietnam has continuously recorded strong growth in both the percentage of people using the internet as well as the number of consumers shopping online and shopping value. It is estimated that the number of consumers shopping online in 2020 is about 49.3 million people. The percentage of internet users participating in online shopping in 2020 in Vietnam accounted for 88%, while in 2019 it was 77% (iDEA, 2021).

Table 1. Size of retail e-commerce market in Vietnam period 2016 - 2020

	2016	2017	2018	2019	2020
Estimated number of consumers shopping online (millions of people)	32,7	33,6	39,9	44,8	49,3
Estimated value of one's online shopping (USD)	170	186	202	225	240
Proportion of B2C e-commerce revenue to the total retail sales of goods and services for the whole country (%)	3,0	3,6	4,2	4,9	5,5
Percentage of people using the Internet (%)	54,2	58,1	60,0	66,0	70,0

Source: iDEA, 2021

In addition, in 2020, the average online shopping value of each user is about 240 USD, higher than in 2019. During the COVID-19 pandemic, about 57% of consumers said they had order more online. As a result, B2C (business-consumer) e-commerce revenue continuously increased sharply. If in 2016, this number only reached 5 billion USD, by 2019 it has doubled, reaching more than 10 billion USD and in 2020 it is 11.8 billion USD.

**Figure 4. Vietnam B2C e-commerce revenue in the period 2016 - 2020 (billion USD)**

Source: iDEA, 2021

Vietnamese consumers have gradually formed a new shopping habit. Vietnam has seen 8 million new digital consumers since the start of the pandemic (to the first half of 2021), with 55% of them coming from non-major cities. Retention of engagement remains high when 97% of new consumers are still using services and 99% intend to continue using shopping services. People who used services before the pandemic have consumed an average of 4 more services since the pandemic (Google et al. 2021).

Among online shopping channels, e-commerce websites and e-commerce trading floors in 2020 increased dramatically, with the percentage of buyers skyrocketing from 52% to 74%. Meanwhile, the percentage of people making purchases on forums, social networks and mobile applications decreased previous year (iDEA, 2021).

Payment for online shopping is still mainly in the form of cash on delivery (COD), but in 2020 this rate has decreased from 86% to 78%. In particular, the rate of payment via e-wallets and credit, debit and scratch cards has increased over the previous year (although the level is still low) (iDEA, 2021).

3.2. Opportunities of e-commerce in Vietnam

With the new development trend of the world economy and the drastic change in Vietnam's economic development strategy, there has never been a time when e-commerce has had a great opportunity to develop as in the present period:

Firstly, in the economic development orientation of the Government, e-commerce development is an important and strategic goal. Promoting digitalization is considered a national goal by the Vietnamese Government, and the "National Digital Transformation" project is highly expected by the Government by 2025, of which 50% of small and medium-sized enterprises will shift to the platform. number; digital industry reaches at least 25% of GDP; Develop at least 80,000 Vietnamese digital technology enterprises. In addition, Vietnam aims to reach 50% of non-cash payments in e-commerce, of which payments made through intermediary payment service providers account for 80% (Prime Minister, (2020b)). To achieve this goal, Vietnam's startup environment and policies need to be focused. The national start-up ecosystem is gradually being formed with a very high rate of start-up projects in the fields of information technology and e-commerce, accounting for about 35% compared to the remaining industries. This is a very good opportunity for Vietnam's e-commerce ecosystem to be formed and thrive in the coming time.

Second, the 4.0 Revolution is shaping and creating opportunities for Vietnam's e-commerce sector and the e-commerce ecosystem to move to a new stage of development based on the foundation of big data (Big-Data), chain block-chain, automation, and the Internet of Things (IoT). The Vietnamese government currently has a strategic orientation for the approach and readiness to adapt to the Industrial Revolution 4.0, which will create an important premise for the development of e-commerce in our country.

Third, with the strong development of information technology and the popularity of smartphones, the percentage of Internet participants will increase steadily in the period 2015-2019, from 54% to 66% of the population, will be an important foundation, creating favorable conditions for the development of e-commerce. In addition, the widely used online payment models of Nganluong.vn, Baokim.vn or Momo e-wallet will create favorable conditions for Vietnam's e-commerce ecosystem to have the opportunity to perfect the payment system. e-commerce and e-commerce models.

Fourth, the pandemic creates momentum and promotes e-commerce activities of Vietnamese businesses when customers in many parts of the world and Vietnam have no choice but to be forced to sit in front of a computer screen to search for products and services. make purchase and sale transactions, payment via electronic devices. This is a very good condition for Vietnam's e-commerce market to accelerate its comprehensive development with a larger number and value of e-commerce transactions in the near future. This is also an opportunity for businesses and consumers to realize the benefits of e-commerce and

businesses themselves have to change and shift from traditional business to selling through the e-commerce market. Since then, when the epidemic passes, the e-commerce business method will have the opportunity to develop more strongly.

3.3. Challenges for Vietnam's e-commerce

Although e-commerce in Vietnam has many favorable conditions for development, the practice shows many difficulties and challenges, specifically:

First, consumer confidence. According to a survey by the Department of E-commerce and Digital Economy, there are still many obstacles when shopping online that make consumers hesitant to join this market.

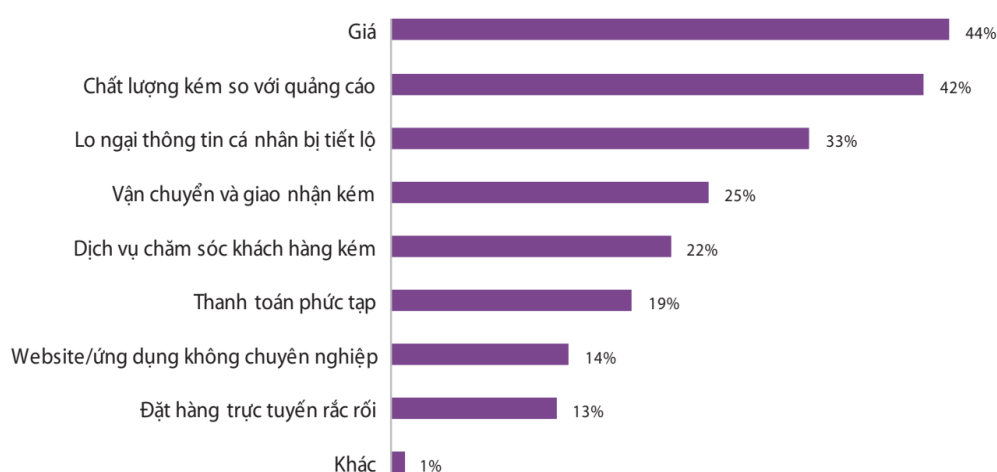


Figure 5. Obstacles when shopping online

Source: iDEA, 2021

It can be seen that one of the biggest obstacles to the e-commerce market in Vietnam is the poor quality of products compared to advertising, with 42% of survey respondents choosing it. The problem of counterfeit goods, which is a pain on e-commerce platforms, is also a challenge in the coming time, it is necessary to take preventive measures to protect consumers and strengthen consumer confidence in the field. E-commerce.

The lax management of the authorities, the deceit in business makes consumers lose confidence when buying goods and services online. Consumers' trust in online transactions is not high, but it can be seen that most e-commerce transactions in Vietnam currently mainly use the form of COD (Cost on delivery). row). Although it has decreased compared to 2019, the use of cash when receiving goods in the form of COD to pay for e-commerce transactions still accounts for 78% in 2020 (iDEA, 2021). Statistics show that 30% of orders are returned due to poor quality of goods. Currently, a part of consumers, especially the younger generation, are very fond of buying goods through foreign e-commerce platforms such as Amazon and eBay because of the high reputation of the supplier.

Besides, there are a number of other limitations that affect consumers' trust such as: privacy of personal information, more expensive prices at the store even after the price has been reduced (the phenomenon of raising prices and then announcing promotions), logistics services and weak customer care.

Secondly, the institutional and legal environment for e-commerce development in our country is still weak, not tight, synchronous, transparent and constructive. The rapid transformation of business models in the field of e-commerce has occurred. Due to the rapid development of science - technology, business methods and new creative ideas, state management agencies are quite confused in managing e-commerce business activities. For example: management and tax collection for online commercial activities, especially business through social networks and providing cross-border services; the issue of ensuring the interests of consumers through the online world; the handling and settlement of disputes and conflicts about activities as well as interests of subjects participating in business activities in e-commerce. The e-commerce market has a fast growth rate and is more difficult to manage than the traditional market, leading to a number of legal regulations not keeping up. Besides, similar to many countries in the world, Vietnam still has a big gap in the collection of contractor tax of foreign enterprises - those that are not registered to operate in Vietnam but generate income in Viet Nam (Truong, 2021).

Third, human resources have not met the requirements. Human resources, especially technology human resources Information - the most important factor in competition and e-commerce development is still small in quantity, not guaranteed in quality. Vietnam is facing a shortage of high-quality human resources, especially high-quality information and communication technology human resources, human resources for new technology fields such as artificial intelligence (AI). Vietnam's education has not kept up with the rapid development trend of the digital economy and the creative economy of the Industrial Revolution 4.0. If this issue is not paid attention to and invested properly in the near future, it will be a big obstacle for the development of the digital economy in our country.

According to a survey by the Department of E-commerce and Digital Economy (Ministry of Industry and Trade), the current form of e-commerce training is mainly by order, accounting for 37%; Short-term training focuses on 33%, long-term formal training accounts for 16%, online training accounts for 9%. According to a survey from companies providing e-commerce solutions, there is a shortage of e-commerce human resources, with less than 30% of the workforce having formal training in e-commerce, 55% of training from business, commerce, and information technology. information, the rest are other professions. The above figures reflect that the current formal training of e-commerce human resources has only partially met the actual needs.

Fourth, the assurance of network security, privacy and information safety in our country is facing many risks. Doing business in the field of e-commerce on the basis of information technology, the internet contains great risks in terms of security, information safety, finance and privacy of data and of participants. Vietnam is one of the countries most vulnerable to cyberattacks and is also vulnerable to cyberattacks. According to the Kaspersky security firm, in recent years, Vietnam is among the countries with the most cyber attacks; ranked 4 out of 10 countries at risk of being infected with malicious code over the network and 1 out of 10 countries infected with malicious code from using removable storage devices (USB, external memory cards) (Nguyen, 2021)

This shows that there is a huge gap in Vietnam in the field of ensuring network security and information safety, which will hinder the development of e-commerce in our country. Especially, in an increasingly connected world, when digital becomes ubiquitous, preventing and solving cyberattacks becomes more and more urgent because it's not just a matter of security and safety. economic, information security of individuals, businesses, etc but also security issues and national interests.

The issue of private information security is increasingly concerned by customers because of concerns about the "holes" of the internet, websites are often designed to easily access and share information. Many studies show that customers are not willing to participate in e-commerce because they are insecure about issues related to security and privacy of transaction data. According to the data of the E-commerce White Paper 2020, the second reason that accounts for 43% of consumers not participating in online shopping is fear of revealing personal information.

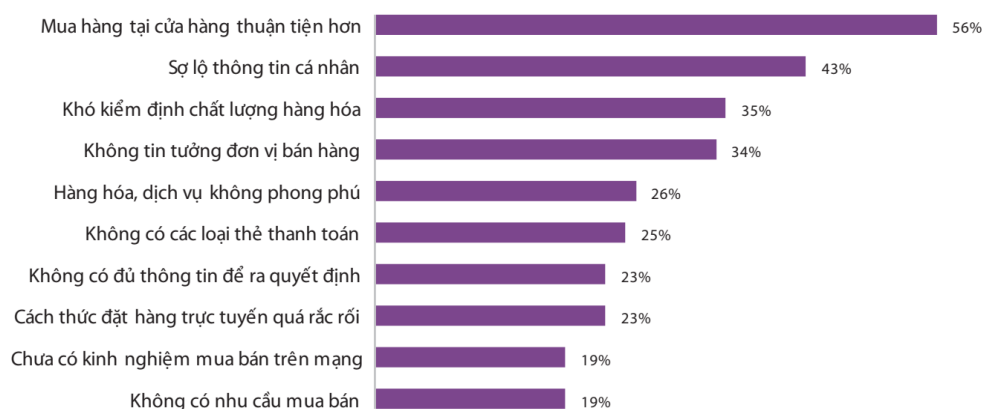


Figure 6. Consumers' reasons for not shopping online

Source: iDEA, 2021

Fifth, Vietnamese e-commerce enterprises compete fiercely with foreign enterprises. With the FTAs that Vietnam has signed, it is also easy for foreign businesses to enter the Vietnamese e-commerce market. This is expected to create a boost for Vietnam's e-commerce market in the near future, but it will create great competitive pressure on domestic enterprises, who are weak in resources and may be knocked out of the market. school. Currently, many large enterprises also have the participation of foreign enterprises operating in different forms. Therefore, the participation of businesses is no longer a new factor, but is considered to create a new movement trend, inherited from developed e-commerce markets such as the US, Japan, etc.

Despite achieving some results, the market witnessed the collapse of a series of e-commerce websites in Vietnam. Before Adayroi, Robins, Vui Vui, names like Beyeu, Lingo, Deca, etc also decided to close down when their activities were not efficient.

Sixth, the development of e-logistics services is not commensurate with the potential to meet the needs of customers and the e-commerce market. In the current development of e-commerce, logistics is one of the factors that determine the purchasing behavior of consumers and sales of each e-commerce enterprise.

Logistics enterprises for e-commerce are facing the challenge of low rate of information technology application in Ecommerce-Logistics. Currently, only about 11% of businesses are applying basic information technology related to tracking and tracing goods, delivery systems, warehousing, etc. The rest, most businesses are still maintaining. Manual form in sorting, dividing and selecting goods, etc. leads to errors and high costs, especially when e-commerce output is as large as it is today. In addition, the size of enterprises is still small and medium, and the financial capacity of enterprises is limited, so there are many barriers in digital transformation. Financial constraints also make it difficult for logistics businesses to invest in warehouse systems to manage inventory and stockpile goods. In addition, the human resources serving in the logistics industry in Vietnam are young, but the number is small, the professional qualifications are weak, the working experience is not available, especially the limitation of foreign language ability has made the job difficult. promoting the application of information technology to activities facing difficulties.

4. Discussion and Conclusion

Vietnam's e-commerce in recent years has developed at a fast pace following the general trend of the world. Although there are many advantages in the process of operation and development, e-commerce has not yet brought into full play its inherent potential. In order to further increase the growth rate of this market, it is necessary to overcome the shortcomings and limitations. To do this, there are a few things that need to be taken into account:

Firstly, improve the reputation of e-commerce floors. First of all, businesses participating in this market must ensure the quality of goods and services as advertised. Only then will online customers have confidence in suppliers because the specificity of this market is that buyers do not have direct contact with goods like the traditional market. At the same time, businesses need to commit to the confidentiality of consumers' personal information, especially about personal account numbers when making electronic payments.

Second, improve the legal system on e-commerce. Any economic activity that wants to develop sustainably needs a clear legal environment. The Government needs to continue to review, amend, supplement and complete legal issues in e-commerce: network security, information security and safety, consumer protection, etc. At the same time, it is necessary to have regulations. strictly on sales management via social networks, promoting tax collection, thereby creating fair competition in the e-commerce market.

Third, improve the competitiveness of enterprises. Businesses need to focus on improving the quality and diversification of products, as well as the quality of customer care services, freight forwarding and payment services. At the same time, businesses also need to increase investment in technology innovation and application of effective management software, improve the quality of human resources, promote market research, understand consumer tastes in order to meet the needs of consumers. meet the needs of customers to the fullest extent.

Fourth, improve the quality of human resources and protect intellectual property rights, security and safety - in the network environment. Strengthen training and human resource development for the e-commerce industry. Encourage organizations and individuals to invest in training facilities. Strengthen the type of training experts, technicians,

vocational training, training model of tripartite association (enterprise - institute, school - state management agency). The government needs to have a well-planned strategy in combating intellectual property rights violations, especially in the network environment, to ensure network security and safety. It is necessary to step up propaganda on the enforcement of intellectual property rights to the business community and people, to disseminate international commitments and conventions on the protection of intellectual property rights when Vietnam joins the WTO and trade agreements. free trade. Next, it is necessary to have sanctions that are enough to deter violations of intellectual property rights, security and safety in the network environment, so that e-commerce can be promoted sustainably.

Fifth, develop logistics services to meet the development requirements of e-commerce. Vietnamese logistics enterprises need to invest in technology, thoroughness, and improve quality in transport and logistics services; must change to adapt and grow or accept competition and takeover. In particular, businesses need to pay attention to developing more specialized logistics areas for cross-border e-commerce and import (4PLs). On the other hand, with the increasingly popular trend of online shopping, the logistics supply chain needs to be shortened, eliminating the intermediary stage so that goods can go directly from the distributor's warehouse to the consumer.

E-commerce is increasingly developing and will play an important role in socio-economic life, as well as consumers increasingly prefer civilized, modern and time-saving forms of shopping. However, in order to develop e-commerce in Vietnam in a sustainable way, in order to make the most of the benefits of this method, businesses, people and the government must make reasonable adjustments to take advantage of opportunities and avoid the risks brought by the network environment.

Vietnam has made great progress in e-commerce development in recent years. Businesses, governments and people are increasingly aware of the importance of this method in all aspects of socio-economic life, and this study also wants to contribute some ideas to businesses, Government and people for the development of e-commerce in Vietnam in the coming time.

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THE INFLUENCE OF DIGITAL TRANSFORMATION ON JOB SATISFACTION AND WORK-LIFE BALANCE OF EMPLOYEES IN THE BANKING INDUSTRY IN VIETNAM

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Abstract

This study aims to investigate the impact of digitalization on the job satisfaction and the work-life balance of employees in the banking industry in Vietnam. The online survey was conducted with 278 participants at 9 different banks in Vietnam. The analysis of correlation shows the relationship between Digitalization and Job satisfaction as well as the relationship between Digitalization and the Work-life balance of bankers. Then linear regression analysis confirmed that Digitalization positively influences on both the Job satisfaction and the Work-life balance of employees of the banks. The study also suggests some solutions to improve job satisfaction and balance between work-life for banking employees.

Keywords: *Digitalization, employee performance, work-life balance, job satisfaction*

1. Introduction

The State Bank of Vietnam stated that up to 95% of credit associations have or are planning to develop a digitalization project. Among those, 39% of credit associations approving their own digitalization approach differentiated or integrated in their information technology development planning, 42% of credit institutions are completing their digitalization strategy (Le Thi Thuy Sen, 2021). This shows that the level of digitalization in the banking industry in Vietnam has strong signs of change. Although the digitalization process in Vietnam's banking industry is showing positive changes, according to the assessment of regulators and experts, there are still many difficulties affecting this process. According to World Bank statistics, from now to 2030, the middle class in Vietnam will have a continuous growth rate of double digits. Vietnam will become an attractive market for financial services, especially digitized financial services (Hansen, 2016). Furthermore, one of the most important assessments for any organization to gauge the success and effectiveness of any technology implementation is employee. Therefore, job satisfaction and work-life balance of employee play important roles

that needs to be evaluated. Consequently, we chose this topic to gain insight into the relationship between digitalization and job satisfaction, work-life balance.

As with all other businesses, the banking sector is fast evolving towards a new mode of operation because of rapid technological advancements and digital transformation. This movement toward digitalization is altering cost-cutting opportunities and potentially producing new profit sources. The banking sector has benefited from digitalization mostly in terms of daily banking services such as online banking and payment methods (Isern and Pung, 2007). With proper use of digitalization, the banking sector may achieve more stability in terms of profitability and growth. The advancement of digitalization has compelled banks to rearrange their activities in order to remain competitive and provide new digital offerings. The major banks have successfully navigated the first phase of digitalization, allowing customers to purchase stocks and transfer money using digital services. According to Zamaslo, Kovalenko and Lozynska (2021), one of the aspects in the banking industry where digital transformation occurs most powerfully is the banking platforms. Furthermore, Khanboubi and Boulmakoul (2018) stated that data management is the most important facet that needs to be digitalized in order to keep up with the digital era these days. Besides, following Diener and Špaček (2021), efficient risk management is ranked among the most fundamental factors that contribute to a bank's development in the digital era.

Job satisfaction is defined as individual's overall feelings about their jobs and their perspective on different factors of their jobs, along with the way and viewpoint which influence on the level of interrelation among employee and employer. An individual who is satisfied with their job tends to have mostly positive perspective, whereas an individual who is unsatisfied tends to possess negative perspective (Lumley et al., 2011). Ratna & Kaur (2016) state that the influence of information technology on job-related elements, involving job satisfaction. Lumley et al. (2011) discovered that if employers want to create a work environment that inspire employees to stay in with their companies, they should consider current pay methods with the goal of providing fair pay, challenging as well as valid jobs tasks, and encouraging positive relationships among colleagues. The professional working environment greatly affects the productivity and work efficiency of each person. For a quality working environment, digitalization must take place in a comprehensive and effective manner, employee performance will be improved (Ratna & Kaur, 2016). Moreover, the significant expansion of utilizing computer throughout European countries in the previous 20 years (Salvatori, Menon, & Zwysen, 2018), employee job satisfaction increased, somewhat, because of utilizing advanced technology, and continue to put new technology in order to run primary company operations.

Work-life balance, following by Lockwood (2003), is defined as "a state of equilibrium in which the needs of an individual's work and personal life are equal". Furthermore, work-life balance could be defined as a condition of equilibrium in which one's preferences about their job and personal living are met (Ratna & Kaur, 2016).

Work-life balance is described by Kalliath and Brough (2008) as how compatible an individual's insight between work and non-work functions is, as well as how significant their

present life priorities are. It can also be thought of as a balance between two completely distinct functions that an individual must manage in their career job and their family life in order to accomplish life pleasure (Makela & Suutari, 2011; Shaffer et al., 2016). In recent years, several ability labor-saving technology tools have been created. Nonetheless, whether they enhance or reduce workload and stress is debatable. In fact, technology is appreciated as a popular device with the capability of making work for people more accurately and simply. Besides, utilizing personal computer at home, which is a double-edged sword. The benefit of using technology in free time is obvious: an individual can make a decision whether or not to work for a job while at home, for instance, arrange reports or presentations. (Ratna & Kaur, 2016). Following Towers et al (2006), because hours of working rise, family living is affected negatively, which means the flexibility creates a gap between work and family living. Besides, Duxbury and Smart (2011), stated that mobile devices and setting work via web-based tools such as email, webinar, etc are one of main kind of ICTs utilize that impact on work-life balance. Mobile technology devices are interest to scholars in finding about work-life balance due to the fact that they show a foundation shift in constructing the work-life boundaries. Several studies demonstrated that there are some proofs related to how ICTs impact on flexibility. People can approach to work or without work anytime they need throughout ICTs, which rising the permeability of work-fife barriers (Valcour and Hunter 2005). Moreover, thanks to the expansion of utilizing ICTs, employees can accomplish their jobs anytime and anywhere in order to support flexible working approaches. Mobile devices connectivity via ICTs tends to bring employees with higher flexibility than typical office employees in terms of balancing work and family living (Hill et al. 2003).

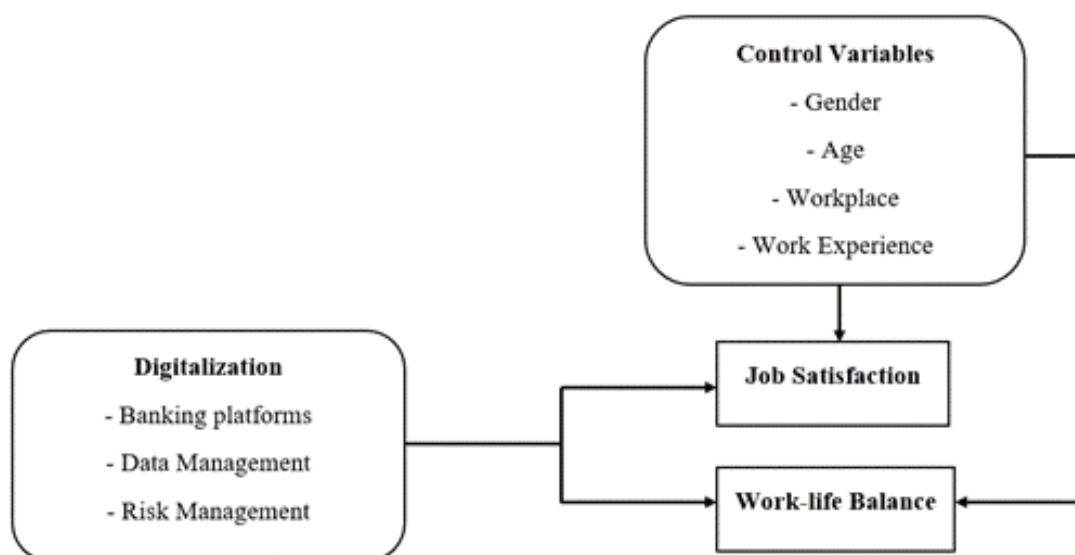


Figure 1. Research Framework

2. Method

The quantitative research method was used in this study. An online questionnaire was distributed to employees in 9 banks in Vietnam through the Google Form platform to research subjects to collect primary data in November 2021. The questionnaire is divided

into two parts with the first part of the questionnaire containing questions about demographics such as age, gender, and marital status. Next is the part are 11 key questions measured on a 5-point Likert scale from 1 (Strongly disagree) to 5 (Strongly agree) to collect information related to the main variables. After collecting, the data are cleaned and using the software SPSS version 26 to analyze with 278 correspondants. The Chronbach Alpha model is used to measure the reliability. To determine validity, exploratory factor analysis was applied. Finally, the authors conduct regression model to determine the correlation between Job Satisfaction, Work-life balance and Digitization in the bank.

3. Results

Table 1 demonstrates the demographic diversity of the study's sample in related to demographic factors.

Table 1. Demographic details

Characteristics		Frequency	% Of total
Gender	Male	132	47.5
	Female	146	52.5
Age	23 - 30 years old	20	7.2
	30 - 40 years old	75	27.0
	40 – 50 years old	43	15.5
	50 – 60 years old	83	29.9
	Over 60 years old	57	20.5
Working place	VP Bank	35	12.6
	Techcombank	43	15.5
	TP Bank	43	15.5
	MB Bank	95	34.2
	ACB	39	14.0
	Sacombank	8	2.9
	BIDV	8	2.9
	Vietcombank	2	0.7
	Agribank	5	1.8
Working Experience	Less than 1 year	20	7.2
	1-3 years	36	12.9
	3-5 years	132	47.5
	5-7 years	56	20.1
	More than 10 years	34	12.2

A total of 278 participants answered the survey questionnaire for this study, in which the sex ratio between males and females did not differ much (47.5% versus 52.5%).

Regarding age factors, the majority of participants were between the ages of 30–40 years old and 50–60 years old (27% and 29.9%). Meanwhile, there were only 20 participants, most of whom were young, aged 23–30 years old. The rest are 40–50 years old, accounting for 15.5%, and over 60 years old, accounting for 20.5%. The next factor in the demographic is the workplace. This research paper has the participation of staff from nine different banks in Vietnam. MB Bank is the bank with the largest ratio, with 34.2%. The following are four banks with similar ratios: VP Bank, Techcombank, TP Bank, and ACB, ranked in the order of 12.6%, 15.5%, 15.5%, and 14%. However, only 2 participants are working at Vietcombank, and 5 participants are working at Agribank. The last element of the demographic is working experience. Nearly half of the participants had 3-5 years of work experience (47.5%), while the second 5-7 years accounted for only 20.1%. Followed by working time from 1-3 years and over 10 years, at 12.9% and 12.2%. Only 20 participants, or 7.2%, had less than 1 year of work experience.

Cronbach's alpha and EFA tests were used to assess the scale employed in this study. After testing EFA with Digital Banking, Data Management and Risk Management, it generated a solid result, with each variable group clearly classified. The table 2 summarizes the statistic of scale items, containing Cronbach's alpha, mean, standard deviation, and factor loadings

Table 2. Descriptive statistics and Factor loadings for scale items

Coding	Construct and scale items	Mean	Std. Deviation	Factor loadings
Banking platforms (Cronbach's alpha = 0.887)				
DT 01	Smart apps help you get to know your customers better	3.622	1.063	0.794
DT 02	Online banking increases customer satisfaction	3.543	1.112	0.781
DT 03	Digital banking system saves time resolving customer complaints	3.547	0.981	0.740
DT 04	Digital banking improves service delivery from banks	3.629	1.079	0.717
DT 05	Workload is reduced thanks to the automation system in the bank	3.532	1.063	0.783
Data Management (Cronbach's alpha = 0.902)				
DM 01	Big data helps analyze user habits	3.514	1.100	0.778
DM 02	Applying big data in the process of customer classification and profile appraisal	3.644	1.047	0.752
DM 03	Improve service quality through building a system that earns customer feedback	3.586	1.032	0.827
DM 04	Big data changes the way services are delivered to customers	3.532	1.086	0.679
DM 05	Develop the scope of analysis, including "People," Processes, Strategies, and Technology	3.586	1.077	0.812

Coding	Construct and scale items	Mean	Std. Deviation	Factor loadings
DM 06	Drive innovation through leveraging Cloud, Machine Learning, Artificial Intelligence, Big Data, and Analytics technologies	3.529	1.056	0.749
Risk Management (Cronbach's alpha = 0.861)				
RM 01	Robotic processing system	3.676	0.981	
RM 02	Artificial intelligence and machine learning models	3.522	1.004	0.673
RM 03	Data analysis tools	3.342	1.065	0.795
RM 04	Voice and face recognition tools in the security system	3.284	1.121	0.833
RM 05	Automation tools	3.594	1.014	0.610
RM 06	Electronic authentication system	3.547	0.928	0.626

The results in Table 2 shows that Cronbach's alpha varied from 0.861 (Risk Management) to 0.902 (Data Management), all of which were higher than 0.7 and that means those items meeting the desired reliability level (Hair et al., 1998). Moreover, the Mean values of all 3 variables are approximately 4, which means most respondents agree with the statements given. Added, the difference between opinions is not high indicating that the variables are reported with Low standard deviation. In terms of EFA, the statistics in factor loadings of were greater than 0.5 showing that all findings were statistically significant for further investigation (Hair et al., 1998). Nonetheless, only item RM1 is not included because it is not correlated with the other items in the Risk Management variable.

Table 3. Regression results

Dependent variable: Job Satisfaction

	Model 1 β (standardized)	Model 2 β (standardized)
<i>Independent variables</i>		
Gender		.045
Age		.066
Current Bank		.129
Work Experience		.749*
Digital Banking	.288**	.234**
Data Management	.191**	.179
Risk Management	.354**	.352**
R ²	.445	.476
Adjusted R ²	.438	.463

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

With Job Satisfaction as a dependent variable, two models were executed. In Model 1, the independent variables containing Digital Banking, Data management, and Risk

Management explained for 44.5% of the dependent variable. In Model 2 which included Model 1 and the control variables, the Adjusted R² value increased to 47.6%, which was not substantially higher than Model 1.

The regression findings in Model 1 and Model 2 indicated that both Data Management and Risk Management had a positive effect on Job Satisfaction. In Model 1, Digital banking, Data Management and Risk Management positively influence Job Satisfaction with $\beta = 0.288$, $p < 0.05$, $\beta = 0.191$, $p < 0.05$ and $\beta = 0.354$, $p < 0.05$, respectively. Meanwhile, considering the effect of Work Experience on Job Satisfaction, Model 2 produced $\beta = 0.749$ and $p < 0.05$. This indicated that employees with more years of experience were likely to have a better Job Satisfaction aspect.

Table 4. Regression results

Dependent variable: Work-life Balance

	Model 3	Model 4
	β (standardized)	β (standardized)
<i>Independent variables</i>		
Gender		.036
Age		.279
Current Bank		.231
Work Experience		.486
Digital Banking	.185*	.150*
Data Management	.058	.054
Risk Management	.046	.572
R ²	.085	.119
Adjusted R ²	.075	.096

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

With the dependent variable of Work-life balance, two models were generated in which Model 3 containing independent variables including Digital Banking, Data Management, and Risk Management only accounted for 7.5% of variance in dependent variable. Model 4 included Model 3 and control variables. Model 3 had the Adjusted R² of 0.075 meaning that the three independent variables explained for 7.5% variance of Work-life balance. In terms of Model 4, the figure of Adjusted R² was 9.6% which was higher than that of Model 3.

The regression analysis revealed that Digital Banking had a significant positive effect on Work-life balance, with $\beta = 0.185$ and $p < 0.05$ in Model 3. Model 4 likewise demonstrated a positive association between Digital Banking and Work-life Balance, with $\beta = 0.150$ and $p < 0.05$. The statistic findings from the significant level of Digital Banking indicated that Digitalization positively impact on work-life balance of the employees.

4. Discussion and Conclusion

The purpose of this study was to ascertain the link between Digitalization and Job Satisfaction and Work-life balance among banking employees. Two hypotheses were tested, and both were supported, which was consistent with previous research.

In terms of hypothesis 1, the implementation of Digitalization in Digital banking platforms, Data Management and Risk Management has a positive effect on Job Satisfaction, which was consistent with prior findings (Cijan, Jenič, Lamovšek and Stemberger, 2019; Bolli and Pusterla, 2021) by demonstrating that digitalization has a beneficial effect on employee's job satisfaction. That means when the level of digitalization in employee's workplace is high, the employees' job satisfaction will increase. According to Bolli and Pusterla, (2021), Digitalization promotes Job Satisfaction hence increases productivity, increases interest among workplace, and raises the level of engagement with colleagues and superiors. It stated that digital transformation allows employees to receive, access, analyze, and preserve information in a far more organized and timely manner than before. Increased access to information enhances the efficiency of work, which leads to increased Job Satisfaction among employees. Another study of Ratna and Kaur (2016) statistically revealed that after implementing digitalization, 23% of workers become more dedicated 20% think their work is recognized and they can manage multiple tasks simultaneously, 19% think they have better job prospects, and 18% think they are provided with all necessary resources to operate their tasks, all of which positively impact Job Satisfaction.

Furthermore, regarding the relationship between Digitalization and Work-life Balance (H2 of this research), it reveals that the application of Digitalization into Digital banking platforms has a positive effect of Work-life Balance of employees. Due to digitalization, employees could have the opportunity to choose when, and how they work. Digitalization has also aided them in managing their time effectively, allowing them to work and spend time with family. According to Goodspeed (2015), digitalization has an effect on how employees balance work and leisure time. Employees might be more productive and adaptable to their own lifestyles and routines with the assistance of digitalization, which has become an integral part of our everyday personal lives. As a result, this was consistent with the studies of Towers et al. (2016). The benefit of implementing digitalization in the workplace leads to increasing freedom that technology affords people.

Furthermore, the findings of demographic variables in Model 2, Work experience also has a positive impact on the quality of job satisfaction of employees with $\beta = 0.749$ and $p < 0.05$. This finding was inconsistent with prior research (Bhandari et al., 2017) in which the research showed that there was no relationship between work experience and Job-satisfaction of employees. The positive impact of work experience on work-life balance in this study might be due to the fact that employees with long-term work experience often have suitable workload, which in turns leads to an increase in the quality of their work-life balance and job satisfaction. Besides that, high-experienced employees tend to be more dedicated and responsible for their jobs, making them be excessively concerned about their work-related aspects.

At the moment, digital transformation is gaining traction in the financial business, particularly in banking platforms in Vietnam. Specifically, figures indicate that 94% of Vietnamese commercial banks have invested in digital transformation, and 40% of banks have declared digital transformation a strategic objective for the next five to ten years. Apart from assisting banks in meeting client expectations, digital transformation also assists employee in simplifying processes and procedures, hence increasing their satisfaction level via reduced effort (Le Thi Thuy Sen, 2021). Therefore, in order to properly use this application, banks must prioritize monthly training programs that assist staff in developing professional skills and increasing job efficiency, ultimately boosting the bank's performance. Moreover, banks should invest in banking platforms enables the bank to enhance performance while also assisting employees in reducing burden, developing professional skills, and ultimately enhancing job satisfaction.

Furthermore, banks should focus on using technology to achieve production efficiency through reducing processing time and costs, increasing processing volume and replacing labour with IT applications. According to Argyres (1999), the application of Information Technology has three levels of impact, especially production impact, coordination impact and information impact, bringing benefits such as reducing processing time, replacing human labour with automated applications, coordinate across time intervals or refactor relationships, develop extensive databases and knowledge bases, and support decision-making processes through better use of information and reduced complexity in the organization unstructured decision-making processes. Consequently, banks should invest more in digital transformation technology applicable to risk management. To be more specific, on June 3, 2020, the Prime Minister signed and promulgated Decision No. 749/QĐ-TT approving the national digital transformation program to 2025, with orientation to 2030 (Thanh Phuong, 2020). This shows the Government interest in digital transformation. Meanwhile, the banking sector is one of the key areas in the economic development of the country, so investing and applying digital transformation in risk management at banks is also a necessary thing to do.

Banking platforms also has benefited work-life balance. Due to the Covid-19 outbreak, the use of digitalization in banks is quite widespread at the moment, and as a result, employee have flexible working hours. In order to enhance employees' work-life balance, banks should enable their back office department, which manage their internal jobs, to transit from working temporarily from home to working permanently from home during severe times (e.g. when the disease booming). The transition from temporary to permanent employment in the back office, where they are not required to interact with or work with customers, ensure the bank's safety and allow employees to spend more time with their families, as this is the part of the business that spends the majority of its time at the office.

This study has some limitations. Due to the impact of the COVID-19 epidemic, it has become more difficult to meet face-to-face with employees at the bank, limiting the sample size of this study. Moreover, most of the respondents to the survey questionnaire

are from Hanoi city. Hence, future studies can expand the number of respondents to other provinces as well. Moreover, the relationship between Digitalization and Job satisfaction as well as Digitalization and Work-life balance of employees can be examined in other industries, not just banking.

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THE ROLE OF DIGITAL TRANSFORMATION IN AGRICULTURE IN TUYEN QUANG PROVINCE

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Abstract

The digital transformation and application of modern technology in agriculture are gradually becoming an inevitable trend, making an important contribution to changing production methods, liberating labor, reducing costs, and improving productivity. productivity, product quality. However, the digital transformation in agriculture still has many "bottlenecks", which need to be cleared. Therefore, the objective of this paper is to evaluate the role of digital transformation in agriculture in Tuyen Quang province and point out the province's limitations in the process of implementing this transformation including difficulties in capital, level of human resources, digital infrastructure and production models and methods; On that basis, the article proposes solutions to accelerate digital transformation in the near future.

Key words: *digital agriculture, the role of digital agriculture, Tuyen Quang province.*

1. Introduction

Tuyen Quang is a mountainous province, located in the center of the Lo river basin with a dominant agro-forestry economy, a farm economic model combining agro-forestry, including 7 district-level administrative units including: 1 city and 6 districts with 138 commune-level administrative units, including 10 wards, 6 townships and 122 communes [3].

With the goal of digital transformation in the agricultural sector, it is considered as a lever in increasing the competitiveness of agricultural products, especially in accompanying the Government to achieve the set goals. Under the National Digital Transformation Program, Tuyen Quang province is gradually creating an environment and an agricultural digital ecosystem as the foundation, creating institutions, promoting the transformation from "Agricultural production" to "Agricultural production". agriculture"; develop hi-tech agriculture in the direction of focusing on smart agriculture, precision agriculture, increase the proportion of digital agriculture in the economy, with many agricultural products with high competitive value such as oranges Ham Yen crockery is in the Top 10 most delicious fruits in Vietnam; Bat Tien My Bang tea; Tuyen Quang honey was "Honored typical agricultural products in 2017"; halibut; Vinh Tan specialty tea was voted the title of "Vietnamese Agricultural Gold Brand 2017"; Xuan Van pomelo ranked in Top 10 Famous Brands - Brands in 2018...

2. Method

The article uses qualitative research methods (methods of analysis, comparison, synthesis, descriptive statistics...) and the collected data are secondary data selected from previous research results. as well as from reports from Tuyen Quang province on digital transformation in agriculture. These methods are used to clarify the research contents in order to point out the urgency of the article on digital transformation in agriculture in Tuyen Quang province; at the same time, analyze and evaluate the current situation to highlight the results achieved by Tuyen Quang province in recent times and point out the limitations and causes. From there, the article analyzes, evaluates and predicts trends and solutions that need to be given to accelerate the process of changing arguments in the industry in Tuyen Quang.

3. Results

3.1. Changing arguments in agriculture contributes to improving the value of agricultural products

Tuyen Quang agriculture is strongly shifting to commodity agriculture associated with quality standards, brands, added value and sustainable development. The province currently has 311 hectares of oranges and 73 hectares of tea meeting VietGAP standards; 702 hectares of tea with sustainable agriculture standards (SAN); 30 hectares of organic oranges (PGS); over 25,000 ha of planted forests have been granted FSC forest certificates; 1 dairy facility that meets GlobalGAP international standards; There are 3 breeding facilities applying VietGAP standards.

In 2019, the province's total agricultural, forestry and fishery product (GRDP) reached VND 4,765.7 billion, the production value of agriculture, forestry and fishery (at 2010 constant prices) reached VND 8,407.3 billion. , an increase of 4.4% over the same period in 2018. These are important steps in the process of developing commodity agriculture associated with local new rural construction [5].

Digital agriculture can solve the problem of large farmers, but the farming scale is small, the investment is small, the equipment is old and outdated by electronic trading platforms, eliminating the intermediaries, connecting directly between sellers and buyers, regardless of geographical distance, allowing to collect data on prices on the market in many different localities and countries, compare prices automatically, update with frequency daily, weekly or monthly rate and even predict future prices to propose a competitive and appropriate selling price of agricultural products, farmers in mountainous and rural areas do not have to Go to big cities to find a market that can be done right in your hometown.

Through digital transformation, a digital agricultural data platform will be created for farmers to know and best exploit their advantages, not just based on qualitative experience, less on quantitative data and less on quantitative data. There is almost no information about the parameters on its own arable land such as weather, light, precipitation or minerals. It is government agencies that can generate useful data for farmers by analyzing soil conditions, satellite images, weather data or other factors. The Soil Health Cards initiative with 158 million land health cards from each region in India has improved farmers' productivity by up to 40% over the last 5 years in this way, or Kenya offers weather insurance

pays farmers if certain adverse weather conditions occur. On the basis of using 30 weather stations automatically collect weather data, thereby determining the cases of receiving compensation [6].

Digital agriculture can use sensors to collect information about the storage environment, then process and analyze it and send notifications to drivers or warehouse managers according to service quality standards. and help trace the origin of agricultural products, allowing transparency of the process and quality standards of agricultural products to help genuine farmers sell products with their efforts, avoiding the situation of agricultural products. perishable quickly, thereby increasing the quality of agricultural products, sustainably.

Digital transformation in agriculture also connects with transporters, optimizes warehouse locations and delivery routes to avoid slow shipping times and high costs, leading to reduced competitiveness of agricultural products. produce.

Up to now, many key agricultural products of the province have been granted certificates, trademarks as well as geographical indications: 54 products have been certified by the National Office of Intellectual Property - Ministry of Science and Technology; over 200 products are stamped with traceability; 24 establishments certified for safe food supply chains; There are 03 products, namely Ham Sanh Cam, Na Hang Shan Tuyet Tea, Soi Ha Grapefruit, Yen Son District, which have been granted geographical indications by the National Office of Intellectual Property - Ministry of Science and Technology, and are marketed in and around the world. Out-of-province preferred. Thanks to that, Shan Tuyet tea from wild forest trees has now given people in Hong Thai commune, Na Hang district an average income of 28 million VND/ha/year, becoming one of the province's 4-star OCOP products. Another typical agricultural product of Tuyen Quang is Ham Yen oranges, it is also because of its quality and reputation that Ham Yen oranges are honored to be in the top 10 famous fruits and one of the 50 famous fruits. The most delicious tree in Vietnam, orange tree has become a specialty tree with priority and priority for concentrated planting. Currently, Ham Yen district has more than 7,200 hectares of oranges in 13 communes and towns with over 4,000 households growing oranges, including 687 hectares of oranges produced according to VietGAP standards and about 30 hectares of oranges produced organically. The implementation of care and production of oranges according to VietGAP standards not only increases productivity, improves design and quality of products, but also helps farmers reduce the cost of fertilizers and pesticides by up to 50% compared to the usual way of growing oranges. Fertilizers used in farming are all organic fertilizers, microbial fertilizers and clean water sources. After the tree flowers, people stop fertilizing, but mainly just water and prevent insects to naturally produce healthy fruit, ensure fruit quality and food safety. Thanks to growing oranges, many families in Ham Yen have escaped poverty and become rich and wealthy, some have become billionaires. The orange season in Ham Yen also creates jobs for thousands of workers in the region and neighboring localities such as Ha Giang, Cao Bang, Yen Bai and Vinh Phuc. Many people earn millions of dong a day from the burden of rented oranges. In recent years, the orange tree has really become a key tree for the economic development of local people; In addition to Shan Tuyet Hong Thai

organic tea, there are also Vinh Tan specialty teas, as well as the title of "Vietnamese Agricultural Gold Brand"; My Bang Bat Tien tea, Tuyen Quang honey are "Honored typical agricultural products"; Xuan Van pomelo ranked in TOP 10 Famous Brands-Brands; Buffaloes are built with collective trademarks of "Zu Chiem Hoa" and "Stupid Buffalo Tuyen Quang" [4].

3.2. Digital transformation in agriculture contributes to raising people's income

Agriculture currently accounts for 14% of Vietnam's GDP, accounting for nearly 40% of the labor force. Agriculture has grown tremendously, becoming the backbone of the economy.

The goal of Vietnam in general and Tuyen Quang province in particular is how farmers produce quality agricultural products, with the lowest cost but sell at the highest price. Therefore, digital transformation in the field of agriculture or digital agriculture will be one of the keys to successfully realize this goal.

Digital transformation can help farmers easily access credit with just the smartphone they have. Through transaction and credit histories, farmers have access to loans with suitable interest rates.

The restructuring of the agricultural sector of Tuyen Quang province is currently associated with the National Target Program on building new rural areas, in which the core is to promote production development and increase income for people according to the national target program. towards sustainability through diversifying crops and livestock according to market demand and building large-scale commodity production areas, linking production, processing, preservation and consumption of products in association with ensuring hygiene and food safety; replicating the effective production model, enhancing the application of science and technology.

Along with improving the quality of agricultural products, towards clean agricultural production, the Agriculture and Rural Development sector of Tuyen Quang province has actively coordinated with other branches and People's Committees of districts and cities to maintain and expand 687 ha of oranges according to VietGAP standards, 30 ha of oranges according to organic standards, 729 ha of tea according to sustainable agriculture standards, 93 ha of VietGAP standard tea, 24 ha of organic standard tea. In 2021, the whole province has 95, 65 hectares of tea, orange, pomelo, rice... registered for production according to VietGAP standards and converted to organic production, the province has 1,835.35 hectares of crops produced according to VietGAP standards and other standards equivalent [. At the same time, improving the quality of agricultural products through supporting trade promotion funds, searching for product consumption markets for products that have been registered trademarks, product quality and goods for a particular country. number of cooperatives. At the same time, renewing forms of production organization, strengthening linkages along the value chain, linking production with processing and consuming agricultural products. Promote the development of commodity husbandry with an appropriate scale. To develop specialized farming areas, to produce concentrated goods such as: rice, oranges, pomelo, tea, sugarcane, peanuts... Many key products are linked with production enterprises along the value chain, contributing to part of creating brands and

enhancing values for Tuyen Quang agricultural products. New technical and technological advances in the direction of high-tech agriculture and organic agriculture are increasingly applied. Since then, it has encouraged organizations and individuals to switch to developing clean agricultural production with the aim of improving the lives and incomes of farmers.

4. Discussion and Conclusion

4.1. Some problems raised in the process of digital transformation in agriculture in Tuyen Quang province

Firstly, the agricultural production model is small, fragmented and scattered

In the period 2010 - 2020, the population of the province has increased from 729 thousand people per year 2010 to 794 thousand people in 2020. In Tuyen Quang province, farmers mainly cultivate in small, scattered fields. The total natural area of the province in 2020 is 586,795 hectares. The average area per capita is 0.81 ha/person, of which the agricultural land area is 81,633 ha, accounting for 13.91%, the forestry land area is 446,641 ha, accounting for 76.12%. Soil is divided into 7 groups with 17 main types of soil such as alluvial soil group, infertile soil group, black soil group, red yellow soil group...[2] Besides, the province's agricultural production model lacks chain linkage although there are now a number of production linkage chains such as the chain of orange oranges in Ham Yen, the chain of maize linkages, the linkage of raw tea plantations, the linkage of material afforestation, ...[8]

Secondly, the quality and qualifications of human resources in the province in general and in the agricultural sector in particular are still low

In terms of quantity in 2020, the labor force of working age of Tuyen Quang province is 480.5 thousand people (accounting for 60.6% of the total population), of which 54.5 thousand people are in urban areas (accounting for 60.6 percent of the total population). the rate of 11.35%) and 426,000 people in rural areas (accounting for 88.65%), of which the labor force in the rural areas mainly concentrates on agriculture, forestry and fishery, accounting for 88.7%; industry – construction accounted for 6.71%; commerce and transportation accounted for 2.21%; The rest of the service sector accounted for 2.39% [2].

In terms of qualifications and quality of human resources, the percentage of trained workers aged 15 and over in the Northern mountainous region reached 17.6%; Northern midland and mountainous region 20.5%. Basically, the quality of human resources with high expertise in the production and processing of agricultural products, knowing how to use and operate equipment (automatic, digital, analytical equipment...) is very limited...[9]

Thirdly, rural infrastructure for digital transformation is not synchronized

The digital transformation in agriculture in Tuyen Quang province still has difficulties: Infrastructure for development and application of new technologies has not been synchronized, agricultural and rural infrastructure has not yet met modern requirements. agricultural chemistry. The level of mechanization is still low, supporting technologies for agricultural development (mechanical, deep processing, agricultural product testing lines...) are not adequate [8].

Fourthly, investment capital in agriculture for digital transformation is still lacking and ineffective

In recent years, investment resources for agriculture and rural areas are limited, only meeting 55-60% of demand. In addition, mobilized capital sources are not diversified. In which, FDI in agriculture for digital transformation is very low not only in Tuyen Quang province but also nationwide. The reason is that investing in agriculture is high risk, low profit rate, long time. As of 2020, FDI in agriculture accounts for about 0.97% of total FDI inflows to Vietnam, while the global average is 3% of total FDI [12].

In addition, access to bank credit for small businesses and households is still difficult. Subjects eligible for agricultural preferential loans are limited. Specifically, those who want to access preferential capital for high-tech agriculture must satisfy the criteria of Decision No. 738/QD-BNN-KHCN dated March 14, 2017, while this Decision only provides setting criteria for objects directly engaged in high-tech agricultural production [1]. Meanwhile, in order to develop hi-tech agriculture, the product consumption market (production and supply chain) is also crucial. Therefore, only giving preferential loans to those directly producing but ignoring the remaining stages in the supply chain also makes it difficult for the development of high-tech agricultural production. The number of linkage models is still small and ineffective, so it is difficult to access preferential credit [10,11].

4.2. Some basic solutions to promote digital transformation in agriculture in Tuyen Quang province

Firstly, forming a cooperative model and a closed chain for agricultural products

To solve these difficulties in the context of small and fragmented production is not possible, many experts emphasized. They believe that, in order to expand digital transformation in agriculture, it is necessary to strengthen and develop cooperative groups and cooperatives, especially the cooperation model with the participation of enterprises, in which enterprises are the leading people. Farmers are central. On that basis, the province actively builds closed linkage models from research, development to farming, processing and consumption to ensure inputs and outputs for farmers and businesses. strong status everyone does.

The construction and development of this model, chain of links and cooperatives has been proposed by Tuyen Quang province in the Project of Restructuring the agricultural sector towards the development of commodity agriculture, forestry and fishery, focusing on key products and specialties in the chain of quality assurance, high added value associated with new rural construction in the 2021-2025 period, with a vision to 2030 . Tuyen Quang province identifies and effectively implements support policies to link production with product consumption; supporting the development of cooperatives and cooperative groups that carry out the production of goods in a sustainable chain; rural industry development; supporting small and medium enterprises to join industry clusters and value chains.

To realize this goal and solution, Tuyen Quang province needs to provide credit support for agricultural and rural development, land reclamation, lease of land use rights to accumulate land, encourage businesses to invest in agriculture and rural areas; supporting

the development of agricultural production of commodities and OCOP products ⁸⁸to consolidate and build production and consumption links.

Focus on supporting affiliates in building business linkage projects; building trademarks, geographical indications; promote and develop value chain brands; apply science and technology to production, improve productivity, quality and competitiveness of products; Finish the product to meet the standards of the importing country.

Secondly, strengthen the training of rural human resources to serve the shift in agriculture in Tuyen Quang province

A huge challenge and an urgent requirement in training and developing human resources to promptly supply human resources for the digital transformation of the agricultural sector in Tuyen Quang province are localities and units that need to building training models on the basis of linking training and scientific research with production activities.

On the other hand, to encourage localities and businesses to establish agricultural technology vocational training institutions and implement training cooperation programs in agricultural production areas.

Increase the opening of training courses at production facilities for rural workers, so that they can quickly access and promptly apply high technology to actual production, in parallel with the application of information technology in activities. agricultural services.

Thirdly, strengthen digital infrastructure for the agricultural sector of Tuyen Quang province

To implement digital transformation for agriculture in Tuyen Quang province, building digital infrastructure is necessary because Tuyen Quang province has poor digital infrastructure and lack of synchronization. Therefore, building digital infrastructure (connection system, equipment, operation center); building specialized information systems and databases (including shared data modules and specialized modules on cultivation, husbandry, irrigation, dikes, office blocks...); building digital applications for administration at the Department of Agriculture and Rural Development; include: website; software for making status reports and building plans; software to forecast indicators and natural disasters; software for granting and managing permits and planting area codes; software to monitor water level, flow, water quality and operate the irrigation system; online disaster prevention and control operating software; building an IoT system to monitor agricultural data in the province. In addition, it also completes and digitizes technical regulations and processes for agriculture and rural development, including: Technical processes for cultivation, harvesting and processing of crop production; plant pest control; livestock production, slaughter and processing; Seafood; planting and protecting forests; building digital applications to manage the operation of agricultural infrastructure systems and support production, manage products and connect agricultural markets for people and businesses, such as: Blockchain system for traceability original agricultural products; App agricultural electronic handbook... At the same time, focus on training for people and officials, creating human resources for operation and digital transformation application [13, 14].

⁸⁸OCOP (One Commune, One Product) is an economic development *program* in rural areas in the direction of promoting internal resources and increasing the value of products, :

Fourthly, diversify investment capital for digital transformation in agriculture

In recent years, investment resources for agriculture and rural areas are limited, only meeting 55-60% of demand. Therefore, the system of policies and laws on public investment in agriculture and rural areas needs to continue to be adjusted and perfected in the coming time, such as increasing investment spending in agriculture and rural areas; implement state budget allocation to ensure harmony between the interests of localities with conditions for industrial development with those of purely agricultural provinces. In addition, in order to attract private investment in the agricultural sector, especially through the form of PPP, it is necessary to have a breakthrough solution to take advantage of capital, qualifications, management capacity and strength. about the supply chains of the world's leading corporations, as well as Vietnam's in the agricultural sector. In particular, there are policies to encourage attracting FDI into the province. This is a source of great potential that the province needs to focus on in the coming time [15].

Thus, digital transformation in agriculture is an inevitable trend in the context of the industrial revolution 4.0 and is an objective requirement to improve the competitiveness and value of agricultural goods compared to the traditional farming model. traditional work. However, in order to implement agricultural digital transformation in Tuyen Quang province, it is necessary to implement many synchronous solutions because Tuyen Quang is a mountainous and purely agricultural province with many limitations and difficulties such as farming habits, low The basic level, capital and qualifications of farmers have not yet followed this new, advanced and modern method. If these solutions are implemented, the digital transformation process in the province will be as effective as desired, successfully contributing to the transformation of the province's economic structure in general and agriculture in particular towards modern, advanced.

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DEVELOPING INFORMATION TECHNOLOGY HUMAN RESOURCES TO MEET THE REQUIREMENTS OF DIGITAL TRANSFORMATION

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Abstract

Human resources and human resource development are factors that play a decisive role in the development of each country, each industry, and each field. Especially, for information technology (IT) which is the core field of the knowledge economy, IT is participating more and more deeply in all aspects of economic and social life and has become an indispensable factor for digital transformation. The Communist Party of Vietnam identifies the development of IT human resources as a key and decisive factor for the application and development of IT. The article points out that the requirement of digital transformation is inevitably for Vietnam and other countries in the world in the current context, the opportunities and challenges of Vietnam in the digital transformation process, in which the development of IT human resources is a big challenge. At the same time, the author focuses on analyzing the role, reality, necessity and solutions to develop IT human resources to meet the requirements of the digital transformation process.

Keywords: *Digital transformation, Digital technology, Human resources, Information technology*

1. Introduction

Over the past 35 years, we have been witnessing 3 waves of technology, each wave lasting about 15 years: The first wave, from 1985 to 1999, associated with the popularity of computers, was the first wave information digitization wave, converting documents from paper to electronic version. The second wave, from 2000 to 2015, associated with the popularity of the internet, mobile phones and mobile telecommunications networks, can be called the digital technology wave, digitizing business processes to enhance productivity and efficiency. The third wave, from 2015, is forecasted to last until 2030, associated with the development of the wave of digital transformation, bringing all real social activities to cyberspace. The success of the above waves in Vietnam is associated with the development of IT human resources in the doi moi period.

Today's IT under the impact of the 4.0 Revolution develops at an unprecedented speed. The speed of digitization and new technology opens up new prospects, new business models and new values, but also poses many challenges and risks of falling behind. Every country, organization or individual must make efforts to transform, seize opportunities, and overcome challenges if they do not want to be left behind. Digital transformation is a process of total and comprehensive change of individuals and organizations in the way of living,

working and production methods based on digital technologies, so the improvement of digital skills, development National digital transformation human resources play a particularly important role in determining the success of digital transformation. To develop human resources on all three pillars of building a digital government, developing the digital economy and a digital society, requires a huge human force with expertise in IT, digital technology and digital skills. Meanwhile, currently, IT human resources in Vietnam are in serious shortage, not meeting the quality requirements. To meet the requirements of digital transformation, IT human resources need to have further development in quantity and quality, meet social requirements, and be the driving force of the national digital transformation process.

Currently, in the world and in Vietnam, there are many studies on IT human resource development, however, research on IT human resource development to meet digital transformation requirements is very limited, because digital transformation is a new problem in Vietnam. Therefore, the author wants to clarify the current situation of IT human resource development; digital transformation in Vietnam is inevitable with very positive initial results; requirements and some solutions to develop IT human resources to meet the national digital transformation.

2. Method

The article uses both qualitative, quantitative and logical research methods. Qualitative methods for the study of digital transformation. Quantitative method of research on the development of the ICT industry, the digital transformation process and the current situation of IT human resource development in Vietnam. Logical method to find out the relationship from the theoretical basis, the actual situation and to point out the requirements and necessary solutions to develop IT human resources.

3. Results

3.1. Digital transformation and IT human resource development requirements

Digital Transformation is defined as “a process that aims to improve an entity by making significant changes to its properties through a combination of information technology, computers, communication and connect” (Vial, Gregory, 2019). Siebel (2019) defines digital transformation as the convergence of the following four breakthrough technologies: Cloud Computing, Big Data, Internet of Things (IoT), Artificial Intelligence (WHO). This convergence makes the scope and influence of digital transformation extremely large, so there are many different views and approaches to digital transformation. Leaders and human resource managers pay attention to the impact of digital transformation to restructure the economy, industries, businesses and the impact on the workforce. Technical managers are interested in applying digital technology to create new economic values... In terms of practical implementation, digital transformation is a means/tool to support changing a profession or industry businesses to survive and develop in the digital age. Digital transformation, if carried out in a systematic and synchronous manner, can make a business, an industry, or a country take off. Digital transformation is actually another name for the 4.0 revolution as Ustundag and Cevikcan (2019) pointed out: “The transformation

era that we are living in is different from other eras that not only bring about changes in the economic process basic business but also highlights the concept of intelligent interactive products embodied in service-oriented business models”.

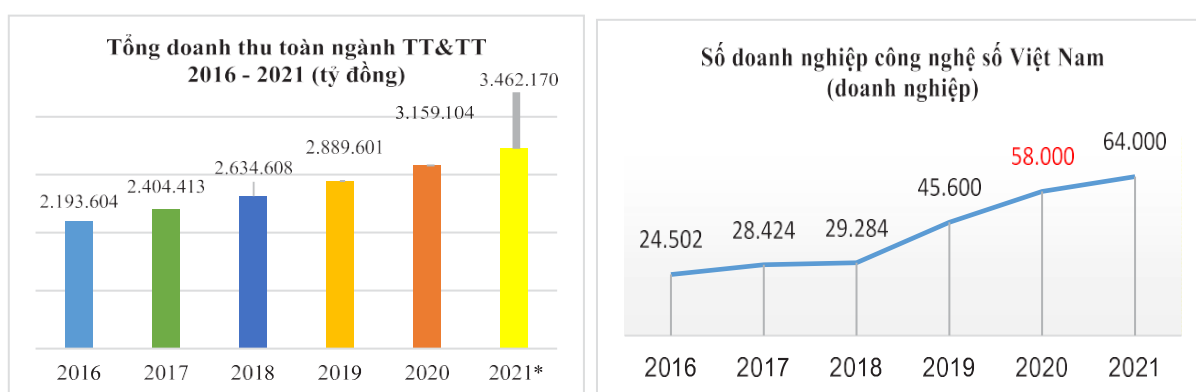
Digital transformation is an inevitable trend of the world, an objective requirement of development, and Vietnam cannot stand aside. According to a forecast by McKinsey (2020), by 2025, the digital transformation impact on GDP of the US will be about 25% and that of European countries will be about 36%. With three main pillars in national digital transformation namely digital government, digital economy and digital society, Vietnam is one of the pioneer countries in the world in building a national digital transformation program approved by the Government approved to meet the development requirements of the country in the new period. Resolution No. 52-NQ/TW, dated September 27, 2019 of the Politburo *"On a number of guidelines and policies to proactively participate in the Fourth Industrial Revolution"* emphasizes the goal by 2025, economic The digital economy will account for about 20% of GDP and over 30% of GDP by 2030, with labor productivity increasing by over 7%/year. In 2045, Vietnam aims to become one of the leading smart manufacturing and service centers, start-ups and innovation in Asia.

The Prime Minister's Decision No. 749/QĐ-TTg dated June 3, 2020 approving the *"National Digital Transformation Program to 2025, with a vision to 2030"* has clearly stated the vision; basic goals; opinion; tasks and foundations for digital transformation; a number of tasks and solutions to develop digital government/digital economy/digital society; Some priority areas need digital transformation. The decision sets out a vision that by 2030, Vietnam will become a digital, stable and prosperous country, a pioneer in testing new technologies and models; fundamentally and comprehensively renovate the management and administration activities of the Government, production and business activities of enterprises, the way of living and working of people, developing a safe, humane, and wide digital environment. all over. At the same time, it aims to achieve the dual goal of developing a digital government, a digital economy, and a digital society, as well as forming Vietnamese digital technology enterprises capable of going global.

Over the past time, Vietnam has achieved certain achievements in digital transformation. Accordingly, guidelines, institutions and policies on digital transformation are relatively complete, and basic legal documents have been issued. Notably, digital technology applications were built quickly (contributing to the whole country's participation in the prevention of the COVID-19 epidemic); State agencies, businesses and people have actively used and promoted the application of information technology in all aspects of life, economy and society, especially online public services.

Currently, the IT industry is identified as the foundation for implementing the Industrial Revolution 4.0 with core elements such as: Artificial Intelligence (AI), Internet of Things (IoT), Big Data. IT appears in most fields such as: economy 4.0, smart services, smart agriculture 4.0, smart health 4.0, smart education 4.0... The ICT industry is the basis for the boom. With the explosion of Vietnam's digital economy, the trend of digital transformation has helped the IT industry to face strong long-term growth opportunities. The report of the

Ministry of Information and Communications shows that the total revenue of Vietnam's Information Technology - Telecommunications industry in 2020 has reached 124.678 billion USD. The average growth rate in the period from 2016-2020 is 16.23 % /year, an increase of more than 1.8 times after 5 years (Ministry of Information and Communications, 2021). In 2021, the revenue of the information and communication industry will reach VND 3,462,170 billion, basically completing 100% of the set plan, up 9% compared to 2020. Number of digital technology enterprises in Vietnam, 2021 has about 64,000 digital technology enterprises, an increase of 9.5% compared to 2020 (Ministry of Information and Communications, December 2021). In particular, in the two years 2020 and 2021, other fields are heavily affected by the Covid-19 epidemic, but the ICT industry has become the bright spot of Vietnam's economy, being one of the few economic sectors that has large revenue, contributing much to the state budget.



Figures 1, 2: Total revenue of the entire ICT industry 2016-2021 (VND billion) and number of Vietnamese digital technology enterprises in the period 2016-2021

Source: Ministry of Information and Communications, December 2021

Currently, Vietnam is facing opportunities and challenges in the digital transformation process. Researchers have pointed out a number of important prerequisites for digital transformation such as: 1- High proportion of people using internet platforms; 2- The adaptability of people, businesses and authorities in digital transformation; 3- The high level of competition in internet services contributes to diversifying service types and lowering costs compared to other countries in the region; 4- Inter-industry linkage services and infrastructure structure are increasingly improved (Tran Quang Tuyen, Le Van Dao, 11/2021), information technology tools and platforms are used by enterprises used more and more. Vietnam also has the presence of some of the world's leading IT corporations.

However, Vietnam is facing many difficulties and challenges. In April 2020, Cisco released the Report "Digital Development Index of Small and Medium Enterprises in Asia - Pacific", covering more than 1,340 enterprises operating in the Asia-Pacific and 50 Vietnamese enterprises. In Vietnam, enterprises are facing "barriers" in the digital transformation process such as: lack of digital skills and IT human resources, lack of strong enough IT foundation to enable digital transformation digitalisation, lack of digital thinking or digital cultural challenges in the business (Cisco, April 2020). In which, a noticeable challenge is the lack and weakness of IT human resources for digital

transformation. It is increasingly difficult for businesses to find and retain good data analysts, programmers, and modelers.

In order to ensure the implementation of digital transformation in the three pillars of Digital Government, Digital Economy and Digital Society, in addition to investing in modern facilities and implementing advanced technical measures, investment in mining and developing human resources mastering digital technology plays a very important role, especially IT human resources with digital technology skills and knowledge.

The Government has given directions for the development of digital human resources in general, IT human resources to meet the requirements of digital transformation in particular. Decision No. 146/QĐ-TTg of the Prime Minister, dated January 28, 2022 approving the Project *"Raising awareness, universalizing skills and developing human resources for national digital transformation to 2025, defining towards 2030"* identified: Human resource development is the key to effective and sustainable digital transformation, helping to successfully realize the goals of the National Digital Transformation Program to 2025, with orientations to 2030. The Government defines the target by 2025 as: 100% of staff in charge of digital transformation and information technology are annually trained, retrained and trained in digital technology and are evaluated online through the skills assessment and testing system number of countries. Training at least 1,000 digital transformation experts in industries, fields and localities to become the core force leading, organizing and spreading the national digital transformation process. Training 5,000 engineers, bachelors and bachelors of high quality practice in digital technology at universities and colleges with strengths in training in digital transformation. Goals by 2030: Train 20,000 engineers, bachelors and bachelors in high-quality practice in digital technology at universities and colleges with strengths in digital transformation training.

Besides, according to the orientation in the draft Project *"Training and developing human resources for digital transformation to 2025 and orientation to 2030"*, each year we need to train about 100,000 highly qualified IT engineers, of which about 10,000 are digital professionals, which shows that the need to develop in the quantity and quality of IT human resources becomes even more urgent. Therefore, if the Party and State do not take drastic actions and do not have strong enough mechanisms to meet the quantity and quality of world-class human resources, Vietnam will not be able to realize its goals development in the information age.

3.2. Current situation of IT human resource development

In the early 90s, Vietnam's IT human resources were still very thin, both in terms of research and training, implementation and application. In particular, the IT core force, with deep knowledge and mastery of key technologies... has appeared sporadically, scattered and fragmented. The number of professional staff working in the IT field is small, not yet assigned and coordinated under a unified goal to create synergy. New universities only train a small number of students in IT-related fields. After implementing the "National Program on IT" in 1995, the number of IT human resources has increased in number. In 1998, there were about 20,000 IT human resources in our country (Vietnam Informatics Association,

1998). After being invested and developed by the Party and State, by 2019, the total number of IT industry employees is 1,055,000 people (Ministry of Information and Communications, 2020), the first time IT human resources has surpassed the number of 1 million people, completing 1 year earlier the goal of Vietnam's IT human resources to reach 1 million people by 2020.

The number of IT training schools has also increased rapidly: in 2000, there were 42 universities, 36 colleges and 9 non-formal IT training institutions (Ho Chi Minh City Informatics Association, 2003), in 2020 has increased to 158 universities and 442 colleges and vocational schools providing IT training, in which the total target of university enrollment in IT, electronics, telecommunications, and information security for the school year 2020 – 2021 is 82,085 students (Ministry of Information and Communications, 2020). The annual number of university and college students majoring in IT and communications is estimated at more than 50,000 people. IT vocational schools annually provide about 12,000 people (Nhat Nam, 2019).

Table 1. Number of universities, colleges, vocational schools and enrollment targets for IT majors (2010-2020)⁸⁹

Year	College and University block		College, Vocational secondary school	
	College and University number	Enrollment targets (students)	College, Vocational secondary school number	Enrollment targets (students)
2010	277	60,332	186	66,631
2011	290	64,796	113	32,632
2012	290	65,501	143	25,527
2013	290	67,518	228	24,569
2016	250	68,883	204	18,311
2017	131	48,631	412	67,673
2018	149	51,114	412	67,662
2019	158	68,435	442	52,424
2020	158	82,085	442	56,838

Source: Ministry of Information and Communications, 2010-2021

The reality of IT enrollment in universities, colleges and vocational schools is quite high. In 2020, the actual rate of students entering universities and colleges is 84% and colleges and vocational schools are 68.27% (White Paper 2021). The number of IT graduates increases steadily every year, in 2016 the graduation rate reached 93.88 % (about 64,000 people). For vocational schools, the graduation rate reaches 52.4 % (about 9,600 people) (Ministry of Information and Communications, 2017).

In order to improve the quality of training, besides investing in material and technical facilities, renovating education and training, universities and colleges focus on training,

⁸⁹ Data for the year 2017-2020, a number of colleges have moved from the Ministry of Education and Training to the Ministry of Labour, Invalids and Social Affairs

improving professional qualifications and English for IT teaching staff to ensure sufficient English language teaching skills. Many universities have policies to attract overseas Vietnamese scientists and international IT experts to participate in training and scientific research; promote forms of high-quality training association, exchange of lecturers and experts with foreign countries; encourage experts, technicians, managers with professional experience in enterprises to participate in training IT human resources. At the same time, many training institutions conduct the selection and direct use of IT documents and textbooks in English; have policies to encourage and give incentives to students to write and defend their projects, graduation theses and essays in English or other foreign languages; use bilingualism when compiling and publishing training programs.

Since 2017, the Ministry of Education and Training has advocated allowing universities and colleges to provide IT training according to specific mechanisms. Accordingly, the training program has 30%-50% of the time to study and practice at the enterprise (directly trained by the experts of the enterprise). The school works closely with IT enterprises in the training process to improve students' practical skills and practical application. At the same time, universities must publicize on the website of the training institution and report to the Ministry of Education and Training on the employment rate (12 months after graduation), the degree of satisfaction of the requirements job requirements of IT students after graduation. Training institutions promote training according to the orders of businesses and according to the needs of society, and link training between user facilities and IT human resource training institutions.

As a result, the number of students and graduates in IT is relatively large and a part of them have met the high requirements while working and researching in IT. However, currently, IT human resources have not yet met the labor market demand. According to Vietnamworks forecast, our country currently lacks about 400,000 IT workers and needs to supply 78,000 new employees every year (Vietnamworks, 2015). The demand for recruiting human resources in this industry increases when the Government promotes digital transformation, technology 4.0, and businesses in the IT field are born more and more, leading to fierce competition for human resources. Although the demand for IT human resources is very large, domestic IT human resource training institutions have not met the development needs of society, especially in training high-quality engineers. Currently, only about 27% of IT workers can meet the requirements, the remaining 72% need additional training for at least 3 months (Nhat Nam, 2019). According to the Prime Minister's Decision 1755/QD-TTg in 2010 approving the *project " Make Vietnam a strong country in information and communication technology" by 2020, 80% of IT students and media graduates from universities with sufficient professional and foreign language skills to be able to participate in the international labor market.* Thus, regarding the quality of human resources, we have not yet achieved the set target.

On the other hand, the digital transformation includes 03 main pillars: building a digital government, developing the digital economy, and a digital society, requiring a large IT workforce with deep expertise in digital technology and digital skills. Currently, there is

a serious shortage of human resources for digital transformation on all three pillars of Vietnam. The digital transformation requires a lot of human resources trained in new and specialized areas of Artificial Intelligence (AI); Big Data; Cloud Computing); Internet of Things (IoT); Virtual Reality/Augmented Reality (VR/AR); Blockchain; 3D Printing... but currently very few training institutions have these new majors. Most universities, colleges and vocational schools providing IT training to serve the requirements of digital transformation are facing challenges due to the lack of teaching staff; The training programs and contents have not been standardized, the facilities and practice rooms for research training are inadequate.

IT enterprises have not cooperated and closely associated with state management agencies and training institutions in training IT human resources. Some businesses, although they have affiliate programs with training institutions that accept interns, and support jobs for students after graduation, but only focus on some fairly good students, not paying attention to them long-term development leads to output imbalance.

Along with promoting digital transformation across the country, in all industries and fields, the demand for human resources knowledgeable and deeply skilled in IT and digital transformation in agencies, organizations and businesses is increasing business is becoming more and more urgent. Meanwhile, human resources in the public sector have not met the actual requirements in both quantity and quality. On average, each unit under the Ministry, ministerial-level agency has 5.8% of civil servants in charge of IT; in the province and city block is only 1.4% (Ministry of Information and Communications, 2020). In many units, a computer science engineer has to

perform many tasks concurrently, and his qualifications are not guaranteed, so the consulting work on implementation and application at agencies and localities is not deep and unsatisfactory request. The majority of IT staff in agencies, organizations and enterprises have not been trained in digital technology and have not obtained certificates from reputable domestic and international organizations.

4. Discussion and Conclusion

4.1. Discussion

Some solutions to develop IT human resources to meet the requirements of digital transformation

One, it is necessary to foster and raise awareness of digital transformation and digital governance for leaders, managers, and staff working in digital transformation consulting in state management agencies to commune levels, corporations, the corporation and all lecturers, officials and employees in universities, colleges and vocational training institutions. Focus on training to update knowledge and skills of digital transformation, digital technology, and digital platform for lecturers. Standardize the training majors associated with the profession according to international standards. Promote overall and comprehensive digital transformation, drastically change processes and modes of operation, apply digital platforms and digital technologies, especially open platforms and open technologies for rapid digital transformation and overview...

Two, deploying the construction of a coordination mechanism between 03 agencies: the State, the trainer, and the user in developing IT human resources. In which, state agencies have the role of leading and linking universities, colleges, vocational education and training institutions with enterprises to develop human resource training programs according to actual requirements and requirements business order. Building and implementing digital platforms connecting education and training institutions with businesses in order to exchange information and promote learning from real work; training and retraining digital skills for employees to adapt to the labor market, connecting labor market supply and demand.

The benefits of “Order” training are clear, but it is not easy for each school. To be able to create human resources suitable to the requirements of socio-economic development, all training plans must be oriented to the needs of the labor market, must be associated with the goals and tasks of economic development, local society. Education - training not only meets social needs, but also has to "go ahead" to create social needs. Establishing a relationship between schools and businesses is an urgent issue to improve the quality and effectiveness of training. However, in order to have such relationships besides the voluntariness of both parties, it is necessary to have appropriate policies and mechanisms to acknowledge and support this relationship to develop. This relationship needs to be institutionalized by legal documents, not arbitrarily according to the feelings of school and business leaders.

Three, organize training of lecturers and researchers specializing in digital technologies such as artificial intelligence technology, blockchain, big data, cloud computing, digital finance, digital business, digital communication. It is necessary to promote doctoral training abroad for lecturers and researchers in digital technology. Organize additional training, update digital knowledge and skills for university lecturers, especially lecturers of economic and social majors.

Fourth, education and training institutions need to increase resources to increase training targets for IT human resources, open more training majors or update and supplement training content on digital transformation in the field of digital transformation sector, industry or profession. Open new majors and increase training quotas for engineers and bachelors in universities and colleges, and practical engineers and technical workers in digital technology vocational colleges such as: AI; Big Data; Cloud Computing; Iodine; VR/AR; Blockchain; 3D Printing; New Generation Network Technology; Intelligent Robots; Data Science... Innovating training programs and increasing training targets for the fields of technology, engineering, and application of technology. Standardize training majors associated with occupations according to international standards.

Fifth, short-term training in digital transformation and digital skills for professional IT human resources in the IT industry; a team of leaders and staff specialized in IT in agencies, units and enterprises. Training at least 1000 IT experts on digital transformation for industries, fields and localities. The above staff and experts continue to re-train staff in their agencies and organizations and become the core force to lead, organize and spread the process of national digital transformation. At the same

time, forming a national network of digital transformation experts on the basis of linking IT experts with experience in digital transformation with domestic and foreign experts and scientists working in the field of digital transformation, digital technology to combine the power of knowledge, promote digital transformation.

Sixth, implement digital transformation, improve capacity and quality of training and research of IT training institutions. Universities and colleges providing IT training must regularly update the knowledge and skills of digital transformation and digital platforms for the teaching staff. Standardize the training majors associated with the profession according to international standards. Support digitally in training programs, curricula and methods, especially import new and advanced training programs in digital technology, digital economy and digital society. Invest in building and upgrading laboratories on digital technology and digital platforms to serve training and research in order to increase training capacity and quality in digital transformation and digital technology.

Seven is, develop and annually publish forecasting reports on human market demand and future careers in the fields of information technology, electronics - telecommunications, network information security, digital transformation human resources in Vietnam for a suitable training solution; Update trends and introduce some new industries and occupations that require new skills.

Eight is, promote international cooperation in IT human resource development. Domestic universities need to cooperate with major research institutes, universities and research centers in the world on technology and digital platforms to build a smart university system and gradually form new universities leading research center on science, technology and digital in the region and in the world. In the context of deep international integration, international cooperation in training and scientific research is an important factor to develop IT human resources.

4.2. Conclusion

- Digital transformation is an inevitable trend of the world, an objective requirement of development and Vietnam cannot stand aside. The Party and State of Vietnam have promptly set out guidelines and policies to implement the National Digital Transformation. The digital transformation process in Vietnam has achieved some important results, happening more quickly due to the impact of the Covid-19 epidemic.

- To successfully conduct Digital Transformation, it is necessary to invest in training and developing human resources mastering digital technology, especially IT human resources with digital technology skills and knowledge. However, the current situation of IT human resources shows that the Digital Transformation process is facing great challenges, because of the lack of high-quality IT human resources to meet the requirements of digital transformation.

- Strengthening solutions to develop IT human resources to meet the requirements of Digital Transformation is one of the tasks to be performed in the current period.

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INFLUENCE OF EWOM ON THE INTENTION TO USE DIGITAL BANKING: A RESEARCH ON GENERATION Z CUSTOMERS IN HANOI, VIETNAM

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Abstract

Digital transformation in the banking sector is an inevitable trend in the digital age. The development of digital banking depends of course on customer acceptance. Customer acceptance of digital banking services is influenced by many internal and external factors. Along with the development of the internet and social networks, electronic word of mouth (eWOM) is becoming an important source of information that affects customer behavior. This paper is based on a quantitative survey of 305 Gen Z customers of the bank to examine the influence of eWOM factors on the attitude towards eWOM information and the intention to use the digital banking. Research findings have shown that factors including tie strength, homophily and source credibility have a positive influence on the attitude towards eWOM information and the intention to use digital banking. Research findings have suggested some managerial implications for commercial banks about communication activities through eWOM to develop digital banking.

Keywords: *Word of mouth (WOM); electronic word of mouth (eWOM); Attitude towards eWOM; Homophily; Intention to use digital banking; Source credibility.*

1. Introduction

Along with the development of the internet and information technology, digital transformation has been a strong development trend across the world in general as well as in Vietnam in particular. According to the Vietnam Digital 2021 report which was jointly published by We are Social and Hootsuite in February 2021, as of January 2021, Vietnam has 68.72 million Internet users, accounting for 70.3% of the total population, 72 million social network users, accounting for 73.7% of the total population, 154.4 million mobile connections.

The advancement and strong spread of the Internet over the past decades has rapidly increased the number of online users, allowing a strong and continuous exchange of information among consumers, forming a new form of communication called electronic word of mouth (eWOM). The emergence of social networking sites has offered a new condition for eWOM as users can communicate with each other in cyberspace. Consumers

can share their reviews and opinions about products and services through online platforms such as social networks, blogs, etc. Recent studies show that social media has increased the number of online reviews and opinions (Trusov et al., 2010). eWOM has certain influences on the purchase process of customers, especially the search of information when customers do not have much information about a new product or service, affecting the formation of purchase intentions for new products and services.

In the banking sector, digital banking services (D-banking) have been growing strongly along with the development of e-commerce activities, promoting domestic and international economic and commercial activities thanks to its convenience, speed, accuracy, saving time and effort for users. Digital banking services have been replacing traditional methods of providing banking services. In the context of the recent Covid-19 pandemic with regulations on social distancing, the trend of using D-banking is more likely to develop. However, according to Vietnam E-banking market research report released in January 2021 by Mibrand - a brand consulting company, many banking services on D-banking platform have not been known to everyone, except for intrabank and interbank money transfer services. In which, typical banking services such as savings, international money transfers, credit card payment, insurance purchases, or ATM card locking/unlocking saw an average awareness (only 30-60% of users) and low usage (about 20% of users). The reason can be that digital banking (D-banking) is a new technology-based method of providing banking services, so many individual customers do not have a full understanding of this service, its reliability, safety as well as the method of using the service. Individual customers will certainly have to search for a lot of information before making a decision on accepting a digital banking service. Internet is the place to provide complete information in the simplest and fastest way for potential customers, forming an intention to use digital banking services. Therefore, this paper examines the influence of eWOM on the attitude of potential customers towards eWOM and the intention to use digital banking services. The study focuses on Gen Z customers, young customers, those who are savvy about technology, internet and social networks; this group will be the most important potential customers of banks in the future.

2. Theoretical basis and Research model

2.1. Word of mouth and electronic word of mouth

Word of mouth (WOM) is the direct transmission of information among people. To date, there are different definitions of WOM. Arndt (1973) defined WOM as “a one-on-one communication between a receiver and a communicator, concerning a brand, a product or a service, that is perceived as noncommercial by the receiver”. Litvin et al., (2008) defined WOM as “*the reciprocal communication between consumers about a product, service, or company in which the sources are considered independent of commercial influence*”. Although there are different definitions, researchers agree that WOM includes verbal communication between individuals (Nyilasy, 2006). “*WOM is oral, person-to-person communication between receiver and communicator whom the receiver perceives as non-commercial, concerning a brand, a product, a service or an organization*”.

Word-of-mouth activities on the internet platform are called electronic word of mouth (eWOM), “are all activities that transmit information about the features or attributes of certain goods and services or providers on the internet platforms addressed to customers” (Litvin et al, 2008). Hennig-Thurau et al. (2004) offered a more specific definition, narrowing the scope of eWOM while clearly distinguishing between transmitters and receivers of eWOM communication: “any positive or negative statement made by potential, actual, or former customers about a product or company, which is made available to a multitude of people and institutions via the Internet”. Ismagilova et al., (2017) introduced a new concept for eWOM: “eWOM is a dynamic and ongoing information exchange information process between potential, actual, or former consumers regarding a product, service, brand, or company, which is available to a multitude of individuals and institutions via the Internet”. This concept emphasizes that the exchange of eWOM information is not an immutable process but an ongoing and dynamic information exchange process, and the message itself is spread on the internet. In addition, this concept also indicates the content and source of eWOM information.

Table 1. Differences between WOM and eWOM

Features	WOM	eWOM
Network width	Information is shared among individual groups or small communities	Information can be spread out of a locality due to wide internet connection
Circumstance	Almost face to face	On the internet
Tie strength	Strong tie as it happens between relatives, friends or acquaintance	Weak tie as it happens mainly between strangers
Privacy	Private	Information is shared in the group
Anonymity	No	Yes
Speed	Spread mainly among small individual groups	Spread on different social networks, so the speed is faster
Sustainability and accessibility	Difficult	Easy
Measurement	Difficult	Easy
Scope	Narrow	Wide

Source: Synthesized by the author

2.2. Digital banking service

Currently there are different definitions of the term “digital banking” in the financial industry. Generally, digital banking is a banking model based on a digitized platform that integrates traditional banking operations and services, thereby helping customers to perform almost all conventional banking transactions in the online form via internet. All banking transactions will be conducted on the websites or mobile devices.

Globally, the digital banking trend is booming as most of the big banks have boosted investment in applying digital technology to business activities. In Vietnam, most commercial banks have been actively implementing digital transformation to create a seamless customer experience across payment channels. New applications and solutions are introduced by banks such as Biometric authentication (fingerprint, eKYC); Quick response code (QR code); Secure and convenient payment through card information encryption; Contactless payments; Flexible payment acceptance solution on mobile devices, etc. Commercial banks continuously announce and introduce new digital banking services such as BIDV with SmartBanking, Vietcombank with VCBDigibank.

2.3. Influence of eWOM on the intention to use digital banking

2.3.1. Factors of eWOM influencing attitude towards eWOM and purchase intention

The influence of eWOM on consumer behavior has been paid great attention by scholars. Literature shows the influence of eWOM on consumers in aspects of: information acceptance (Aghakhani and Karimi, 2013; Cheung et al., 2008), changing attitudes towards eWOM (Bartikowski and Walsh, 2014; Chih et al, 2013), and purchase intention (Akyüz, 2013; Bartikowski and Walsh, 2014).

Attitude toward eWOM information acceptance refers to the extent to which individual consumers perceive and use eWOM in their purchase decisions (Cheung and Thadani, 2012; Lis, 2013; Sussman and Siegal, 2003). A study conducted by Cheung (2014) discovered that the factors of eWOM influence consumers' attitude towards information acceptance. eWOM adoption may lead to changes in consumers' attitudes towards products/services and their purchase intentions. As such, consumers' purchase decision-making process is significantly influenced by the eWOM information they receive (Fan et al, 2013).

Studies have shown that factors of eWOM including source of information, message quality, relationship between sender and receiver, influence consumers' attitude towards accepting eWOM. Studies have also shown that factors of eWOM have an influence on attitudes towards eWOM information (Kim et al, 2018), thereby on attitudes towards products (Chih et al, 2013; Park, 2008).) and brand (Lee et al, 2009; Wu and Wang, 2011), thereby influencing consumers' purchase intention (Cheung and Thadani, 2012).

Based on the Online Social Networking (OSN) research framework (Brown et al, 2007), Kim et al (2018) mentioned the role of three social networking factors on the websites (tie strength, homophily and source credibility) in consumers' attitudes and perceptions towards eWOM. The research findings show that the homophily and the tie strength between the social networking site and the consumer are important drivers for the eWOM source credibility, thereby influencing attitudes towards reviews as well as towards social networking sites. Attitude towards eWOM acceptance is formed through perception of tie strength, homophily, and source credibility and impacts the influence of eWOM on purchase intention of consumers.

Studies on the influence of eWOM information on attitude towards eWOM mainly focus on the following factors:

- Argument strength
- The attractiveness of eWOM
- Quantity of eWOM
- Quality of eWOM
- Form of eWOM

A study conducted by Rabjohn et al (2008) found that the adoption of information in online communities is significantly influenced by the usefulness of the information. Luo et al (2014a) reported that the data were collected from two well-known websites in China (www.jd.com and www.pconline.com). The research has observed that two central factors - information comprehensiveness and argument strength - and two peripheral factors - consistency and quantity of information - may influence the adoption of information. The high number of eWOM messages and its contents may lead to information overload. Negative eWOM has a stronger influence than positive one on attitudes. A research conducted by Shuang (2013) using a textual data collection and indepth interviews found that information quality and source credibility positively influence the adoption of information.

2.3.2. Research models and hypotheses

Based on overview of literature on the factors of eWOM that influence the positive attitude towards eWOM and thereby influencing the purchase intention, the author has built a model to study the influence of these factors of eWOM on attitudes towards eWOM and intention to use digital banking. However, instead of just measuring the relationship between the receiver and the social networking site, the author decided to consider the relationship and the social network of the sender-receiver in the general online environment.

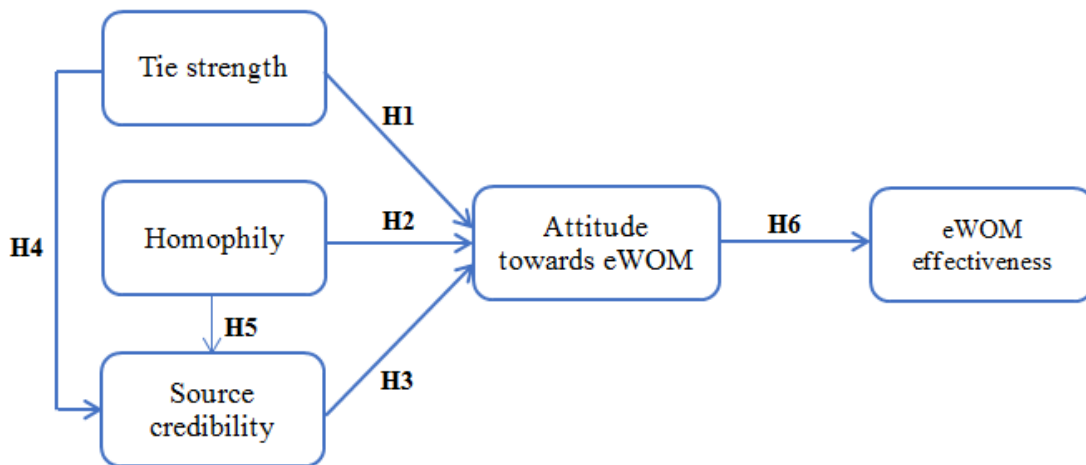


Figure 1. Research model

Research hypotheses in the model

Tie strength between eWOM sender and receiver

Tie strength refers to “the influence of ties between members of a network” (Mittal et al, 2008). According to Granovetter (1973), social ties can be classified as strong or weak (less strong). Close friends and relatives are considered strong ties, while neighbors, colleagues, acquaintances or friends are considered less strong ties (Gilbert and Karahalios,

2009; Marsden and Campbell, 1984). Word-of-mouth information given by friends of strong tie is more influential than that given by friends of less strong tie in decision making (Brown and Reingen, 1987). In addition, when people perceive their tie strength, they are more likely to engage in eWOM behaviors on social networking sites (Chu and Kim, 2011).

On the other hand, weak ties are often between less strong and less personal social ties including acquaintances and colleagues, facilitating the search for information on diverse topics (Pigg and Crank, 2004). Weak ties act as a communication bridge between strongly-tied groups and can allow people to access resources which are not available in their strong ties (Constant et al., 1996). The number of friends of people with weak tie is much higher than that of people with strong tie. Furthermore, friends of people with less strong tie offer more potential help (Friedkin, 1982) and offer more diverse advice than those with strong ties (Burt and Minor, 1983). However, people may not trust less strong ties as much as strong ones.

H1. The strong tie between eWOM sender and receiver has a positive influence on attitude towards eWOM information.

Homophily

Homophily refers to the degree to which individuals interact with each other share certain attributes (Rogers and Bhowmik, 1970). Previous literature has concluded that friends and members of social networks tend to be similar with respect to sociodemographic characteristics such as gender, race, and age, as well as perceptual characteristics such as beliefs and attitudes (Gilly et al, 1998).

Individuals with higher levels of attractiveness and trustworthiness develop higher levels of emotional attachment (Hyun and Kim, 2014). Furthermore, individuals tend to interact more with people sharing similar attributes (such as age, gender, ethnicity, education level) as it helps to reduce potential conflict in the relationship through trust and emotional attachment (Katz et al, 2004). Therefore, consumers with a higher level of homophily may be more likely to engage with each other's eWOM when making product choices. Despite the diversity of Internet users in general, online consumers can freely choose certain topics and participate in virtual communities, and therefore can direct their social interactions to consumers who are like themselves (Best and Krueger, 2006).

On social networking sites, similar demographic characteristics such as age and education level, describe users on these sites (Solman, 2007). Thus, social networking sites can do a great job of attracting consumers who have a lot in common, and this phenomenon increases the likelihood of those people engaging in eWOM behavior.

Similar people can bolster trust as the proposed solutions can also work for the receiver due to the similarity between the sender and the receiver (Levine and Valle, 1975). Social cognitive theory suggests that people are susceptible to being influenced by social figures who are perceived to be like themselves (Bandura, 1994). For example, millennials are more likely to purchase a product endorsed by someone who matches their self-image, according to Sukhdial et al (2002). Although, homophily may have an opposite effect if the receiver considers the sender to be a non-expert (Goethals and Nelson, 1973), particularly regarding matters related to objective truth.

H2. Homophily has a positive influence on attitude towards eWOM information.

Source credibility

Source credibility is a term used to refer to the positive characteristics of the sender that influences the receiver's acceptance of the message. Significant evidences from previous studies have shown that source credibility is an important factor that influences attitudes towards eWOM adoption (Park and Lee, 2009; Wu and Wang, 2011). Although there remains debate over the exact metrics, source credibility is generally considered to consist of two important aspects: reputation and expertise of the sender. Reputation refers to the extent to which the source conveys authentic information (Willemsen et al, 2012). Another aspect of source credibility is expertise, which is defined as the degree to which a source is considered to be capable of making reasonable and sound assertions (Willemsen et al, 2012).

Banks' customers are likely to trust information posted by people with higher expertise, knowledge, experience or skills related to digital banking. A large number of studies have provided empirical evidence that source credibility has a positive influence on the attitudes and behavior of message receiver, and that reliable sources are more persuasive than untrustworthy ones (Ayeh et al, 2013). Source credibility greatly influences customers' attitudes towards eWOM, as well as their intention to use digital banking. Therefore, if a consumer believes that the review is written by an expert, they are more likely to consider it positively, which positively influences their purchase decision. It is expected that when consumers consider reviews to be reputable and trustworthy, they are more likely to develop a positive attitude towards both the review and the product.

H3. Source credibility has a positive influence on attitude towards eWOM information.

Relationship between tie strength, homophily, and source credibility

The credibility of information received is usually determined by assessing the sender's level of knowledge and expertise (Brown et al, 2007; Gotlieb and Sarel, 1991). As sender and receiver often have a close personal relationship in this context, it is easier for the receiver to assess the sender's knowledge, which finally determines the credibility of the source.

When considering social and relational factors that determine the source credibility, the tie strength and homophily should be taken into account. Individuals tend to regard information created in a strong tie relationship as more reliable (Brown et al, 2007; Mack et al, 2008; Zhu and Zhang, 2010).

Based on this argument, this paper proposes that credibility evaluations are influenced by the receiver's perception of the relationship with the eWOM sender, which is expressed by the tie strength and homophily. When individuals in a strong tie relationship with someone who shares eWOM information, they are more likely to feel that person's evaluations are more trustworthy.

H4. Tie strength has a positive influence on the source credibility

H5. Homophily has a positive influence on the source credibility

Influence on the effectiveness of eWOM on intention to use digital banking services

Studies on consumer behavior show that consumers' emotional and cognitive attitudes towards eWOM information determine the relationship between eWOM evaluation and product/service evaluations (Harrison-Walker, 2001). Thus, a positive attitude towards eWOM helps to increase purchase intention. If eWOMs are considered trustworthy due to their tie strength and homophily, customers are more likely to rate eWOM information and digital banking positively and they will consider such eWOM information when making decision on using digital banking. Therefore, it would be reasonable to assume that attitude towards eWOM information has a positive influence on the effectiveness of eWOM on receiver's intention to use digital banking.

H6. Attitude towards eWOM information has a positive influence on the intention to use digital banking

3. Method

Qualitative research method is used to examine the relationship between the variables and adjust the scale for each variable with a focus on the factors that affect the effectiveness of eWOM on the intention to use digital banking. Two groups directly interviewed are experts in the fields of economics, especially in the fields of Marketing and Finance - Banking and Generation Z students who are customers of commercial banks. Qualitative research results are used to calibrate scales which have been inherited from existing studies.

Quantitative research method: The research used a questionnaire to survey a sample of generation Z customers of the bank, who are mainly students in Hanoi. The data were encrypted and analyzed using SPSS data analysis software. Next, the scale model and proposed hypotheses were analyzed and tested through the following procedures:

- Preliminary evaluation of the scale as well as the reliability of the measured variables through Cronbach's Alpha coefficient of reliability and exploratory factor analysis (EFA);
- Testing the scale by confirmatory factor analysis (CFA);
- Testing model by SEM in AMOS

The author uses Cronbach's Alpha coefficient to determine the exclusion of observed variables. Cronbach's Alpha coefficient less than 0.6 for factors (Hair et al, 1998) will be excluded. At the same time, the author conducts the EFA exploratory factor test to remove observed variables with small factor loading (< 0.3). Next, the remaining observed variables of the scale are tested for certainty through CFA (Confirmatory factor analysis). Finally, the structural equation modeling (SEM) will be included to test the validity and model fit to give acceptable or unacceptable results for all proposed hypotheses.

Research sampling technique is convenience sampling, 450 questionnaires were sent, the total number of questionnaires collected was 352, accounting for 78%. The screening results show that the number of questionnaires eligible for analysis and testing is 305. According to Hair et al (1998), this number of observations meets the minimum sample size requirement for EFA and multiple regression analysis in the topic.

4. Results

4.1. Scale testing result using EFA and Cronbach's Alpha

Before conducting CFA to examine the quality and reliability of the scales in the official research phase, the author conducts exploratory factor analysis (EFA) and Cronbach's Alpha.

Table 2. Synthesis of confidence level and total variance extracted of the scale

No	Scales	No of observed variables	Cronbach's Alpha coefficient	Total variance extracted	Conclusion
1.	Tie Strength	3	0.790	70.858%	All scales satisfy the reliability
2.	Homophily	8	0.927	66.445%	
3.	Source credibility	9	0.940	68.491%	
4.	Attitude towards eWOM	6	0.810	51.453%	
5.	eWOM efficiency	2	0.754	80.266%	

4.2. Testing model fit using confirmatory factor analysis (CFA) The set of data continued to be included in confirmatory factor analysis (CFA) under the following model:

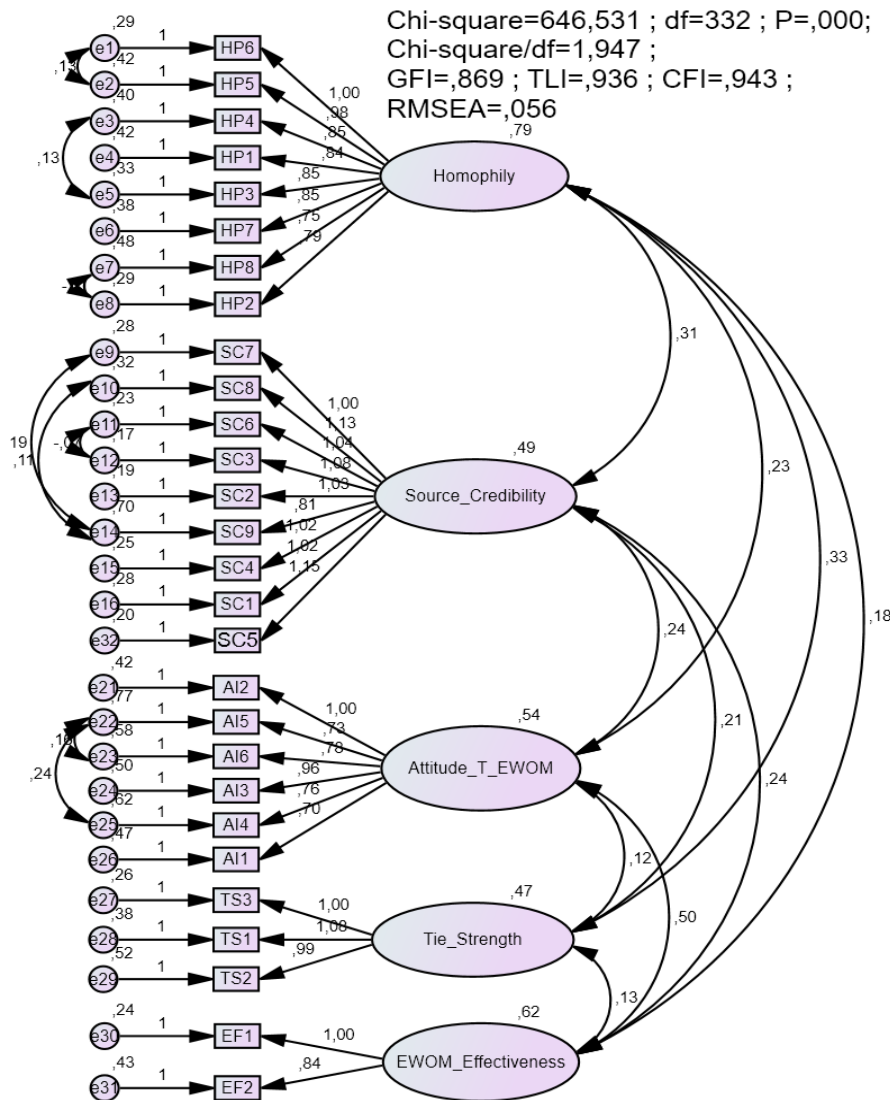


Figure 2. Results of model fit evaluation analysis

The author has conducted Reliability Analysis to measure Cronbach's Alpha coefficient and exploratory factor analysis (EFA) to measure the variance extracted. From Table 4.2, the Cronbach's Alpha coefficients are both greater than 0.6 and total variance extracted is greater than 50%. Theoretically, the scales have met the requirements.

The CFA results obtained from the above model show that Chi-Square/df = 1.947; GFI = 0.869; TLI = 0.936; CFI = 0.943; RMSEA = 0.056

As specifically argued in the section “Standard for CFA testing”: Tho and Trang (2007) reckoned that if the model receives values TLI, CFI \geq 0.9, CMIN/df \leq 2, RMSEA \leq 0.08 then the model is compatible with market data; the case of RMSEA \leq 0.05, according to Steiger, is considered very good. Similar comparison with the analyzed results: Chi-Square/df = 1.947 ($<$ 2); TLI = 0.936 ($>$ 0.9); CFI = 0.943 ($>$ 0.9); RMSEA = 0.056 ($<$ 0.8). It is proved that the testing results satisfy the reality of the market.

In addition, the evaluation of whether the scale can reach the convergent validity or not is done through the evaluation of the loadings in the table of normalized and unnormalized loadings are of statistical significance. The scale reaches the convergent validity when the normalized loadings of the scale are all higher than 0.5 and have P-value $<$ 0.05. In fact, the normalized loadings are all $>$ 0.523 (Appendix 3.2.3) and the normalized loadings are all of statistical significance, so the concepts meet the convergent validity. Moreover, the scale also achieves unidimensionality as the correlation coefficient between the concepts on the overall scale is different from 1 (Appendix 3.2.4)

In addition, to assess the quality and reliability of the scales more comprehensively, the author conducts an assessment of the Composite Reliability (C.R), and Average Variance Extracted (A.V.E). According to Hair et al. (2010), if C.R $>$ 0.7 and A.V.E $>$ 0.5, it can be concluded that the observed variable is correlated with other observed variables in the same factor and the scale is considered to meet the convergent validity, and if the square root of A.V.E is larger than the correlations between the two concepts, it can be concluded that the observed variable has no correlation with other observed variables in other factors and the scale is considered to achieve discriminant value.

Table 3. Synthesis results of C.R; AVE in models

No	Scales	No of observed variables	C.R	A.V.E
1	Homophily	8	0.926	0.610
2	Source credibility	9	0.944	0.656
3	Attitude towards eWOM information	6	0.796	0.397
4	Tie strength	3	0.797	0.568
5	eWOM effectiveness	2	0.761	0.616

It was found that the composite reliability coefficients of the scales all reached a value higher than 0.7, the coefficients of average variance extracted were all greater than 0.5. It can be confirmed that the scales achieve convergent validity and unidimensionality

(Hair et al, 1998). Thus, the scale has achieved reliability. The discriminant value test results show that the correlation coefficients of each pair of concepts with the standard error (SE) are all less than 0.5, so the correlation coefficient of each pair of concepts is different from 1 at the confidence level of 95%, reaching statistical significance (all P-values are less than 0.05). In conclusion, the concepts gain discriminant value.

Based on that, it can be concluded that the research scale model is compatible with the data, achieving unidimensionality, convergent validity, discriminant value and ensuring reliability, the model has comprehensive validity.

4.3. Model and hypothesis testing

After the results of testing the entire model fit are available, the author puts the observed variables and latent variables that were satisfied into the testing model. First, the author runs to test the variables that affect the regulatory variable - Attitude towards eWOM in model No. 01, then continues to add the testing of 2 variables: Tie Strength and Homophily on Source Credibility in model No. 02.

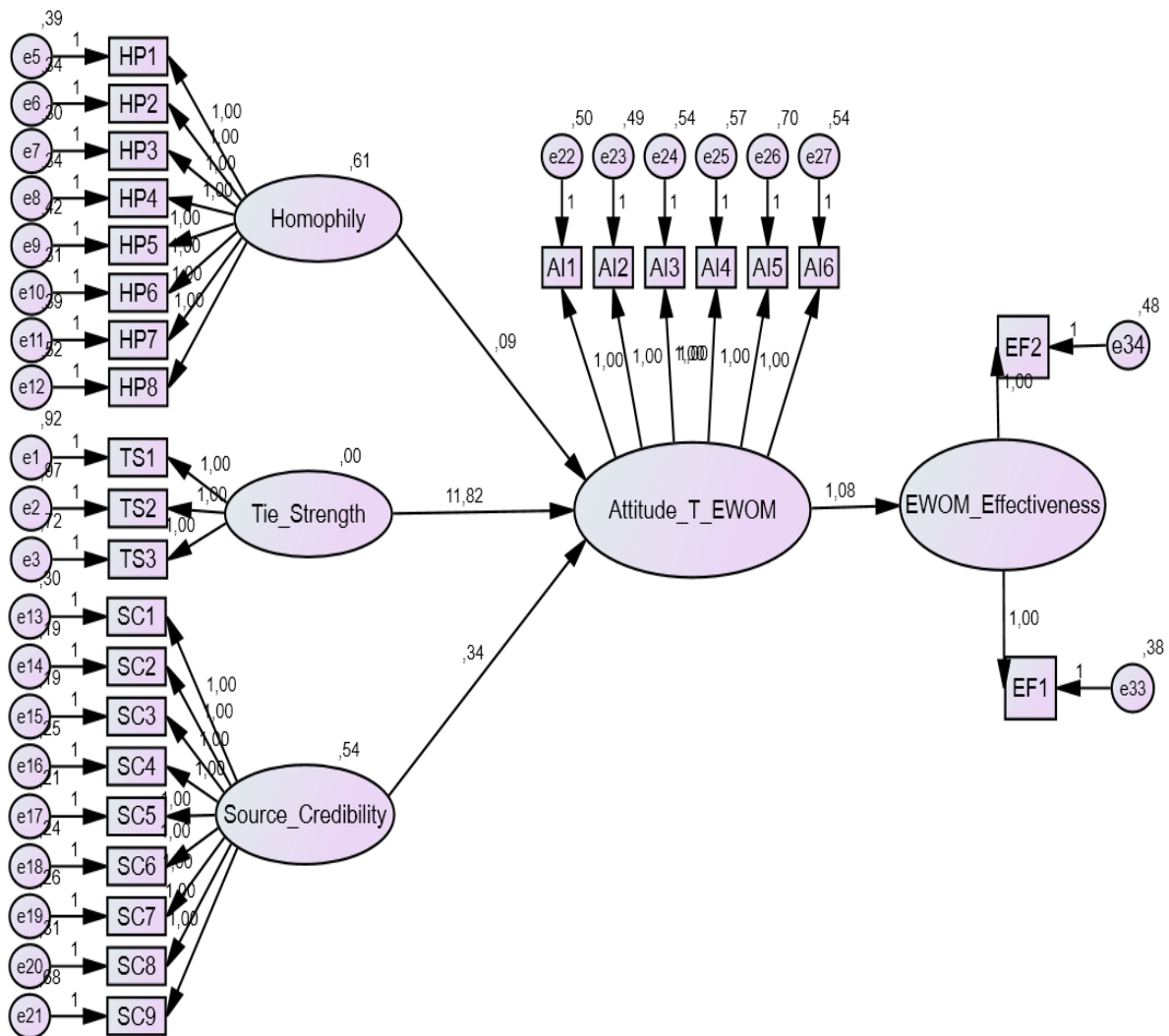


Figure 3. Analysis of structural equation modeling (SEM) No. 01

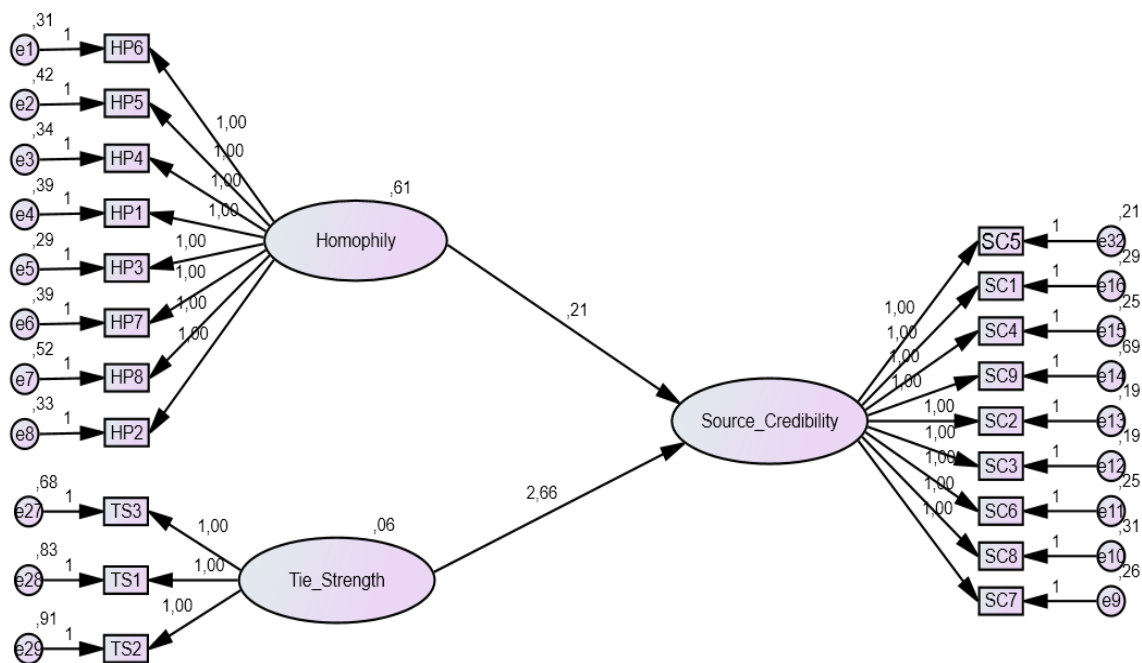


Figure 4. Analysis of structural equation modeling (SEM) No. 02

The unnormalized loading table is combined from the results of the two models above, allowing for evaluation of the influence of the factors: the eWOM effectiveness through the intermediate variable - the Attitude towards eWOM information and the influence of the two base factors on the Source credibility variable. In which, the influencing factors are considered significant when the P-value is less than 0.05. The results of testing the influence of these factors are summarized in the following table:

Table 4. Testing results of SEMs 01 and 02

Model		Estimate	S.E.	C.R.	P	Hypothesis
01	Attitude towards eWOM <--- Homophily	.087	.044	1.965	.049	H2: Accepted
01	Attitude towards eWOM <--- Source Credibility	.341	.047	7.241	***	H3: Accepted
01	Attitude towards eWOM <--- Tie Strength	11.821	9.029	1.309	.190	H1: Accepted
01	eWOM Effectiveness <--- Attitude towards eWOM	1.078	.061	17.554	***	H6: Accepted
02	Source Credibility <--- Tie Strength	2.656	.322	8.255	***	H4: Accepted
02	Source Credibility <--- Homophily	.211	.048	4.403	***	H5: Accepted

*Note: P=*** < 0.001

5. Discussion and Conclusion

Based on the analysis, argument and testing, this research has demonstrated that the factors including tie strength, homophily, source credibility, and attitudes towards eWOM information all have a positive influence on the eWOM effectiveness on the intention to use digital banking. Although the factors contain many complex sub-variables, meta-analyses have clearly shown the influence of all four factors on the eWOM effectiveness. The research findings are practical and highly applicable.

In addition, in this research, the research process expanded from previous studies to test the regulatory role of attitudes towards eWOM information. In particular, all the above pairs of influence, under the influence of the above regulatory variables, are also studied, clearly reflecting the difference. In addition, in this research, the research process also emphasized to test the interpersonal relationship.

The research findings have taken a deep dive into and comprehensively explored the factors influencing the eWOM effectiveness on the intention to use digital banking, specifically the influence of eWOM information senders and the influence of the eWOM itself. The research deep-dived into the influence of eWOM on generation Z customers of banks, particularly students in Hanoi City. The research findings serve as the basis for banks to develop strategies to use eWOM actively to influence these customers' intention to use digital banking.

The influence of tie strength, homophily, and source credibility on attitudes towards eWOM information

The SEM analysis results have shown that all the above mentioned three factors have a direct positive influence on the intermediate variable, which is the attitude towards eWOM information and have indirect influence on the eWOM effectiveness on the intention to use banking services.

That assertion is based on the unnormalized loadings which are 0.897; 0.116; 0.427, respectively. So the influence of tie strength on eWOM information is the largest, when increasing the tie strength variable by 1 unit, the attitude towards eWOM information increases by 0.897 units. Moreover, the regression estimates showing the influence of the variables of tie strength (TS), homophily (HP), source credibility (SC) on attitude towards eWOM information (AI) are 0.015, 0.136, and 0.316, respectively. The figures show that the source credibility has the most influence on the positive attitude towards eWOM while the two remaining variables do not have enough grounds to conclude.

With the standard $P < 0.05$, it proves that the influence loadings are of statistical significance. In fact, the results show that the P-values of the above validity are 0.190; 0.049 and *** (< 0.01), respectively, at the same time, have a positive sign, proving that the factors have a positive influence on the attitude towards eWOM information.

Influence of tie strength and homophily on source credibility

In addition to analyzing the influence of the intermediate variable - attitude towards eWOM information, the SEM analysis results also show the influence between the

component variables, particularly the influence of tie strength and homophily on source credibility. That assertion is evidenced by the following unnormalized loadings: the influence of tie strength is 0.971 and the homophily is 0.237. Thus, the influence of tie strength on the source credibility is larger than that of homophily. Particularly, when the variable “tie strength” increases by 1 unit, the source credibility increases by 0.971 units. Furthermore, the regression estimates showing the influence of tie strength (TS) and homophily (HP) on source credibility (SC) are 0.170 and 0.336, respectively. The figures show that tie strength has a more positive influence on source credibility than homophily.

With the standard $P < 0.05$, it proves that the loadings of influence are of statistical significance. In fact, the results show that the P-value of the above test is ***, and has a positive sign, proving that the factors have a positive influence on the attitude towards eWOM information.

Impact of attitude towards eWOM information on eWOM effectiveness influences the intention to use digital banking

The SEM analysis results also show that the impact of attitude towards eWOM information has a positive influence on its effectiveness on the intention to use digital banking. This is an important conclusion as attitude towards information and eWOM effectiveness are two important variables that determine the significance of the research model. That assertion is through unnormalized loadings: 1.000, P-value =*** and has a positive sign. Furthermore, the regression estimates showing the influence of attitude towards eWOM information (AI) on eWOM effectiveness (EF) are 0.792. The conclusion is that attitude towards eWOM information has a positive influence on eWOM effectiveness.

Managerial implications

First, businesses should prioritize customer gratitude and satisfaction, that is, to focus on improving user experience: Always care, motivate and encourage them to express their feelings, introduce products to friends and acquaintances. Link their interests with the interests of the business.

Second, when choosing influencers to write eWOMs about digital banking, businesses should choose people who have strong interactions and engagement with their fans.

Third, banks should create a social network among customers in order to promote eWOM effectiveness. Website activities must be strong and regular, focusing on the social ties between customers, between customers and the bank, helping create a loyal customer community that operates regularly on social networking sites.


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**PART 4:
RESOURCES, ENVIRONMENT
AND CLIMATE CHANGE**

DETERMINE FINANCIAL CONTRIBUTION RESPONSIBILITY IN THE IMPLEMENTATION OF EXTENDED PRODUCER RESPONSIBILITY (EPR) POLICY IN VIETNAM

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Abstract

In Extended Producer Responsibility (EPR) systems, producer responsibility for a product is extended to the post-consumer stage of a product's life cycle. The responsibility of the producer can be physical, financial and/ or informational. This paper aims to define producers' financial contribution responsibility to support implementation of EPR policy for products and packages that can and need to be collected for recycling in Vietnam. The results are (1) methodology to formulate the calculation of recycling financial contribution to Vietnam Environmental Protection Fund (VEPF); (2) proposed reference cost norms for financial contribution to VEPF; and (3) recommendations to promote determination and implementation of producer financial contribution responsibility in Vietnam.

Keywords: *Extended Producer Responsibility (EPR), Financial Contribution Responsibility, Recycling Products and Packages, Reference Cost Norms.*

1. Introduction

The Organization for Economic Cooperation and Development (OECD) defines Extended Producer Responsibility (EPR) as “*an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle*”. The responsibility of the producer can be physical, financial and/ or informational. There are two related features of EPR policy: (1) shifting of responsibility (physically and/ or economically; fully or partially) to the upstream producers and away from the municipality and general taxpayer, and (2) to provide incentives to producers to incorporate environmental considerations in the design of their products (OECD, 2001).

EPR policy requires producers to finance the cost of waste collection and recycling of designated products (Nahman, 2010; Nash and Bosso, 2013). The main function of this financial contribution is to shift financial management responsibilities from local government authorities and the general taxpayers to producers.

Financial contribution of producers (manufacturer or importer) of products and packaging is one of the important contents of EPR policy in Vietnam. The Law on Environmental Protection (2020) stipulates EPR in two cases: (1) products and packages that can and need to be collected for recycling; and (2) non-recyclable, hazardous products and packaging that need to be collected for disposal. Responsibilities for recycling products and

packages of manufactures and importers are regulated in Article 54 of the Law on Environmental Protection:

➤ Organizations and individuals that manufacture or import recyclable products and packages must recycle in accordance with the required recycling rate, methods, and standards, except for exported, temporarily imported products and packages, re-exported, manufactured, or imported for research, study and testing.

➤ Organizations and individuals may choose to recycle products and packages in one of the following forms:

- a) Organize the recycling of products and packages;
- b) Make a financial contribution to Vietnam Environment Protection Fund (VEPF) to support product and packaging recycling.

Thus, in cases that the producers (manufacturer or importer) do not organize the recycling of the product or packaging (carry out the recycling by themselves; hire a recycling unit; or authorize a third party to organize recycling in its entirety), they must make a financial contribution to VEPF to support product and packaging recycling. Producers' responsibility in relation with other stakeholders' roles in Vietnam's EPR system are illustrated in figure 1.

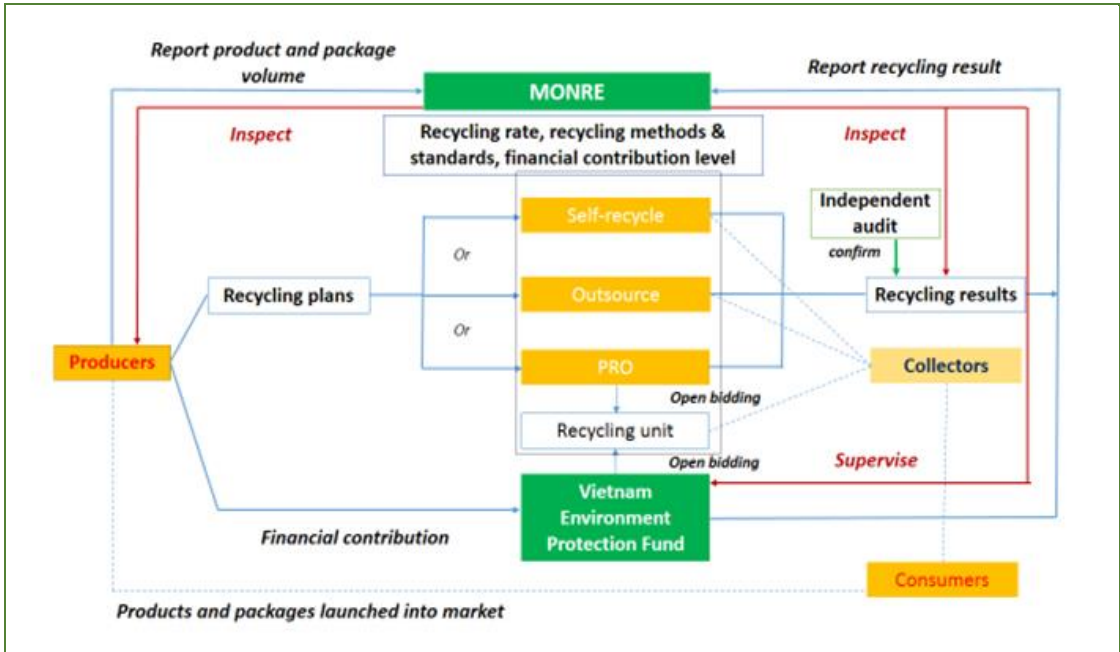


Figure 1. Producers' Responsibility in Vietnam's EPR System

Source: Hoa & Quang (2021)

This paper aims to define producers' financial contribution responsibility to support implementation of EPR policy for products and packages that can and need to be collected for recycling in Vietnam. The key research questions include:

- 1) What is the methodology to formulate the calculation of recycling financial contribution to VEPF?
- 2) What are the reference cost norms for financial contribution to VEPF?

2. Method

In order to find answers to the above and other related questions regarding financial contributions to Vietnam's EPR policy, a number of activities were carried out.

➤ Studying international experiences (desk review) to draw guiding principles, propose the formula for calculating the financial contribution applicable in Vietnam;

➤ Consultation and surveying to get opinions on the principles, proposed formula as well as the information for proposed reference cost norms. These are:

- Organizing official consultation meetings - offline and online, with experts and stakeholders; especially meetings with representatives of 6 industry groups subject to EPR policy implementation under the provisions of the Law on Environmental Protection. Several official meetings were organized by the Ministry of Natural Resources and Environment, Department of Legal Affairs, the Vietnam Chamber of Commerce and Industry (VCCI). Some meetings are actively organized by a group of representatives of industry associations (such as Packaging Association, Electric-Electronics Association, Tire Manufacturers Association...).

- Conducting personal consultations with a number of representatives of industry associations, experts from universities and research agencies (such as the Institute of Strategy and Policy on Natural Resources and Environment, the Central Institute for Economic Management). The form of communication/ consultation can be via email, face book or mobile phone.

- Conducting a number of survey visits to craft village waste recycling businesses and urban environmental companies to collect information on recycling practices of plastic waste, paper, packaging, batteries, ELV; especially information regarding waste recycling costs.

3. Results

3.1. International Experience on Financial Contribution in EPR Policy

3.1.1. Experience from Taiwan

Taiwan imposes the financial responsibility on producers by charging them recycling fees since 1998. Every two months, producers and importers have to pay recycling fees, based on their domestic sales quantities and the recycling fee rates for different products, to the Recycling Fund Management Board (RFMB) of the Environmental Protection Administration of Taiwan (EPAT), the environmental authority at the cabinet level of the central government. The fees are not only for the cost of take-back schemes and recycling, but also for articles scattered in nature without being collected for proper treatment.

In 2012, the RFMB initiated the Green Recycling Fees program, which allowed producers to reduce their recycling fee payments by up to 30% if the articles sold to the market are certified with eco-labels. Eco-labels issued in Taiwan such as the Environmental Labels from the EPAT and the Water-Saving Labels and Energy-Saving Labels from the Ministry of Economic Affairs. The purpose of Green Recycling Fees is to encourage the green design of products to facilitate the recycling process later, reducing the costs of recycling operations, and in turn, reducing the environmental costs. With the fee-charging EPR system, which originally evolved from environmental cost considerations for better

waste management, Taiwan has achieved a 60% take-back rate of total waste and created a mature recycling industry because of the governmental recycling scheme. However, this system has resulted in a risk of unbalancing the Recycling Fund.

Fee Calculation Equations

The recycling fee calculation equation plays a crucial role in determining payment from producers. The equation has also become a tool for maintaining the balance of the recycling fund because of the adjustable parameters in the equation, such as the environmental cost, administration cost, etc. For different periods of time, the equation incorporated different considerations and different parameters.

In 1998, when the RFMB started to operate the EPR scheme for e-waste recycling, the recycling fee determination was purely based on the cost needed for the operation without considering other factors, such as the environmental cost of littering with recyclable products that were not collected into the process. In 2001, after 3 years of operation, RFMB revised the fee calculation equation to include the environmental cost from the littering of recyclable products that were not collected into the collection process. Therefore, calculating recycling fees not only for the operational cost but also for the environmental cost of uncollected articles became a challenge for the Taiwanese EPR scheme. In 2005, the environmental cost for the littering of unrecyclable waste products was further differentiated into two categories: the environmental cost of unrecyclable products with proper collection and final disposal, and the environmental cost of unrecyclable products without proper final disposal.

3.1.2. Experience from Korea

Since the introduction of Korean EPR System in 2003, the target items have expanded. As of 2014, the items covered by the scheme include twenty-seven electronic products, as well as tires, lubricant, batteries, and fluorescent lamps, styrofoam float, and packaging materials defined by the presidential decree. A mandatory recycling ratio for each EPR product category is announced every year by the Ministry of Environment. Although the legal obligations of waste recycling lies with producers, the Korean EPR system requires shared duties between all societal stakeholders (e.g. consumers, local governments and the state government).

Producers (manufacturers or importers) of EPR items shall collect and recycle the end of life products or packaging materials or pay the allotted share of charges to the Producer Responsibility Organizations (PROs). Producers may establish a PRO for recycling to carry out the obligatory recycling responsibility.

To ensure the implementation and transparency of the related procurement, Korea Environment Corporation (KECO), entrusted by the Ministry of Environment, checks and monitors the producer compliance, the invoices and receipts of the producers to ensure that targets are met. Producers, together with recycling businesses, are obliged to record on-line the recycling process – including the amount of waste collected and the methods of recycling - and KECO confirms the records through on-site inspections. KECO also provides financial assistance in the form of low-interest rate loans to small and medium sized recycling businesses seeking technical consulting to improve technological and product manufacturing capacity. As complements to EPR, Korea has several economic policy tools in place. In

particular, there is a pay as you throw unit pricing scheme, often referred to as a volume-based waste fee system, separate collection, charging and recording system of bulky wastes.

Producers or PROs should submit recycling implementation results to the KECO every April. The Ministry of Environment imposes financial sanctions to the producers or the PROs, if the analysis report drafted by KECO reports any incompliance - referred to as recycling charges. The recycling charges are differentiated according to the unmet portion, and the charges range from 115% to 130% of the recycling fees.

Fee/ financial contribution levels are not subject to the approval by public authorities but decided by individual PROs. However, the government still publishes the standard recycling fees for each and every EPR item, which the PROs take into consideration when deciding the level of funds to be collected. To decide the standard recycling fees, the Ministry commit specialized agency to calculate these fees by estimating expenses of each recycling step including collection, transportation and treatment. The Ministry of Environment enacts and revises related Acts and regulations, decides the mandated recycling rate of EPR items, permits the establishment of PROs, supports and manages local governments and KECO, and coordinates and settles conflicts between other stakeholders.

3.1.3. Experience from European Countries

Since 1990s, the EPR concept has been widely implemented in the European Union with a great variety of EPR schemes and the creation of PROs. For the four streams targeted by specific Directives (packaging, batteries, ELVs and WEEE), an EPR scheme has been systematically implemented in all Member States. Additional waste streams for which EPR schemes have been most commonly identified within the EU are: tyres, graphic paper, oils, medical waste and agricultural films.

Despite EPR being, in theory, an individual obligation, in practice producers often exert this responsibility collectively. In collective schemes, a Producer Responsibility Organisation (PRO) is set up to implement the EPR principle on behalf of all the adhering companies (the obligated industry).

In the last years, two main evolutions of EPR have occurred:

- Whereas the initial fees paid by producers represented only a partial contribution to solid waste management costs, the operational costs coverage by producers fees has gradually increased, sometimes reaching 100%;

- Whereas the PROs were initially created as entities whose role was merely to aggregate the producers financial contribution, their role has been drifting towards more operational interventions and a broader scope of action (data management, organising operations, launching bids, communication campaigns, etc.).

Such evolutions have accompanied undeniable improvements in waste recycling and recovery performances in all Member States.

Full cost principle and different financial contribution for different product/ package categories

There seems to be a consensus on the fact that EPR systems should cover the collection, sorting and treatment costs of separately collected waste management minus the

revenues from recovered material sales (thus the full net cost). The extent to which net operational costs are assumed by PROs (and therefore covered by producers' fees) is highly variable and depends notably on the share of organisational and financial responsibilities of the various stakeholders, as well as on the national framework for EPR. For example, for packaging, the cost coverage by producers' fees range from around 10 % (UK) to 100% (AT, BE, CZ, DE, NL) of net separate collection and treatment costs. When the costs that need to be covered by EPR do not fall within the operational responsibility of producers, nor within the direct functioning costs of the PROs, some EPR systems use a reference cost to estimate the amounts to be covered.

In EU's EPR system, fees paid by the producers vary greatly for all product categories. These differences reflect either a difference in scope and cost coverage, or in the actual net costs for collection and treatment of waste (or both). Costs and performance are influenced by many factors, including factors external to the design and implementation of the EPR scheme, for example: Population density and country geography; Historical development of the waste management infrastructure; Value of secondary materials on the national market; Awareness and willingness of citizens to participate; Existence of complementary waste policy instruments, especially economic instruments like pay-as-you-throw schemes and landfill taxes.

Although a majority of PROs charge less than 1,000 EUR/tonne of portable batteries, the fees paid by producers to PROs can vary from 240 EUR/tonne in France to 5,400 EUR/tonne in Belgium. When comparing the fees charged to producers per tonne of packaging material put on the market, similar discrepancies appear: average fees charged to producers range from 14EUR/tonne to 200EUR/tonne, with an average of 92EUR/tonne.

In the case of WEEE, tariffs are not set up in the same way and important discrepancies appear. For example, in France, fees for televisions are divided into eight subcategories with prices ranging from 0.8 to 8.0 EUR/piece whereas in Greece producers pay a contribution of 254.2EUR/tonne of televisions put on the market.

In 2018, the EU introduced mandatory requirements for EPR, including the principle of fee modulation: "In the case of collective fulfilment of EPR obligations, fees are modulated, where possible, for individual products or groups of similar products, notably by taking into account their durability, reparability, reusability and recyclability and the presence of hazardous substances, thereby taking a lifecycle approach". Although few Member States have introduced such modulations in practice, work is in progress to develop a harmonised approach and provide Member States with detailed guidance on how to implement this principle.

3.2. Guiding Principles for Financial Contribution in Vietnam's EPR system

Learning from international experience, some principles for financial contribution in Vietnam's EPR system could be drawn as follows:

➤ ***First, full net cost coverage principle:*** the design and implementation of an EPR scheme should at least ensure the coverage of the full net costs related to the separate collection and treatment/ recycling of the end-of-life products. Thus, EPR scheme should cover the following net costs related to the end-of-life of products:

- + Costs for establishing a separate waste collection system;
- + Collection, transport and treatment/ recycling costs for separately collected waste;
- + Administrative costs, i.e. costs linked to the running of PROs;
- + Costs for public communication and awareness-raising;
- + Costs for the appropriate surveillance of the system (*including auditing and measures against free riders*);

- Subtract revenues (if yes) from recycled material sales.

➤ **Second, the true end-of-life cost principle:** money paid by each producer should reflect as faithfully as possible the end-of-life cost of his own products

➤ **Third, fee modulation principle:** charging differing fees to producers for each product type/ material.

➤ **Fourth, principle of simplicity and ease of implementation:** in the beginning (pilot) phase of EPR implementation, the way to calculate the financial contribution should be as simple as possible. The proposal of more detailed contribution (eg. for more advanced eco-modulation of fees, for the differences in market size or product size, etc.) will be employed in the following stages. The financial responsibility also needs to pay attention on “big fishes”. That are, for example: big polluters, big producers, “big” pollutants. Thus, micro and/ or SME producers may contribute EPR financially from the 2nd phase, after some year of EPR implementation.

➤ **Fifth, revision of financial contribution:** All international experiences show that initial financial contributions (or fees) are just a proxy and are going to evolve a lot due to many reasons. Financial contributions (or fees) can grow or decrease, once the system tested the current country set-up for collection, sorting & recycling; Value of recycled material is linked to value of global commodities market that is extremely volatile. Thus, financial contributions (or fees) should be revised after 1 – 3 years.

3.3. Formula to Calculate Financial Contribution to Support Recycling

The financial contribution to VEPP to support recycling is determined based on the compulsory recycling rate; volume of products and packages on the market and standard recycling cost. Following the principle of simplicity and ease of implementation, options to the calculation of financial contribution were derived. Through a number of discussions and consultations with experts and businesses, the equation for calculation financial contribution of each type of product and package has been proposed to determine by the formula:

$$F = (R \times V \times Fs) \times k$$

Where:

➤ **F:** total amount of money that the producer must contribute to the VEPP for each type of products or packages (unit: VND);

➤ **R:** compulsory recycling rate for each type of products or packages (unit: %). Rs are specified in the Decree guiding the implementation of the Law on Environmental Protection;

➤ **V:** quantity/ amount of products or packages put on the market in the year of undertaking the recycling responsibility (unit: kg or unit of products, packages);

➤ **Fs**: the norm of product and package recycling costs determined based on the total reasonable and valid costs for collection, transportation treatment and recycling of products and packages, cost of management and organization of recycling activities of the EPR Vietnam Office and the VEPF (units: VND/kg or VND/unit of products, packages).

➤ **K**: factor adjusted for the eco-friendliness and/ or ease of recycling of the product or packaging. Coefficient k is added into the equation as a simple form of Eco modulation application. For example, in the plastic industry group, PET plastic packaging has a coefficient of $k = 1$ while some other plastics that are more difficult to recycle - such as colored plastic bottles, hard plastic - will receive a higher k factor (1.2 or 1.5, or more).

3.4. Proposed Reference Cost Norm of Recycling Products and Packages (Fs)

Following the formula for determining F (total amount of money that the producer must contribute to the VEPF for each type of products or packages - presented in section 3.3), it is important to determine Cost Norm of Recycling Products and Packages (Fs) for financial accountability.

Fs will be determined based on the total reasonable and valid costs for collection (**Fc**), transportation (**Ft**), treatment and recycling (**Fr**) of products and packages as well as costs of management and organization of recycling activities of the EPR Vietnam Office and the VEPF (**Fm**).

Based on studies of Fs levels from many different countries, combining the results of a number of survey visits to craft village waste recycling businesses and urban environmental companies and consultation meetings, reference levels of cost norms for some types of products and packages were initially proposed as shown in table 1.

Table 1. Proposed Reference Cost Norm (Fs) for Some Types of Products and Packages

No.	Product Category	List of products	Proposed cost norm (VND/ kg)
A. ELECTRICAL – ELECTRONIC PRODUCTS			
1	A.1. Cooling & Heating Equipment	A.1.1. Refrigerators, freezers, automatic equipment for frozen product supply, vending machines	3,200
2		A.1.2. Fixed and portable air conditioners	1,500
3	A.2. Monitors and display devices	A.2.1. Laptops, notebooks	750
4		A.2.2. Televisions and computer monitors, other types of monitors	3,000
6	A.3. Lamps	A.3.1. Compact lamps	972/ item
7		A.3.2. Florescent lamps	972/ item
8		A.3.3. LED lamps	972/ item
9		A.3.4. Halogen lamps	972/ item
10	A.4. Large equipment	A.4.1. Washing machines	2,500
11		A.4.2. Electric stoves, induction cookers, infrared cookers, ovens	2,500
12		A.4.3. Washing machines, driers	2,500
13		A.4.4. Vending machines	2,500

No.	Product Category	List of products	Proposed cost norm (VND/ kg)
14	<i>A.5. Medium-size & small equipment</i>	A.5.1. Microwaves, rice cookers, fryers	1,500
15		A.5.2. Fans (tree fans, table fans, wall fans, air conditioner fans)	1,500
16		A.5.3. Cameras (including flash), camcorders	1,500
17		A.5.4. Audio equipment: Speakers, radios, amplifiers	1,500
18		A.5.5. Fireplaces, heat lamps	1,500
19	<i>A.6. IT equipment</i>	A.6.1. Desktops (including servers, motherboards, graphics cards) (monitors excluded)	750
20		A.6.2. Printers, photocopiers, scanners, fax machines	750
21		A.6.3. Mobile phones	30,000/ item
22		A.6.4. Computer accessories: keyboards, mice, hard drive, RAM sticks, memory cards (monitors excluded)	750
23	<i>A.7 Solar panels</i>	A.7.1. Solar panels	750
B. ACCUMULATEURS AND BATTERIES			
24	<i>B.1. Single-use batteries and Accumulateurs</i>	B.1.1. Plumbum accumulateurs	1,400
25		B.1.2. Single-use batteries and other types of Accumulateurs	1,400
26	<i>B.2. Rechargeable battery (multiple times)</i>	B.2.1. Types of batteries (Li, NiMH, v.v.) for means of transport	3,200
27		B.2.2. Types of batteries for other electrical-electronic devices	1,400
C. OILS AND GREASES			
28	<i>C.1. Oils of all kinds</i>	C.1.1 Machine oils of all kinds	200
29	<i>C.2. Greases of all kinds</i>	C.2.1. Greases of all kinds	200
D. TUBES AND TIRES			
30	<i>D.1. Tubes</i>	D.1.1. Tubes of all kinds	2,000
31	<i>D.2. Tires</i>	D.1.2. Tires of all kinds	2,000
E. MEANS OF TRANSPORT AND HEAVY EQUIPMENT			
32	<i>E.1. Road motor vehicles</i>	E.1.1. Two wheelers; three wheelers	200,000/ item
33		E.1.2. Motorcycles including electric scooters, electric bicycles and similar types of vehicles	500,000 – 800,000/ item
34		E.1.3. Passenger cars with up to 9 seats (including the driver's seat)	2,000,000/ item
35		E.1.4. Passenger cars (over 09 seats)	2,500,000/ item
36		E.1.5. Cargo vans (trucks) of all kinds	3,000,000/ item
37	<i>E.2. Specialized motorbikes</i>	E.2.1. Self-propelled construction vehicles, machines of all kinds	3,000,000/ item
G. PACKAGES OF ALL KINDS (including commercial packages and service packages)			
34	<i>G.1. Food and beverage packages (commercial packages)</i>	G.1.1. Paper packages (including multilayer packages containing paper components)	750
35		G.1.2. Metal packages	600
36		G.1.3. Synthetic plastic packages	700
37		G.1.4. Glass packages	350
38		G.2.1. Metal packages	700

No.	Product Category	List of products	Proposed cost norm (VND/ kg)
39	G.2. Packages of detergents, cosmetics, shampoos and conditioners, pharmaceuticals and cosmetics (commercial packages)	G.2.2. Plastic packages	800
40		G.2.3. Glass packages	350
41	G.3. Packages of other products (commercial packages)	G.3.1. Paper packages	750
42		G.3.2. Plastic packages	800
43		G.3.3. Metal packages	700
44	G.4. Packages used to transport or contain, store or pack goods (service packages)	G.4.1. Plastic packages (bottles, jars, vases, boxes, crates, etc.)	800
45		G.4.2. Paper packages	800
46		G.4.3. Wooden packages	500
47		G.4.4. Metal packages	700

Sources: Author's Calculation and Proposal

4. Discussion and Recommendations

4.1. Methodology of Financial Contribution Calculation

- The recycling cost calculation formula plays a crucial role in determining financial contribution from producers. For different periods of time, the equation should incorporate different considerations and different parameters.

Although EPR is not an entirely new policy in Vietnam, it is a new issue to prescribe specific levels of financial contributions to fulfill producer responsibilities. The current formula for calculating financial contribution of the proposed producers is relatively simple, determination is purely based on the cost needed for the operation without considering other factors, such as the environmental costs of littering with recyclable products that were not collected into the process, other costs/ benefits associated with different types of products and packaging.

- Thus, financial contribution must be kept flexible to revise every year. A sound general principle is to ensure full coverage costs of separate collection, transportation and recycling/ treatment necessary to reach the national target. Additional costs when exceeding the target, costs for waste not collected separately, etc. need to be considered and clear rules for their coverage set. In order to

ensure the requirement of flexibility of financial contribution, specific regulation on contribution levels should be promulgated by Circular of MONRE or Inter-Ministerial Circular between MONRE, MOF and MOIT.

4.2. Financial Contribution Modulation and Eco-design

Eco-design or eco-modulated fee is consistent to the EU principle of fee modulation (presented in 3.1): the level of the fee should, as far as possible, reflect the individual characteristics of the products put on the market, and their impact on the waste management

system, in order to encourage products that are more easily recycled. Thus, the financial contribution should be restructured towards, for example, to reward recyclable materials (fees reduce 50-130% on the use of recycled packages) and penalise difficult to recycle materials (fees increase 30 – 50% on the package with use of mixed materials, full sleeve, small litter-prone components, non-plasma coatings & additives, dark pigments, hard to dissolve glue...).

Vietnam would surely benefit from learning this lesson, which could be a source of inspiration. The application of eco-modulation should be considered in the time to come, may be after 2 -3 years form the time that new EPR system takes effect.

4.3. Design Financial Contributions to Incentivize Producers' Initiative

Beside to the guiding principles presented in 3.2, in the specific context of Vietnam, determination of recycling costs and financial contributions to the VEPF also have to pay attention on further rules, which are:

(1) Determine the recycling cost of product and packaging in accordance with the technology and recycling rate; compliance with technical procedures, standards, environmental regulations, and consistent quality of recycling services;

(2) The recycling cost of product and packaging should be properly and fully calculated with reasonable and valid costs of the process of investment, exploitation and operation of the collection, transportation and recycling system; suitable to the actual conditions of the service organization; technical infrastructure conditions, socio-economic conditions;

(3) Financial contribution to the VEPF to fulfill the extended responsibility of the manufacturer must be higher than the recycling cost of the PROs in order to encourage producers to organize their own recycling or recycling through PROs. Thus VEPF contribution should include PRO fee and fine and other related costs.

4.4. Procedure for Determining and Issuing the Financial Contribution to VEPF

The financial contribution to VEPF should be determined following the procedure of determining the compulsory recycling rate specified in the Decree guiding implementation of Law on Environmental Protection:

- Vietnam EPR Office (belonged to the Ministry of Natural Resource and Environment, MONRE) in collaboration with VEPF to calculate, determine the financial contribution to support recycling of each type of products and packages;

- Vietnam EPR Office and VEPF conducts actual surveys, consults relevant organizations and individuals, and proposes the cost norm of recycling products and packages (the Fs in the above formula) to determine level of financial contribution for each type of products and packages;

- MONRE issues the cost norm of recycling products and packages (Fs) to determine level of financial contribution for each type of products and packages to VEPF upon suggestion of National EPR Council;

- The cost norm of recycling products and packages (Fs) is reviewed and adjusted in the same period when the recycling rate is adjusted (every 1 – 3 years) to ensure compatibility with the actual change in recycling cost.

4.5. Ensure and Improve Transparency

Transparency is key to increasing acceptability and involvement by all stakeholders, especially where a single VEPF operates, and where options for complying through individual systems are limited. Producers need to understand why they are taking a financial responsibility, and how it contributes to increasing the recycling rates of the products they put on the market.

According to stakeholders' feedback during the consultation meetings, the following improvements in transparency seem to be necessary:

- *Transparency over the calculation of money paid by producers:* the publication of the fee structure reassures producers that they are paying their “fair share”. The MONRE should publish on the website the methodology for calculating the contribution and the detailed cost norm tables. The methodology is approved by the Decree and provides the general principles for setting the financial contributions. Although the basic principles seem sound, the description of the methodology is quite basic, and the calculation of contribution could be more detailed and refined, in order to further improve transparency.

- *Transparency over expenditure:* producers need to be reassured that the money they pay are actually directed towards cost-effective programmes for recycling their products. The practice of financing programmes not directly related to the collection and recycling of waste under the scope of the EPR could be maintained, but would gain from being clarified and dissociated from the core activities (for example, a small fraction of the money paid by producers could be earmarked for cross-cutting programmes, with the main share being spent on collection and recycling). VEPF is responsible for reporting to MONRE and sending the reports to Vietnam EPR Office to publicize the receiving and using the annual financial contribution on National EPR portal before March 31 of the following year.

4.6. Raising Awareness

Awareness about EPR programmes in general, financial contribution in particular, was still lacking in Vietnam. This is unsurprising since the system is very recent, but efforts should now be focused on this area. Media campaigns have already been designed and broadcast by the MONRE/ National EPR Office and the VEPF, and all stakeholders should be encouraged to participate. Local authorities should play a central role in informing and raising awareness among their populations. In some countries, municipalities receive specific communication support from the PRO - both financial and in the design and implementation of communication campaigns. Labels on products that are subject to EPR and/or that need to be collected separately is also a common approach to make consumers aware of the schemes and help them to separate such products at source.

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THE IMPACT OF ECO-LABEL ON GREEN PURCHASE BEHAVIOR OF VIETNAMESE YOUTH

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Abstract

This study was conducted to investigate the influence of eco-labels on green purchase behavior of Vietnamese youth. Based on the collected data of 499 young consumers in Vietnam, the Structural Equation Modeling (SEM) was used to test the research hypotheses. Research results indicate that eco-label, environmental attitude, environmental concern, and trust in eco-label have a positive influence on green purchase. Eco-labels have a positive effect on product attributes. Eco-label knowledge, product attributes, and environmental attitude have a positive influence on environmental concern. Finally, Eco-label knowledge has a significant influence on trust in eco-label. Based on the research results, the author gives some suggestions for administrators in improving green purchase behavior for consumers.

Keywords: *Eco-label, green purchase, eco-label knowledge, environment concern.*

1. Introduction

Currently, the environment is increasingly polluted, which is a very difficult and urgent problem (Kirmani and Rao, 2000), yet there is no reasonable solution in resource management and environmental protection. As a result, consumers pay great attention to clean, safe food, and those derived from nature, with as few chemicals as possible (Roosen, 2003) because of the risk of food poisoning, as the consequence is quite serious (Rao et al., 1999). The growing concern of society about the environment has led to the emergence of a new type of consumer whose purchasing behavior demonstrates environmental sensitivity (Otto and Kaiser, 2014). Modern consumers seem to be increasingly concerned about the ultimate negative impact of their purchasing decisions, which in turn affect their purchasing behavior (Taufique et al., 2014, Sharma and Kushwaha, 2019). Eco-labels can be considered

as an important green marketing tool widely used to provide consumers with knowledge about green aspects of products (Sharma and Kushwaha, 2019). Since consumers cannot directly verify the attributes of green products, they must rely on eco-labels to validate such claims. Eco-labels promote sustainable behavior without jeopardizing consumers' freedom of choice. They reduce uncertainty and the costs of searching for information. At the same time, they help consumers make use of such information. However, sometimes manufacturers do not provide complete, reliable, and understandable eco-labels information, which can cause a lack of transparency (Rex and Baumann, 2007) and discourage consumers from buying green products (Atkinson and Rosenthal, 2014). Therefore, they doubt the reliability of eco-labels (Oates et al., 2008). This controversial condition highlights the important role that eco-labels' credibility plays in green marketing and consumer research. Although several academic studies have highlighted the important role of eco-labels' reliability in green consumer behavior, mainly theoretically (Cerjak et al., 2010), there is a gap in the marketing material regarding the effectiveness of eco-labels' credibility from an empirical point of view. The present study attempts to fill this gap.

In this context, The Theory of Planned Behavior (TPB) has been widely used in green marketing as a framework to study the ways in which consumer trust, attitude, interest, and knowledge are used to predict green purchase behavior (Cheung and To, 2019). Even though TPB can significantly predict purchasing behavior based on consumer attitude and belief, the gap between attitude and actual green purchase behavior is detected in many different green marketing studies (Claudy et al., 2013). Previous studies support that the impact of attitude on green purchase behavior can be context-specific (Ajzen and Fishbein, 1977). Consumer attitude can only predict actual behavior when context-specific requirements are met (Zsóka, 2008). For example, consumer knowledge can be an important factor showing the influence of consumers' attitude towards green living on green purchase behavior (Polonsky et al., 2012). However, to the best of the authors' knowledge, research on the effects of eco-labels on purchasing behavior is limited (Cheung and To, 2019), while no previous studies have investigated the impact of eco-labels' credibility in this context. This study aims to fill this gap by investigating the impact of eco-labels reputation on the actual behavior of green product purchasing among Vietnamese youth today.

Thus, how do consumers in Vietnam perceive eco-labels? What factors influence environmental attitude, trust in eco-label and green purchase behavior? How should Vietnamese businesses promote and maintain consumers' awareness in Vietnam about eco-labels, thereby improving trust, attitude, and green purchase behavior? This study was conducted to answer such questions.

2. Literature Review

Today, environmental issues are an increasingly concerning topic. Before the negative impacts in daily life, business, and the like of humans, the environment is severely affected. This influence also threatens the present and future lives of people. Therefore, green purchase was born and is considered as a new consumption trend, a solution to environmental problems around people.

“Green” consumers are those who carefully consider the impact of consumption, use of products or services on the environment and are willing to change their behavior towards a trend that does little or no harm to the environment (Moisander, 2007). Thus, green consumption can also be defined by purchasing, consuming, and using products that are friendly, recyclable, beneficial to the environment and still capable of meeting the needs of consumers. In addition, green products limit harm to society and the environment. Consumer’s green purchase behavior is often evaluated based on consumer intention and willingness to buy green products. This intention is then often transformed into green purchase behavior and ultimately influences customer behavior towards the purchase of environmentally sustainable products (Joshi and Rahman, 2015).

2.1. Eco-label

An eco-label is a tool used by companies or government agencies to raise awareness about the quality of a product's environment (Taufique et al., 2019). The Global Ecolabelling Network (2019) advocates that eco-labels “identify products or services that have been demonstrated to be environmentally appropriate in a particular category”. The International Organization for Standardization (ISO), in 2019, defines an eco-label as a label that “provides information about a product or service about its overall environmental benefits, such as the recyclability of packaging or contain no harmful ingredients”. Eco-labels can be considered as a significant emerging trend in green marketing and green advertising (Atkinson and Rosenthal, 2014) as well as a marketing tool to inform consumers and promote green products. (Hornibrook et al., 2015, Testa et al., 2015). They can be considered as certification marks that inform consumers about the environmental quality of products/services and assure them of the truthfulness of these claims (Atkinson and Rosenthal, 2014). Eco-labels enhance transparency and consumer confidence in environmental claims (Commission of the European Communities, 2017) (Thøgersen et al., 2010). Eco-labelling improves consumer perception of a brand in the name of eco-concern and green marketing (Taufique et al., 2016, Taufique et al., 2014). Finally, eco-labeling is positively associated with enhanced consumer preferences, increased purchasing behavior and higher appreciation for eco-labeled products (Song et al., 2019, Guyader et al., 2017, Khachatryan et al., 2017, Rihn et al., 2019). From that, the authors propose the following hypotheses:

H1: Eco-label has a positive effect on product attributes.

H2: Eco-label has a positive effect on green purchase

2.2. Product Attributes

Product attributes are a standardized way to get information about how well a product fits a certain requirement (Open Food Facts Wiki, 2021). Previous studies have shown that ethical product attributes can promote consumer-oriented behavior and tend to be effective determinants for converting positive attitudes into purchasing actions. Some scholars have demonstrated that the presence of the word "green" does not seem to significantly influence people's purchase intention (Bamberg, 2003). In this context, eco-labels are considered as one of the most recognizable attributes of green products to inform consumers to lead them to their purchasing decisions (Yau, 2012), improve transparency and relevance. to

environmental and social claims (Thøgersen and Ölander, 2002). Empirical studies suggest that the perception of integrating environmental concerns into product attributes is common in companies' product development (Dangelico and Pujari, 2010). Eco-labels tend to be an important factor in consumer purchasing decisions when one green product is relatively expensive or of lower quality than the other (Joshi and Rahman, 2015). In other words, the product attributes of ecolabelling play a dominant role over other conventional attributes, such as functional qualities. From that, the authors propose the following hypotheses:

H3: *Product attributes positively influence environmental attitude.*

H4: *Product attributes positively influence concerns towards the environment.*

2.3. Eco-label Knowledge

A customer's knowledge is any information in their memory, including product knowledge, shopping knowledge and consumer knowledge, all of which influence their consumption and purchases. Thus, there is a relationship between customer knowledge and purchasing decisions. Environmentally friendly products are special products. To distinguish them from other conventional products, customers often rely on the information provided about the product, where the eco-label is a reliable proof of the product's environmental factors. Customers have knowledge about eco-labels, that is, they understand the types of eco-labels, understand the meaning and information the eco-labels refer to. They easily determine the product's value to themselves and the environment, thereby making appropriate decisions. According to Taufique et al. (2017), Eco-label knowledge positively affects green purchase behavior of customers. From that, the authors propose the following hypotheses:

H5: *Eco-label Knowledge has a positive effect on green purchase*

H6: *Eco-label Knowledge positively influences environmental attitude.*

H7: *Eco-label Knowledge has a positive effect on environmental concerns*

H8: *Eco-label Knowledge has a significant influence on trust in eco-label.*

2.4. Environmental Attitude

Attitudes are essential to consumer behavior; therefore, understanding these attitudes can help researchers predict future behavior. According to Ajzen (1991) proposed in the theory of planned behavior and knowledge - attitude - behavior models, environmental attitude have a direct influence on the behavior of consumers who are for the environment. It also mediates other influencing factors. Environmental attitude is defined as “perceptual and affective assessment of environmental protection objects” (Bamberg, 2003). Many studies consider environmental attitudes as one of the premises that strongly influence environmental behaviors (Ballantyne and Packer, 2005, Kotchen and Reiling, 2000, Wells et al., 2011). Furthermore, Arcury (1990) argued that knowledge of the environment changes attitudes about the environment, while knowledge and environmental attitude enhance consumer behavior for the environment [9]. The importance of attitudes is one reason that some researchers have proposed the knowledge-attitude-behavior model (Flamm, 2009, Kaiser et al., 1999, Oreg and Katz-Gerro, 2006). From that, the authors propose the following hypotheses.

H9: Environment attitude has a positive effect on green purchase

H10: Environment attitude has a positive effect on environmental concern

2.5. Environmental concern

Environmental concern is often considered an important predictor of eco-friendly behavior and directly drives green purchase intention, widely used to explain pro-environmental behavior and sustainable behavior, etc. (Bamberg, 2003, Felix et al., 2018, McDonald et al., 2015, Pagiaslis and Krontalis, 2014, White and Simpson, 2013). The concept of environmental concerns is primarily an operational definition, and different studies have had different operational concepts. Dunlap and Van Liere (1978) developed the New Ecological Paradigm Model (NEP) scale, which is considered the earliest quantitative definition of environmental concern. To date, environmental concerns have been divided into two categories: environmental concerns over specific environmental issues (e.g.: attitudes towards waste disposal or water pollution), and comprehensive and pervasive environmental concerns (e.g., views on various ecological crises, problems, and attitudes towards the relationship between man and the environment). Previous research on environmental behavior has suggested an important link between environmental responsibility and environmental concerns. e.g., Sadachar et al. (2016) demonstrated that people with higher environmental responsibility are more concerned with environmental issues and advocate green products, as they believe that people are responsible for the rise of environmental problems. White and Simpson (2013) also suggested that individuals with a high sense of environmental responsibility tend to focus on environmental benefits and they tend to think that humans are closely related to the environment, especially when they are responsible for ecologically fragile environment, and will be more likely to solve environmental problems. From that, the authors propose the following hypotheses:

H11: Environmental concern has a positive effect on green purchase

2.6. Trust in eco-labels

For an eco-label to be effective in promoting consumer behavior for the environment, it needs to be incorporated into consumer decision making (Grunert, 2011). Therefore, consumers need to be informed of the label and trust its information (Grunert, 2011, Thøgersen et al., 2010). Such trust has been defined as an individual's expectation that another person, product or entity will keep promises and fulfill obligations (Perrini et al., 2010). Despite the importance of trust, some studies show that consumers are often skeptical about the reliability of environmental advertising claims (Eurobarometer, 2008, Peattie and Crane, 2005). This often acts as a barrier to consumers based on environmental claims. This lack of trust can also impede pro-environment consumer behavior (Atkinson and Rosenthal, 2014, Oates et al., 2008). The increasing number of environmental claims seems to have led to consumer confusion and limited their effectiveness in encouraging consumer behavior for the environment (Testa et al., 2015). Environmental attributes have high credit value but cannot be directly assessed by consumers (Atkinson and Rosenthal, 2014, Testa et al., 2015). As a result, consumer behavior for the environment is often based on consumer confidence in environmental claims, especially when there is no independent confirmation system in

place (Schoorman et al., 2007). Therefore, a higher degree of trust in eco-label (Testa et al., 2015) has a greater effect on pro-environmental consumer behavior.

H12: *Trust in eco-labels have a positive effect on green purchase*

Based on the findings of previous studies, the following research model

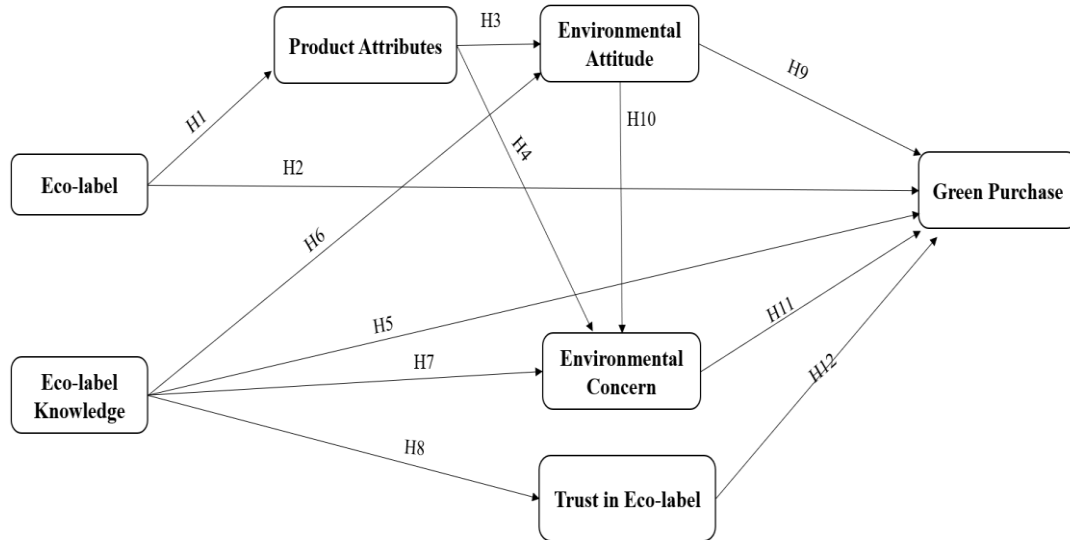


Figure 1. Proposed research model

3. Method

This study combines both qualitative and quantitative research to assess the influence of eco-labels on young people's green purchase behavior. Qualitative research is used to help discover the factors of eco-labels affecting young people's green purchase behavior, and to adjust the scales of each factor to suit the current consumption context in Vietnam. Quantitative research was carried out in two phases: preliminary and formal research; Both phases use survey method by questionnaire. Preliminary quantitative research was carried out to make a preliminary assessment of the reliability of the scales and to remove inappropriate observed variables. This helps the author team to adjust and build a more complete and reliable survey. After collecting the answer sheets and removing invalid ones, the authors conduct data analysis using a number of data analysis techniques such as: Cronbach's Alpha, EFA with the support of SPSS software version 20.0 and AMOS version 24.0, to evaluate the quality of the scale. In addition, the authors also used confirmatory factor analysis (CFA) to evaluate the reliability, convergence, and discriminability through two metrics: Composite Reliability (CR), and Average Variance Extracted (AVE). Analysis of the Structural Equation Model (SEM) to test the research hypotheses.

Measurement items in this study were modified from previous studies. Slight modification of the wording of the previous scales was done to fit the current research context. The measures were then tested according to the standard scale development guidelines (Nunnally and Bernstein, 1994). As this study was conducted in Vietnam, all the items were translated from English to Vietnamese and back to English to check their accuracy. When necessary, adjustments were made to the Vietnamese translation.

Five-point Likert scales, ranging from 1 “strongly disagree” to 5 “strongly agree” were used to measure the study variables. We employ Kyriakos et al. (2021) adjusted eco-label scale with four items to quantify eco-label. Similarly, the scale of eco-label knowledge is evaluated with the four items of Taufique et al. (2017). product attribute is measured by three adjusted items proposed by Song et al. (2019). environmental attitude is measured with three items developed by Ting et al. (2019), environmental concerns is measured with five items developed by Junior et al. (2014), and trust in eco-labels was measured by three items, respectively, developed by Taufique et al. (2017). Finally, green purchase is evaluated based on the study of Song et al. (2019) with 3 items.

After adjusting the survey, the authors conducted the official survey in online form nationwide from September 2021 to November 2021. The research mainly focuses on young people in all three regions of the Vietnam North, Central, and South. The research questionnaire consists of 24 observed variables used in factor analysis according to the principle of at least 1 in every 5 elements for 1 observed variable (Bentler and Chou, 1987). So, the initial sample count is $24 \times 5 = 120$ elements. But in order to increase the reliability of the research results, in this study the group intends to collect a sample with a size of 600 elements ($N=600$) and the obtained results are 510 elements (questionnaire). After screening and removing invalid votes, the authors use 499 valid votes to use in formal analytical processing. Sampling method is a convenient sampling method through online questionnaire submission. Of the respondents, 274 (54,9%) were female, 225 (45,1%) were male. The results are printed in Table 1.

Table 1. Respondent profiles

Characteristics		Frequency	Percentage
Gender	Male	225	45,1%
	Female	274	54,9%
Age	From 18 to 22	377	75,6%
	From 23 to 25	122	24,4%
Occupation	Student	339	67,9%
	Employment	139	27,9%
	Other	21	4,2%
Incom (VND)	Under 5 millions	300	60,1%
	From 5 to 10 millions	117	23,5%
	10 million and over	82	16,4%
Metropolitan area	North	240	48,1%
	Central	153	30,7%
	South	106	21,2%

Source: Own calculations

4. Results

4.1. Measurement model

In the preliminary quantitative research phase, the analysis results show that the concept of environmental concerns has a Cronbach's Alpha reliability coefficient of 0.872, according to the standards of Hoàng Trọng and Ngọc (2008). It can be said that the scale is very good. However, the results of EFA suggest removing the EC1 variable because of its high correlation with the variables in the concept column of attitude towards the environment. Therefore, based on the results, the authors removed the observed item EC1 and did not include it in the official research phase.

CFA was used to verify the scales' unidirectionality, reliability and validity after the initial descriptive analysis phases. The findings of the index scale test are all acceptable, and the scales are accepted. Based on the indexes, the CFA results indicate compatibility with the possible model: Chi-square/df = 2,405; GFI = 0,916; TLI = 0,951; CFI = 0,960; RMSEA = 0,053. Furthermore, all the standardised factor loadings for the scales are greater than 0.6 ($P < 0.001$) and the composite reliability (CR) of the seven scales is greater than 0.7, varying between 0.801 and 0.880. The convergent and discriminant validity of each scale was determined by calculating the Average Variance Extracted (AVE). All the AVE values are greater than or equal to 0.5 and they range from 0.573 to 0.674, indicating uni-dimensionality and convergent validity. To assess discriminant validity, the AVE for each scale was compared with the squared correlation between all pairs of variables. For each variable, the squared correlation was greater than the AVE, indicating acceptable discriminant validity. Additionally, Cronbach's alpha coefficients were calculated for each construct, and they ranged from 0.800 to 0.880. The results are printed in Table 2.

Table 2. Summary of the measurement model

No.	Scale	Items	Cronbach's Alpha coefficient	C.R	A.V.E	Encode
1	Eco-label	3	0,829	0,831	0,621	EL
2	Eco-label Knowledge	4	0,880	0,880	0,648	EK
3	Product Attributes	3	0,800	0,801	0,573	PA
4	Environmental Attitude	3	0,860	0,861	0,674	EA
5	Environmental Concern	4	0,851	0,858	0,603	EC
6	Trust in eco-label	3	0,817	0,817	0,598	TE
7	Green Purchase	3	0,810	0,810	0,587	GP

Source: Own calculations

4.2. Structural model

SEM analysis is used to evaluate the proposed model and test the research hypotheses. Figure 2 shows the fit of the accepted model: Chi-square (499) = 695,954; Chi-square/df = 3,207; $P = 0,000$; RMR = 0,054; GFI = 0,888; TLI = 0,924; CFI = 0,934; RMSEA = 0,067 (Schumacker and Lomax, 2004).

Also from the SEM analysis, the hypothetical relationships were tested. Table 3 shows that 10 out of 12 hypotheses are accepted. First, eco-labels affect product attributes and green purchase ($H1: \beta = 0.655$, $p\text{-value} = 0.000$; $H2: \beta = 0.293$, $p\text{-value} = 0.001$).

The results show that the presence of eco-labels has a positive impact on people's perception of product attributes and plays a role in shaping young people's green purchase behavior. Previous studies cast doubt on the role of eco-labels in green purchase (Guyader et al., 2017, Khachatryan et al., 2017, Mei et al., 2012, Song et al., 2019). This evidence by a group of authors from young Vietnamese has confirmed its effectiveness once again.

In this study, although product attributes did not affect attitude towards the environment (H3: p -value = 0.235) but still significantly influenced environmental concerns (H4: $\beta = 0.49$, p -value = 0.000). This result is completely opposite to the results of previous studies (Song et al., 2019). This may be a new finding when researching for young Vietnamese in the purchase of green products. Clearly, product attributes still have an indirect impact on green purchase under the decisive factor being eco-labels.

Although the relationship between eco-labels knowledge and green purchase is still significant, it is a negative relationship, (H5: $\beta = -0.337$, p -value = 0.006), so hypothesis H5: "Eco-label Knowledge has a positive effect on green purchase" is rejected. This is consistent with the results of previous research by Khan et al. This may be because consumers are often sceptical about eco-label information when the sources are not perceived as credible. That is, when consumers believe eco-label information is 'greenwashing' ('disinformation disseminated by an organization to present an environmentally responsible public image'), they are deterred from undertaking corresponding green purchase behaviour (Taufique et al., 2017). In addition, Eco-label knowledge positively influence attitudes towards (H6: $\beta = 0.809$, p -value = 0.000), Environmental concern (H7: $\beta = 0.255$, p -value = 0.000) and trust in eco-labels (H8: $\beta = 0.671$, p -value = 0.000). This is consistent with relevant studies that have suggested on the impact of knowledge about eco-labels and green purchase, that they both have positive effects on environmental attitude, environmental concerns, and trust in eco-label (Hameed and Waris, 2018, Taufique et al., 2017, Mei et al., 2012).

In addition, attitude towards the environment has a positive and direct influence on green purchase (H9: $\beta = 0.268$, p -value = 0.000) and tends to indirectly affect green purchase through concern for the environment (Esmailpour and Elahe, 2017, Song et al., 2019). Indeed, the results of SEM analysis confirm the relationship of positive impact of attitude to environment on environmental concern (H10: $\beta = 0.297$, p -value = 0.000) and environmental concerns on green purchase (H9: $\beta = 0.459$, p -value = 0.000). Therefore, it can be said that the attitude and concern about the environment are both significant in shaping the purchasing behavior of the young generation (Paul et al., 2016, Hartmann and Apaolaza-Ibañez, 2012, Junior et al., 2014) under the decisive factor which is eco-label (Taufique et al., 2017, Song et al., 2019).

Finally, the hypothesis that the relationship between trust with eco-labels and green purchase is statistically significant (H12: $\beta = 0.298$, p -value = 0.000). Trust in eco-labels have a positive effect on green purchase. Therefore, trust with eco-labels plays an important role in determining the acceptance level of young people with green products (Hameed and Waris, 2018).

From the experimental analysis results, the group has clarified the relationships, the level of impact of the factors on each other and on green purchase behavior. This is the basis for the authors to make appropriate conclusions and recommendations to businesses for the Vietnamese market in section 5.

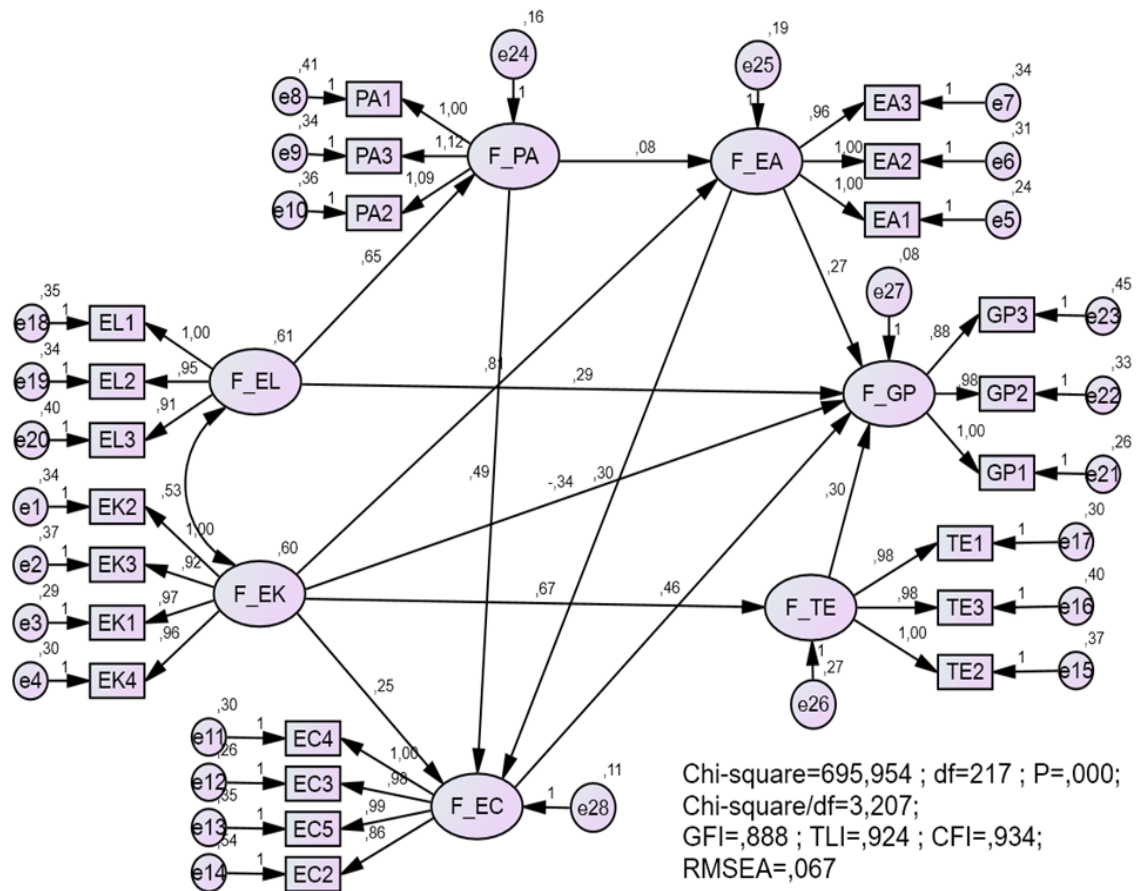


Figure 2. Structural path model

Table 3. Estimated path coefficients

			Estimate	S.E.	C.R	P	Hypothesis
EL	→	PA	0.655	0.049	13.314	***	H1: Supported
EL	→	GP	0.293	0.092	3.183	0.001	H2: Supported
PA	→	EA	0.082	0.069	1.188	0.235	H3: Not supported
PA	→	EC	0.490	0.063	7.743	***	H4: Supported
EK	→	GP	-0.337	0.123	-2.743	0.006	H5: Not supported
EK	→	EA	0.809	0.065	12.484	***	H6: Supported
EK	→	EC	0.255	0.077	3.329	***	H7: Supported
EK	→	TE	0.671	0.051	13.167	***	H8: Supported
EA	→	GP	0.268	0.074	3.608	***	H9: Supported
EA	→	EC	0.297	0.067	4.447	***	H10: Supported
EC	→	GP	0.459	0.079	5.810	***	H11: Supported
TE	→	GP	0.298	0.055	5.387	***	H12: Supported

Source: Own calculations

5. Discussion and Conclusion

After analyzing data from 499 observations filtered from the questionnaire, the research has shown statistically significant relationships, indicating factors that directly and indirectly affect green purchase behavior of young consumers. This study makes a number of theoretical contributions in the fields of eco-labeling, environmental awareness and green purchase, helping scholars gain insight into this relationship. First, this study has demonstrated the impact of eco-labels through mediating variables such as product attributes, environmental attitude, and environmental concern. Eco-label knowledge and how green purchase behavior is significantly affected through this process.

Eco-labels affect product attributes, an important intermediary factor promoting green purchase behavior of Vietnamese youth. This is because the influence of eco-label on green purchase behavior through intermediaries is still limited (Taufique et al., 2017, Teisl et al., 2002). The results of this study suggest that an important mediator is product attributes that contribute to the fact that eco-labels can be conveyed through the appeal of eco-friendly products.

Environmental issues, as one of the general predictors for understanding green purchase behavior of consumers, have been discussed and studied for a long time. However, its relationship and effectiveness are still controversial. The study examined environmental perceptions from all three main streams, namely environmental attitude, environmental concern, and product attributes. While environmental attitude may have more to do with an individual's perceived predisposition or consistent assessment of the environment. Environmental concerns can be more related to emotions and genuine concern for environmental issues. That may explain why product attributes can influence environmental concerns while not affecting environmental attitudes. This finding can contribute to a deeper understanding of environmental concerns and to better improve the effectiveness of environmental concerns in the current context.

However, one finding showed that knowledge of eco-labels negatively affects green purchase behavior. Previous studies have found that consumers have difficulty understanding what the eco-labels are communicating, often leading to confusion (Thøgersen et al., 2010). This may be because consumers are often skeptical about eco-label information when the sources are not verified and widely available, leading to not winning customers' trust to make a purchase decision. It is also an opportunity for businesses to grasp the weaknesses of eco-labels, and how to enhance the information reliability of eco-labels.

With the remaining hypotheses, the results also provide conclusions consistent with the original hypothesis proposed by the authors: Eco-label knowledge has a significant positive and indirect influence on green purchase behavior through environmental concern and trust in eco-label; trust in eco-label positively affects green purchase.

5.1. Implications

From the results of the study, the authors propose a number of recommendations to administrators to promote green purchase behavior of young people. Specifically, businesses play an important role in making communication strategies to attract and promote green purchase behavior of young people. Companies need to do more than just apply an eco-

symbol on their products – they also need to invest in increasing consumer Eco-label Knowledge attributes through enhancing awareness and concern of young people about the environment. Businesses can create community campaigns on the environment, policies to support and generate ideas about environmental protection, thereby helping young people become more aware and interested in the environment. This is also the motivation for them to increase their purchases of environmentally friendly products.

In addition, third-party proven eco-label can be an approach, as they have been shown to achieve a higher level of consumer confidence (Atkinson and Rosenthal, 2014, Erskine and Collins, 1997) than with business information. Third-party certification is considered an effective tool to increase competitiveness, so administrators should pay attention to this issue.

Furthermore, the results show that the inclusion of eco-label in the product design process is an effective way to improve the young generation's attitude and interest in the environment. Thus, in order to promote green purchase behavior, at the production stage, businesses can pay more attention to product attributes, put eco-labels on the packaging, especially design products in a way to impress customers. This helps customers apply more environmentally friendly technology in the production process and create environmentally friendly products.

5.2. Limitations and future research

Based on the evaluation of the research results, the authors found a number of theoretical and methodological limitations as follows: Firstly, the research scope (spatial scope) is wide, with limited research resources and a small number of answer sheets, so the research results may not have achieved high accuracy. Second, some of the observed variables have no influence which is likely to confound the model during the analysis of the results.

From the limitations of this study, with future studies, researchers can develop new research directions such as: supplementing some price factors affecting consumers' purchasing decisions (Fei Lee Weisstein, et al. 2014), or expanding research to compare the receptive attitude and green purchase behavior of Vietnamese young people with those all around the world. In addition, future studies may further exploit variables belonging to the psychology of consumer behavior to explore and examine more complex relationships (Kollmuss and Agyeman, 2002).

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EFFECTS OF GREEN SUPPLY CHAIN MANAGEMENT PRACTICES ON SUSTAINABILITY PERFORMANCE

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Abstract

The purpose of this paper is to explore the impact of seven dimensions of green supply chain management (GSCM) on the three dimensions of corporate sustainability: economic, environmental, and social performance. Green purchasing, green manufacturing, green distribution, green packaging, green marketing, and internal environmental management are the seven dimensions explored in this study. Based on the data collected from a sample of 239 medium and small firms operating in Vietnam, the study examines the impact of GSCM elements on sustainable performance using quantitative research methods. The result finds that GSCM practices have a positive impact on environmental performance. However, it seems that GSCM has not been as effective as expected in influencing social performance and economic performance.

Keywords: *Green Supply Chain Management (GSCM), Sustainable performance, Small and Medium Enterprises*

1. Introduction

The process of industrialization and modernization has accelerated in recent decades, resulting in negative environmental consequences such as greenhouse gas emissions, climate change, and resource depletion, among others. Vietnam is a developing country that is innovating its economy and achieving rapid growth. Apart from the good aspects, when tens of millions of tons of domestic garbage, industrial solid leftover, hundred thousand tons of hazardous substances, and plastic waste are released each year, this growth has numerous flaws. Companies that are seen as the source of environmental problems have had to review their production processes and supply chains as a result of pressure from the community and

governments. Along with the acceptance of company responsibility resulting from activities throughout the supply chain, green supply chain management (GSCM) has started to become prominent (Adriana, 2009). It is gaining traction as a new strategic approach for Vietnamese enterprises that has been extensively promoted in recent years (Ministry of Industry and Trade).

Since the supply chain revolution of the 1990s, the environmental management framework in companies has changed; sustainability goals have become the core of many organizations' vision, and companies have realized that integration of environmental management practices across all departments of organizations is necessary for the best outcome (Srivastava, 2007). Elkington (1998) proposed the need for a reasonable balance between three factors: environmental, social, and economic to achieve sustainability in the organization. Diabat and Govindan (2011) pointed out that GSCM may be a good way to balance environmental, economic, and social advantages. A lot of research on sustainability performance has emerged as sources to provide different views and perspectives on sustainability performance (Senzen và Cankaya, 2019; Green et al., 2012; Rao and Holt, 2005; Sarkis et al, 2011; Zhu và Sarkis, 2004; Laosirihongthong et al, 2013, Le Thi Tam, 2020,...). For example, the natural resource-based view (NRBV) sees environmental practices as a source of substantial gains for enterprises (Hart, 1995). Sustainable development requires a balance among three basic dimensions including the economy, environment, and society, but most previous researchers focused on economic the environmental performance (Zhu et al., 2008; Green et al., 2012; and De Giovanni & Vinzi, 2012). A few papers consider all aspects of sustainability (economic, environmental and social) simultaneously (Wang & Dai, 2017; Senzen và Cankaya, 2019, Le Thi Tam, 2019). Furthermore, the impact of GSCM practices on the social dimension has been discussed in the literature mainly concerning developed countries while this relationship in developing economies is still not much exploited (Laosirihongthong et al., 2013). In Vietnam, social responsibility has only received attention recently and there are very few studies on corporate social responsibility. This can be considered as a research direction that should be exploited more in the future to more objectively evaluate the effectiveness of GSCM practice in the period toward a sustainable development economy in Vietnam. In addition, the results from previous studies are inconsistent in affirming that GSCM helps to improve or weaken the sustainable performance of enterprises, making it difficult for enterprises to get clear answers about factors that can bring benefits, thereby making more correct decisions for the development of the business.

In the light of the aforementioned shortcomings, in this paper, we identified seven GSCM dimensions (green purchasing, green manufacturing, green distribution, green packaging, green marketing, internal educational and environmental management, and green design) and aimed to investigate the effects of these dimensions on economic, environmental and social performance. To achieve this goal, a survey was conducted on 239 medium and small firms operating in Vietnam.

This study applies Stakeholder Theory and Nature resource-based view perspective (NRBV) and takes medium and small firms operating in Vietnam as a case study. With

adjustments from previous empirical studies, some hypotheses are proposed the following research model:

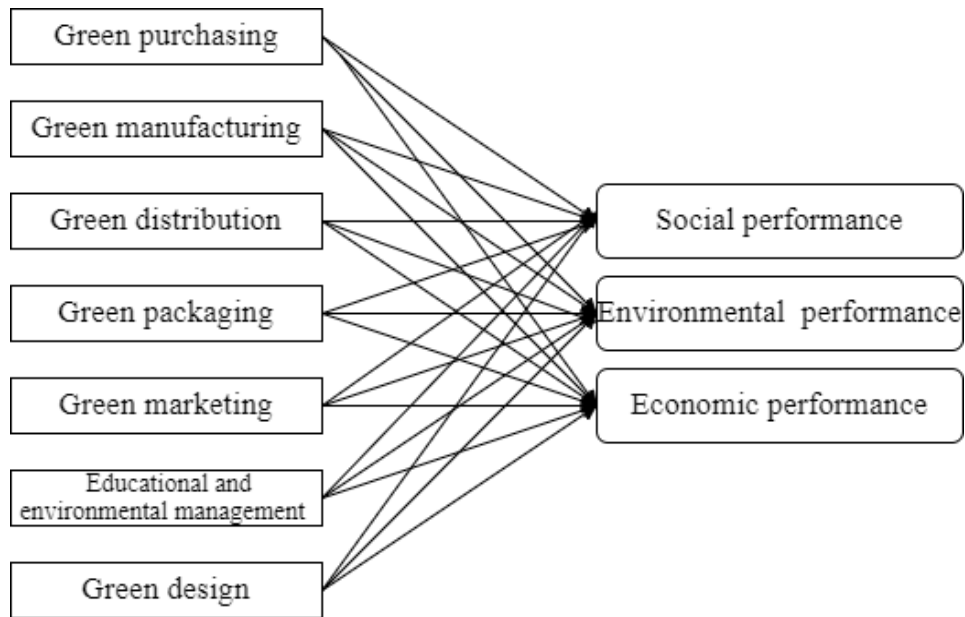


Figure 1. The research model

GSCM and economic performance. Businesses can gain direct economic benefits by reducing waste and energy costs. Moreover, businesses can derive economic benefits from more indirect ways by increasing corporate loyalty and reputation through green practices (Schmidt et al., 2017).

H1a. Green purchasing has a positive relationship with economic e performance

H1b. Green manufacturing has a positive relationship with economic performance

H1c. Green packaging has a positive relationship with economic performance

H1d. Green distribution has a positive relationship with economic performance

H1e. Green marketing has a positive relationship with economic performance

H1f. Educational and environmental management has a positive relationship with economic performance

H1g. Green design has a positive relationship with economic performance

GSCM and environmental performance. GSCM practices include effort to reduce the adverse impact of the company's products or services on the environment by reducing consumption of solid/liquid waste and hazardous substances, reducing environmental accident rates and improving public health (Eltayeb et al., 2011).

H2a. Green purchasing has a positive relationship with environmental performance

H2b. Green manufacturing has a positive relationship with environmental performance

H2c. Green packaging has a positive relationship with environmental performance

H2d. Green distribution has a positive relationship with environmental performance

H2e. Green marketing has a positive relationship with environmental performance

H2f. Environmental and educational management has a positive relationship with environmental performance

H2g. Green design has a positive relationship with environmental performance

GSCM and environmental performance. Practicing green supply chains enables corporations to have a more positive image in the eyes of stakeholders, society, customers, personnel and governments by reducing environmental damage. This positive image is important for both customer and employee satisfaction and loyalty (Hoffman, 2001).

H3a. Green purchasing has a positive relationship with social performance

H3b. Green manufacturing has a positive relationship with social performance

H3c. Green packaging has a positive relationship with social performance

H3d. Green distribution has a positive relationship with social performance

H3e. Green marketing has a positive relationship with social performance

H3f. Environmental and educational management has a positive relationship with social performance

H3g. Green design has a positive relationship with social performance

2. Method

The relationships between GSCM practices and corporate sustainability performance were tested using a survey. We consulted some of the head experts in the supply chain management field to limit the biases and add up more dimensions to the study. Based on references to previous studies, the author's team built a preliminary questionnaire. After that, the questionnaire was revised with the support of Assoc. Prof. Dr. Nguyen Xuan Hung and referenced from the survey form of Prof. Dr. Senzen. The purpose is to standardize terminology and create reliability for the questionnaire so that the respondents are guaranteed not to misunderstand the meaning of the question.

Table 1. Measurement items of the variables

Code	Construct	Items	Likert type scale	Source
MX	Green purchasing	4	5	Zhu et al (2008), De Giovanni & Vinzi (2012), Eltayeb et al (2016), Esfahbodi et al (2016), Vanalle et al (2017), Senzen and Cankaya (2019)
SXX	Green manufacturing	4	5	De Giovanni & Vinzi (2012), Hsu và cộng sự (2016), Luthra và cộng sự (2016), Wang & Dai (2017), Senzen và Cankaya (2019)
BBX	Green packaging	3	5	Hsu et al (2016), Senzen and Cankaya (2019)
PPX	Green distribution	4	5	Zhu et al (2008), Green et al (2012), Esfahbodi et al (2016), Laari (2016), Hamdy et al (2018), Choi and Hwang (2015), Vanalle et al (2017) Senzen and Cankaya (2019)

Code	Construct	Items	Likert type scale	Source
MKX	Green marketing	5	5	Shang et al (2010), Kung et al (2012), Luthra et al (2016), Senzen and Cankaya (2019)
GDQL	Environmental and educational management	6	5	Zhu and Sarkis (2004, 2006), Lee et al (2012), Green et al (2012), Kung et al (2012), Luthra et al (2016), Vanalle et al (2017), Senzen and Cankaya (2019)
TKX	Green design	4	5	Zhu and Sarkis (2004), Choi and Hwang (2014), Vanalle et al (2017), Hamdy et al (2018)
KT	Economic performance	5	5	Zhu et al. (2008), De Giovanni and Vinzi (2012), Green et al. (2012), Yang et al. (2013), Esfahbodi et al (2016), Laari (2016), Senzen and Cankaya (2019)
XH	Social performance	7	5	De Giovanni (2012), Wang and Dai (2017), Senzen and Cankaya (2019),
MT	Environmental performance	4	5	Zhu et al. (2008), De Giovanni and Vinzi (2012), Green et al. (2012), Yang et al. (2013), Esfahbodi et al (2016), Laari (2016), Senzen and Cankaya (2019), Hamdy et al (2018)

After completing the basic questionnaire, the variables were measured on a bipolar 5-point semantic differential Likert type scale where 1 = strongly disagree and 5 = strongly agree. Then we evaluated the scale's value by exploratory factor analysis (EFA).

To ensure the reliability of the collected information, this survey is only sent to senior officials in the enterprise. With this method, the research team filtered and collected 239 answer sheets. The period to send survey forms is from November 16, 2021, to March 15, 2022

EFA analysis was performed separately for the first time with 30 observed variables of green purchasing, green manufacturing, green distribution, green design, green packaging, green marketing, environmental and educational management, and the second time with 16 variables. Observation of economic performance, environmental performance, and social performance. After that, the research team will conduct a confirmatory factor analysis CFA and SEM model.

The research team coded and entered data from the official questionnaire in Excel, then entered the data and processed the data on IBM SPSS Statistics version 26 and AMOS version 24. Descriptive statistics are used to statistically analyze the characteristics of the sample, including Employee size, operating time, headquarters, and location of the business in the supply chain. Data from the remaining variables will be analyzed on SPSS 26 to test the reliability of the scale (Cronbach's Alpha), exploratory factor analysis (EFA), and then

will be analyzed for confirmatory factor CFA and network model. (SEM) to test the hypothesis and estimate the model on AMOS 24.

3. Results

3.1. Descriptive Statistic

Table 2. Demographic characteristics of the respondents (N=239)

Enterprise characteristics	Frequency	Percentage (%)
Operating time		
<5 year	48	20,1
5-10 year	79	33,1
10-15 year	63	26,4
15-20 year	29	12,1
>20 year	20	8,3
Total	239	100
Location		
Northern	177	74,1
Southward	45	18,8
Central	17	7,1
Total	239	100
The position of the business in the supply chain		
Main producer	168	70,3
Level 1 supplier	48	20,1
Level 2 supplier	2	0,8
Level 1 distributor	21	8,8
Level 2 distributor	0	0
Total	239	100
Quality certificates of enterprises		
ISO 9001	99	41,4
ISO 14001	92	38,4
HACCP	26	10,8
ISO 22000	22	9,2
Total	239	100

Source: The survey results

Descriptive statistics show that:

The operating time of enterprises: Enterprises operating under 5 years accounted for 20.1%; Enterprises operating [5,10] years accounted for the majority of 33.1%; Enterprises operating from [10,15] years accounted for 26.4%; Enterprises operating from [15,20] years accounted for 12.1%; Enterprises operating for more than 20 years accounted for 8.3%.

The head office of the enterprise: Most of the enterprises have their head office in the North (with 74.1%); in the South account for 18.8% and in the Central region only 7.1%.

The position of enterprises in the supply chain: The enterprises that are the main manufacturers accounted for the majority of the research with 70.3%; Businesses that are tier-1 suppliers accounted for 20.1%; Businesses that are tier-2 suppliers accounted for 0.8%; Enterprises that are level 1 distributors account for 8.8%; There is no business as a tier 2 distributor.

Quality certificates of enterprises: Enterprises with ISO 9001 certificate accounted for 41.4%; Enterprises with iso 14001 certificates accounted for 38.4%; Enterprises with HACCP certificates accounted for 10.8%; Enterprises with ISO 22000 certificate accounted for 9.2%. Statistics show that most of the quality certificates that businesses own are ISO 9001 certificates for product quality management.

3.2. Cronbach's Alpha

Table 3. Exploratory measurement results

Factor	Variables	Cronbach's Alpha
Green purchasing	4	0,795
Green manufacturing	4	0,700
Green distribution	4	0,708
Green design	4	0,724
Green packaging	3	0,733
Green marketing	5	0,841
Environmental and educational management	6	0,806
Economic performance	5	0,809
Environmental performance	4	0,701
Social performance	7	0,857

Source: The survey results

The results of the reliability test (Cronbach's Alpha) show that the scales used in the study all have Cronbach's Alpha coefficient of the total variable greater than 0.7 and the correlation coefficient of the total variable greater than 0.3. Therefore, it can be concluded that the scale is reliable and continues to be used to analyze the next steps.

3.3. Exploratory factor analysis (EFA)

The research team used Principal axis factoring with Promax rotation to analyze into 2 groups: Group 1 includes independent variables and group 2 includes dependent variables. The analysis results show that the KMO coefficients of both groups are greater than 0.5 (specifically: group 1 is $0.888 > 0.5$ and group 2 is $0.892 > 0.5$), so EFA analysis of both groups is equal fit the data. In addition, the Sig value. In the Bartlett test of both groups, the scores were $0.000 < 0.005$, showing that the observed variables in each factor are correlated with each other. The total extracted variance of group 1 reached $58.329\% > 50\%$ and the total extracted variance of group 2 reached $50.008\% > 50\%$, showing that the EFA model is appropriate.

The results for group 1 show that 30/30 observed variables all have FL load coefficients greater than 0.4, extracted into 7 factors from 30 observed variables while the results for group 2 also show 16/ 16 observed variables all have loading coefficient FL greater than 0.4, extracted into 3 factors from 16 observed variables. The loading coefficients of these two groups are in the range of 0.418 to 0.909 and none of the observed variables falls into 2 or more factor groups, therefore, the observed variables are all suitable and included in the analysis of the next steps.

3.4. Confirmatory factor analysis (CFA) results

After analyzing CFA for the first time, the results obtained were that 2 factors MX4 and SXX2 had standardized regression weight (CFA) of 0.476 and 0.481, respectively. According to Hair et al. (2010), observed variables with a minimum standardized regression weight of 0.5 or more will be kept, ideally 0.7 or higher. Therefore, the authors removed these 2 observed variables and re-analyzed CFA to ensure a higher level of agreement with the factors.

With the factors obtained, the authors continued to analyze CFA with new observed variables. The results of this CFA analysis show that the critical model has a chi-square statistical value of 2,536.4 with 854 degrees of freedom. If the degree of freedom adjustment has $CMIN/df = 2.945 < 3$, the compatibility requirement is quite good. Other indicators such as $CFI = 0.907 > 0.9$; $RMSEA = 0.076 < 0.8$; $PCLOSE = 0.06 > 0.05$ shows that the compatibility with the collected data is quite good, although only $TLI = 0.866 < 0.9$, but in some cases, TLI greater than 0.8 is still acceptable. receive.

CFA loading coefficient of observed variables from 0.527 to 0.904. The CR reliability ranged from 0.706 to 0.859. The average extracted variance (AVE) from 0.522 to 0.691 are all greater than 50%, so it can be concluded that the scales have a convergent value. Along with that, the AVE coefficient of each scale is larger than the MSV coefficient and the SQRTAVE values are larger than all corresponding Inter - Construct Correlations values, so the scales reach discriminant values.

The CFA results show that the measurement model ensures reliability, convergent value, and discriminant value. This result is used to test the model and research hypotheses

3.5. Hypothesis testing

Table 4. Structural relationships among structural model components (SEM)

Hypothesis	Relationship	Estimate	P	Result
H1a	KT ← MX	.243	.013	Supported
H2a	MT ← MX	.411	***	Supported
H3a	XH ← MX	.356	***	Supported
H1b	KT ← SXX	.313	***	Supported
H2b	MT ← SXX	.355	***	Supported

Hypothesis	Relationship	Estimate	P	Result
H3b	XH ← SXX	.124	***	Supported
H1c	KT ← PPX	.162	.048	Supported
H2c	MT ← PPX	.292	***	Supported
H3c	XH ← PPX	.083	.099	Not supported
H1d	KT ← TKX	.407	***	Supported
H2d	MT ← TKX	.485	***	Supported
H3d	XH ← TKX	.476	***	Supported
H1e	KT ← BBX	.309	.203	Not supported
H2e	MT ← BBX	.624	***	Supported
H3e	XH ← BBX	.336	***	Supported
H1f	KT ← MKTX	.099	.064	Not supported
H2f	MT ← MKTX	.231	***	Supported
H3f	XH ← MKTX	.179	.027	Supported
H1g	KT ← GDQL	.292	***	Supported
H2g	MT ← GDQL	.477	***	Supported
H3g	XH ← GDQL	.217	***	Supported

Most of the normalized parameters are statistically significant ($P < 5\%$) and the hypothesis is accepted. However, there are 3 hypotheses that were rejected due to not having statistical significance ($P > 5\%$), namely $XH \leftarrow PPX$ ($P = .099 > 5\%$), $KT \leftarrow BBX$ ($P = .203 > 5\%$) and $KT \leftarrow MKTX$ ($P = .064 > 5\%$). The remaining hypotheses were accepted with statistical significance at $P < 5\%$. In which, Green Design Factor (TKX) has the strongest impact on economic efficiency (KT) with a coefficient γ of 0.407 (statistical significance level $P=0.000$). Green Packaging Factor (BBX) has the strongest impact on environmental performance (MT) with a coefficient γ of 0.624 (statistical significance level $P=0.000$). The Green Design Factor has the strongest impact on social performance with a coefficient of 0.476 (statistical significance level $P=0.000$)

4. Discussion and Conclusion

The study's findings suggest that GSCM practices have a positive impact on environmental performance. However, it seems that GSCM has not been as effective as expected in influencing social performance and economic performance.

4.1. GSCM practice and environmental performance

The results of our study show that all seven factors of GSCM are a positive impact on environmental performance. And it can be claimed that the improvement in the environmental performance of enterprises in Vietnam is mainly due to these factors. The dimension of green packaging (γ is 0.522) is the variable that affects environmental performance to the highest degree. Green packaging uses and packages products in an economical and environmentally friendly way, which reduces the negative environmental impact caused by packaging. On the other hand, the green distributive factor has the lowest correlation with environmental performance. Green distribution strives to minimize the environmental impacts caused by distribution. Green distribution contributes to improved environmental performance by reducing fuel consumption, optimizing distribution routes, and ensuring that containers are fully loaded (Kumar et al., 2015). However, the reality may be that because green distribution practices put a lot of pressure on technology costs, green distribution can effectively focus on transport businesses such as logistics businesses. GSCM practice and economic performance

4.2. GSCM practice and social performance

The results of our study show that five out of seven factors of GSCM are positively related to economic performance. These dimensions are green purchasing (γ is 0.243), green manufacturing (γ is 0.282), green design (γ is 0.393), green distribution (γ is 0.162), and environmental and educational management (γ is 0.273). Green manufacturing practices such as resource and energy saving, waste reduction and better treatment help businesses improving their environment, and since they are closely related to economic activity, they are quickly adopted by the company. For example, many businesses prefer recycled packages because those packages are cheaper than others. By practicing green manufacturing, businesses will be able to use resources and control the waste treatment process more effectively. This will allow businesses to reduce production costs and increase their economic efficiency.

Green design has the strongest correlation with economic performance. Because green design helps businesses proactively consider sustainability factors from the beginning, it will bring many benefits. For example, the design will dictate what materials are used. It also affects reuse, recycling, or disposal.

In the study, the relationship established between economic performance and environmental educational management was relatively low. environmental educational management affects the internal of the business, helping to improve employees' awareness of the environment. It is possible that the actual effectiveness of environmental management education will depend on the ability of each particular enterprise to adapt to the environment.

Another remarkable finding in the study was that there was no relationship between aspects of green packaging and business economics. The use of effective green packaging also comes with energy costs as well as costs and technical requirements to meet the requirements of creating green packaging to ensure quality is not easy.

Green Marketing activities increase the reputation and image of the business and lead to an increase in sales; thus, they influence the economy to do business positively. However, in this study, no relationship was observed between green marketing and economic performance. This may be because, as some authors suggest, green marketing practices can initially lead to additional costs for firms (Welling and Chavan, 2010; Jain and Kaur, 2004).

4.3. GSCM practice and social performance

Finally, our results show that six out of seven GSCM factors are positively related to social performance. These are green purchasing (γ 0.364), green manufacturing (γ 0.361), green packaging (γ 0.294), green marketing (γ 0.179), environmental management education (γ 0.236), and design green (γ is 0.446).

As can be seen, GSCM practices not only positively affect the environment and economic performance, but also the social performance of enterprises. Businesses that adopt and implement environmentally friendly production will be able to develop a better relationship with society through that friendliness. Green design gives customers green values while using resources in the most efficient and socially responsible manner.

The relationship between environmental management education and social performance is quite low (γ is 0.179). Employees, managers, and distribution channel partners need to be aware of the environmental issue along with the increase in environmental pollution. However, it may take some time for green strategies to reach the masses. Because environmental and educational management is not a practice we can observe results in a short time.

Our research results give another remarkable finding that the correlation between Green Marketing and social performance is the lowest among GSCM practices. In fact, green marketing is an important tool for a business to develop relationships with all its stakeholders. Possibly because of the importance and usefulness in communication, making this tool misused, advertising appears "fake" green products, confusing consumers when choosing products from businesses. through those marketing activities.

No relationship was observed between green distribution and social performance. Green distribution strives to minimize the environmental impacts caused by distribution. And centralized green distribution is effective for the environment and the economy.

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EXPLORING STRATEGIC BEHAVIOUR IN CHOICE EXPERIMENTS: A CASE OF AIR QUALITY IMPROVEMENTS IN HANOI CITY, VIETNAM

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Abstract

A choice experiment (CE) with approximately 1000 respondents was designed and conducted to estimate economic benefits associated with air quality improvements in Hanoi City, the capital of Vietnam. In this CE application, different scenarios of air quality improvements were described based on reduction in morbidity and mortality risk and increase in urban tree cover to elicit respondents' willingness-to-pay (WTP). Strategic behaviour that may cause biases in WTP estimates is a concern in the application of SP surveys. It has been recognised that some respondents will not state their true preferences when they believe that they might gain benefits from not doing so. To analyse respondents' strategic behaviour, two follow-up questions on the beliefs were used to detect respondents who could behave strategically. A finding of this analysis is that a dominant strategy of the strategic respondents is to understate their WTP for air quality improvements. This is consistent with Samuelson (1954)'s statement suggesting that people are more likely to pretend to have less interest in a public good with the expectation that others will pay enough to provide the good nevertheless.

Keywords: *stated-preference methods, choice experiments, strategic behaviour*

1. Introduction

Choice experiment (CE) is a stated preference (SP) method, which can be used to estimate willingness to pay (WTP) for non-market goods and services. The CE approach is based on the assumption that goods or services can be represented by its characteristics (or attributes). In a CE exercise, respondents are requested to make choice decisions over a series of choice tasks. Each choice task includes a number of mutually exclusive hypothetical alternatives between which respondents choose their preferred one. Alternatives are described by different levels of attributes or characteristics of the good or service that is being valued. In making trade-offs between the alternatives, respondents reveal their preferences for the levels of attributes. When the monetary cost or price of the good or service is included as an attribute and the levels of all attributes are designed to systematically vary across the experiment, researchers are able to estimate the values that respondents assign to the attribute levels.

Strategic behaviour that may cause biases in WTP estimates is a concern in the application of SP surveys (Milon, 1989; Throsby and Withers, 1986). It has been recognised that some respondents will not state their true preferences when they believe that they might enhance their utility or well-being by not doing so. Some respondents could have an incentive to understate their value for the goods in SP surveys to encourage the provision of the goods at a low price. In certain circumstances, some respondents believe that they will not be required to actually pay the amounts they state they would be willing to pay; and they may overstate the values to promote the provision of the goods. If many respondents behaving strategically act in a similar manner, the strategic responses will bias the estimated values (Boyle, 2003). In DCE surveys, a series of choice questions could provide opportunities for respondents to develop their strategic responses as they become more aware of the strategic opportunities after each choice task (strategic learning) (Scheufele and Bennett, 2012). Carson and Groves (2007) also point out that when facing a series of choice options offering the non-market good with different levels of price and qualities, respondents might not believe in the credibility of those options; therefore, they may try to answer strategically to manipulate the survey results to their advantage. If many respondents behaving strategically act in a similar manner, the strategic responses will bias the estimated values (Boyle, 2003).

In CE surveys, it is expected that the complexity of choice tasks with multi-attribute and multi-alternatives could make it difficult for respondents to form response strategies in order to strategically bias their answers. However, Carson and Groves (2011) argue that all respondents have to do is to act as if they are more (or less) price sensitive than they actually are when they believe that they would gain benefits from their responses. Using a case study in transportation, Lu et al. (2008) show that making choice tasks more complex (i.e. adding more attributes to the CE experiment) would not significantly reduce the strategic bias, but contributes to a higher error variance in the CE responses. They reason that respondents make more errors in the complex design, but respondents' valuation of the good or service that is being valued is not affected.

The concerns about strategic bias increase if the good under consideration is a public good (Day et al., 2012; Milon, 1989; Throsby and Withers, 1986). The key feature of a public good is that only one level can be provided to all people. Some respondents could attempt to choose an option that they think has a reasonable chance of “winning”, even when this excludes their most preferred option (Bennett and Blamey, 2001). By making choices in such a way, they respond strategically and do not reveal their true preferences.

Hanoi, a densely populated capital city of Vietnam, has a population of 8.05 million and covers an area of 3359 km² (GSO, 2019). Hanoi has experienced high level of air pollution. According to the National State of Environment Report on Air quality (MONRE, 2014), during the period 2010–2013, the proportion of days with Air Quality Index (AQI) at unhealthy levels of 101–200 ranged from 40% to 60% of total monitoring days. The air quality data (monitored by the United States Embassy in Hanoi) showed that the average annual concentration of PM_{2.5}, in the period of 2015 - 2019, was 54 µg/m³, much higher than both the Vietnamese standard (25µg/m³) and the WHO guideline limit (10µg/m³)

(AirNow, 2019). During many consecutive months in late 2019, Hanoi was among the most polluted capital cities globally (Van Khuc et al., 2020).

With the application of the CE approach, WTP for air quality improvements in Hanoi City was estimated. In this paper, the WTP results for air quality improvements are used to explore strategic behaviours. In this study of strategic behaviour, respondents are assigned to assumed non-strategic and strategic groups using their answers to two follow-up questions on their beliefs about the consequentiality of the survey and the payment obligation. Comparison between the two groups may show anomalies in the choice made by the strategic respondents. Mixed logit models are separately constructed for the non-strategic and strategic groups. Comparison of WTP values estimated from the models enables us to explore strategic behaviour in WTP for air quality improvements in Hanoi City, Vietnam.

2. Method

2.1. Overview of survey design and implementation

The CE survey for air quality improvements in Hanoi City was designed following state-of-the-art practices (Johnston et al., 2017), and based on residents' opinions collected from a number of small surveys. The survey design began with the search for the attributes of an air quality improvement program, which are the most significant for Hanoi residents' benefits. To learn about residents' desire for air quality improvements, two focus studies were conducted in the form of an internet survey with 191 respondents and 212 face-to-face interviews with Hanoi residents. These focus studies, in concert with an in-depth literature review, resulted in the attributes and levels, which are presented in Table 1. In our CE study, the economic benefits associated with air quality improvements were estimated by eliciting residents' WTP for reducing risk of hospitalization and death due to air pollution-related diseases, and for boosting urban tree cover.

Table 1. Attributes and levels

Attributes	Variables	Current levels	Improvement levels
Health risk related to air pollution: People who get hospitalised due to air pollution-related diseases People who die from air pollution-related diseases	Morbidity	Out of 100,000 people: 350 people	350; 250; 150 people
	Mortality	50 people	50; 35; 20 people
Urban tree cover area	Urban tree cover	8 m ² per capita	8; 13; 18 m ² per capita
Change to household electricity bill	Cost	No change	Increase of 15; 50; 85; 120 thousand VND/month = 180; 600; 1020; 1440 thousand VND/year

To estimate monetary values associated with the improved attributes, a cost attribute or payment vehicle is included in the choice tasks. Previous SP studies conducted in Vietnam have used the electricity bill as the payment vehicle, because this payment vehicle is coercive

and has good coverage (Do and Bennett, 2008; Nguyen et al., 2013). Monthly coercive payments through the electricity bill, therefore, were selected as the payment vehicle in our CE application.

Once the attributes were selected, their levels were determined based on a rigorous literature review and two pilot surveys. The baseline risk level of hospitalisation was estimated using exposure-response relationship between the air pollutant’s concentration variation and the percentage change in number of hospitalized cases, which derived from epidemiological studies in Vietnam (Phung et al., 2016). Information on the mortality risk attributed to air pollution in Vietnam was collected from the database of WHO (WHO, 2018a), and the annual mortality risk level used in this research was adjusted to the case of Hanoi using the annual mortality rate of Hanoi City. Information on morbidity/mortality annual rates was obtained from Health Statistics Yearbook of Vietnam (Ministry of Health, 2017). The levels of urban tree cover were identified from reports and plans of Hanoi authorities. All the attribute levels and the cost levels were piloted in two surveys, including an internet survey of 161 respondents and a face-to-face survey of 162 participants. The pilot surveys led to an upward adjustment of the cost levels.

Having attributes and levels determined, an orthogonal choice task design was used, resulting in six blocks of six choice tasks. A block of six choice tasks was randomly selected for presenting to each respondent with the aim of reducing the cognitive burden on respondents. For each choice task, respondents indicated their preference between two improvement alternatives described by different combinations of the levels of the selected attributes. An example of choice task is presented in Figure 1.



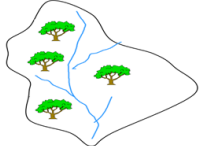
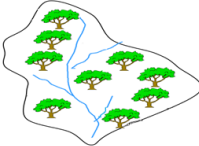


	Program A	Program B
<p>HEALTH RISK related to air pollution</p> <p>Out of 100,000 people: ■ 150 people get hospitalised (<i>200 fewer</i> cases than current situation) ■ 20 people die (<i>30 fewer</i> deaths than current situation)</p> <p>Out of 100,000 people: ■ People who get hospitalised due to air pollution-related diseases ■ People who die from air pollution-related diseases ■ Remaining population</p>	<p>Out of 100,000 people: 150 people get hospitalised (<i>200 fewer</i> cases than current situation) 20 people die (<i>30 fewer</i> deaths than current situation)</p> 	<p>Out of 100,000 people: 250 people get hospitalised (<i>100 fewer</i> cases than current situation) 20 people die (<i>30 fewer</i> deaths than current situation)</p> 
<p>URBAN TREE cover area</p>	<p>8 m² per capita (<i>0m² larger</i> than current situation)</p> 	<p>18 m² per capita (<i>10m² larger</i> than current situation)</p> 
<p>Change to household electricity bill, starting in 2020</p>	<p>Increase of 50 thousand VND/month (= 600 thousand VND/year)</p> 	<p>Increase of 120 thousand VND/month (= 1,440 thousand VND/year)</p> 

Figure 1. An example of a choice task

In June and July 2019, the main survey was administered in the form of face-to-face interviews with 1028 representatives of households living in different districts of Hanoi City, including Thanh Xuan, Hai Ba Trung, Hoang Mai, Cau Giay, Ba Dinh and Gia Lam districts. Interviews were conducted by undergraduate students from Hanoi National Economics University, who were carefully trained as enumerators. Households in the selected locations were randomly approached by enumerators, and a member who was over 18 years old was asked for his/her consent to represent the household to answer the questionnaire. The survey was completed by 1028 respondents.

Our main survey was implemented with real policy implications and monetary repercussions. The survey was implemented as a project of the Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE), which is a unit of Ministry of Natural Resources and Environment (MONRE). Enumerators were accompanied by leaders of community, who helped to introduce the survey as an activity of ISPONRE. Detailed information on the survey objectives was presented to respondents using recommendation letters from ISPONRE. Given the governmental collaboration on the survey implementation, respondents were expected to believe that their responses to the survey would potentially influence policy makers' actions on improving air quality, and their "yes" responses would result in their payment in the future.

2.2. Assignment of respondents to non-strategic and strategic behaviour groups

Concerning the identification of strategic behaviour, Mitchell and Carson (1989) suggest that respondents' strategies in SP studies can be a function of two factors: (A) the respondents' expectations about the provision of the good or service under valuation and (B) the respondents' perceived payment obligation. The key distinction within (A) is whether or not respondents believe that the survey's results will potentially influence the related agency's decisions to provide the good. SP practitioners avoid (or should avoid) any hint that the good they are trying to value is certain to be provided; and it should be explained to respondents that the provision of the good would depend on the results of the survey (Mitchell and Carson, 1989). Carson and Groves (2007) indicate that given the amount of effort investigators expend on the survey, most respondents would believe that the provision of the good under consideration depends on their response to the survey.

In relation to perceived payment obligation (B), it is standard practice in the design of the DCE survey for more than one level of cost to be presented, and this could mean that respondents are uncertain about the amount that they have to pay (Carson and Groves, 2007). It would be difficult to convince respondents that they would have to pay exactly what they state in the hypothetical DCE survey. However, the idea that their payments may be in some way related to their stated WTP should be credible to respondents. Since respondents are uncertain about the amount of their payment, they are assumed to make decisions according to their expected amount of payment calculated using a set of perceived probabilities associated with each of the various cost levels presented in the DCE survey. The difference in the respondents' perceived probabilities would represent the difference in their belief and other factors as risk averseness. The interpretation of respondents' belief in the payment

obligation, therefore, will correspond to their perceived probabilities. The distinction within (B) is whether or not respondents believe that they will actually have to pay for the good at a level of payment determined using the WTP amounts they choose in the DCE survey. If a respondent believes in the payment obligation enforced by the agency, the respondent appears to believe that there is no chance he/she will not have to pay for the provision of the good; in other words, the perceived probability associated with the zero-cost level in the calculation of his/her expected payment would be zero. If a respondent does not believe in the payment obligation, the respondent would perceive that there is a positive probability he/she will have to pay nothing even though his/her stated WTP is non-zero; hence, the perceived probability of the zero-cost level in his/her expected payment calculation would be a positive value with possible highest value of 100%.

To examine strategic behaviour in our survey, respondents were assigned to one of two groups of non-strategic and strategic respondents according to their possibly strategic behaviour. The possible anomalies in WTP of the strategic respondents are examined based on a comparison with WTP of the non-strategic respondents. This assignment was undertaken on the basis of respondents' answers to two follow-up questions:

(1) "How likely do you think it is that the results of this survey will affect the Government's decisions about improving early warning service for tropical cyclones?". Respondents could select one of five options: (1) No effect at all, (2) Very low, (3) Low, (4) High, (5) Very high (Definite effects). Carson and Groves (2007) distinguish between inconsequential surveys (where respondents believe that there is a zero percent chance the survey results will influence the agency's decisions) and consequential surveys (where respondents perceive their responses will influence the agency's decisions up to some non-zero probability). We assumed that respondents who did not select the option "(1) No effect at all" believed that their choices will influence policy makers' decisions about implementation of improvements in cyclone warning services up to some non-zero level of probability.

(2) Respondents with non-zero bids were also requested to answer a follow-up question on their perceived payment obligation: "I voted for the program but I do not think that I will actually have to pay the fee". There were three options for respondents to choose: (1) Agree, (2) Maybe, (3) Disagree. When compared with the respondents answering 'Agree', the respondents who chose 'Maybe' could be less certain about their chance of having to pay nothing for improvements in the future. Both groups of respondents, however, would perceive that at *a positive probability* they would have to pay nothing even though they had non-zero bids. Therefore, we assume that respondents with the answer of 'Agree' and 'Maybe' belong to the same group of respondents who did not believe the payment obligation up to some non-zero level of probability.

Based on the two follow-up questions, it is assumed that the non-strategic subsample includes respondents, who (i) believed that the survey was policy consequential (hence, did not choose the option "(1) No effect at all"), and (ii) believed that there was *no chance* they would have to pay nothing for improvements in cyclone warning services if they had at least one non-zero bid. Respondents, who (i) believed that the survey was policy consequential

(hence, did not choose the option “(1) No effect at all”), and (ii) did not believe the payment obligation, could behave strategically.

2.3. Estimation of willingness-to-pay

Estimation of WTP in our CE exercise is based on the application of mixed logit (ML) models (Hensher and Greene, 2003; Train, 2009). In a ML model, the utility (U_{ikt}) associated with each alternative k , as evaluated by each individual i in choice task t , can be approximated by a linear function form as follows:

$$U_{ikt} = \alpha_{ik} + \beta_i'X_{ikt} + \varepsilon_{ikt}$$

where α_{ik} is the coefficient on an alternative specific constant (ASC) representing utility associated with moving away from the status quo option, β_i is the vector of taste parameters, X_{ikt} is the vector of independent variables that are observed by the researcher, and ε_{ikt} is the stochastic unobserved component. In each choice task, respondents are assumed to choose an option that yields a better utility. The choice data from our CE survey are analysed using *NLOGIT 5.0*.

To examine strategic behaviour in our CE survey, ML models are constructed separately for the non-strategic and strategic groups. The comparison between WTP estimated for the two group of respondents may show anomalies in the choice made by the strategic respondents. The ML models, in which the coefficients on the attribute variables, except for the cost attribute, are specified as random parameters with normal distribution, are estimated with 1000 Halton draws. The ML models also allow free correlation among the random parameters.

3. Results

Effects of strategic behaviour on willingness-to-pay estimates

When examining WTP estimates of strategic respondents, another interesting question is whether strategic respondents over- or understate their WTP. The requirement for surveys to be seen as consequential might create incentive for respondents to strategically misrepresent their preferences (Meginnis et al., 2018). Respondents who are likely to answer strategically are those who (i) believe the survey is influential in deciding to provide the good that they care about, or policy consequentiality; (ii) but do not believe in the payment obligation enforced by the agency. If a respondent perceiving the survey to be consequential believes that he/she will not have to pay, then the respondent will have an incentive to strategically indicate a higher WTP amount assuming that payment for the good will not be enforced. This is a type of strategic overbidding found in previous studies. Posavac (1998) and Lunander (1998) provide examples in which respondents, who believe that the payment level is zero (i.e. paid by the related agency) or only a small amount of money, report higher WTP than do respondents who expect that they would be personally responsible for paying for the good they care about. If a respondent believes that the likelihood of paying nothing is a positive probability, the zero-cost level will be included in his/her expected payment calculation, resulting a lower value of expected payment. If everything else held constant, this would increase incentive for the respondent to strategically overstate the WTP amount, with the aim of exerting more influence on the provision of the good but only being exposed to a lower value of expected payment.

However, the direction of strategic motivation is not always overbidding when respondents believe that the survey is policy consequential, but do not believe in the payment obligation. Mitchell and Carson (1989) suggest that if respondents are uncertain about their payment, the direction of strategic behaviour would take depends on the comparison between their expected payment and true WTP value. If the respondent's expected payment is perceived to be less than his/her true value, he/she will tend to overbid; if his/her expected payment is calculated to be larger than the true value, he/she will tend to underbid or free ride. In our DCE experiment, the respondents' uncertainty about their payment would create incentives to behave strategically in both directions of overbidding and underbidding. And if respondents do not believe in the payment obligation, they may more frequently use the strategy of underbidding. If respondents believe that there is a positive probability of paying nothing, the addition of zero-cost level to their expected payment formulation will make the calculation more complex, leading to higher uncertainty about payment obligation. In the case of the provision of public good with a coercive payment mechanism where the status quo choice set will still be available but where respondents must commit ex ante to paying the uncertain cost, the commitment to uncertain payment is never preferred by risk adverse respondents; hence, some respondents would be expected to shift from "yes" to "no" responses (Carson and Groves, 2007). In laboratory choice experiments, Collins and Vossler (2009) find that respondents seem to move toward the status-quo option, as the preferences of others are unknown and this option is offered at zero cost. If respondents do not believe in the payment obligation, their shift toward the status-quo option, which is usually the second-best alternative in each choice set, can be considered as the strategic act of underbidding.

The CE surveys for this research identified whether respondents had own experience of respiratory illness or not. To gain a better understanding of whether WTP estimates for the strategic respondents are over-or underestimates, WTP estimates are compared between the non-strategic and strategic subsamples in each of the two groups of respondents (Table 2).

In relation to the total WTP estimates with the pooled data from the two groups reported in Table 2, the resampling tests indicate that the strategic respondents understated their WTP for both of the minimum and maximum improvement programs. The evidence of underbid also can be found in the total WTP estimates for each group of respondents with and without own sick experiences. This is consistent with the Samuelson (1954)'s statement. A dominant strategy of strategic respondents with selfish interest is to be willing to pay less than their true value of a public good in the expectation that others will nevertheless pay enough to provide the good.

With regards to the WTP estimates for the attributes, the negative sign indicates the WTP values for morbidity reduction and increase in urban tree cover area are underbid by the strategic respondents. Again the dominant strategy of underbidding suggested by Samuelson (1954) could be an explanation for the strategic behaviour related to these two attributes.

4. Conclusion

Ambient air pollution is a leading cause of excess mortality and loss of life expectancy (Lelieveld et al., 2020). In general, ambient air pollution is closely associated with urbanization (Wang and Zhang, 2009). This means that the urban dwellers are likely to be the primary group affected by air pollution. According to World Health Organization (WHO), more than 80% of people living in urban areas are subjected to air quality levels not satisfying the WHO guideline limits (Sofia et al., 2020). The estimates of air pollution-related deaths provided by WHO show that low- and middle-income countries in the WHO Western Pacific and South-East Asia regions experience the highest burden (WHO, 2018b).

The CE survey with about 1000 respondents was designed and conducted to estimate the WTP for improvements in public health and urban tree cover relating to air quality management in Hanoi City, Vietnam. The analysis of strategic behaviour in this study focused on the strategic behaviour of respondents who believe that their responses potentially influence the provision of the good, but do not believe that they will actually have to pay for the good even if their stated WTP is non-zero. In this survey, two follow-up questions on the beliefs were used to detect respondents who could behave strategically. A finding of this analysis is that a dominant strategy of the strategic respondents is to understate their WTP for air quality improvements. This is consistent with Samuelson (1954)'s statement suggesting that people are more likely to pretend to have less interest in a public good with the expectation that others will pay enough to provide the good nevertheless.

Table 2. WTP estimates (in 1000VND) by strategic and non-strategic subsamples in two groups of respondents with and without sick experiences

	Pooled data from the two groups			With own sick experiences			Without own sick experiences		
	Strategic subsample	Non-strategic subsample	Resampling test ^b	Strategic subsample	Non-strategic subsample	Resampling test	Strategic subsample	Non-strategic subsample	Resampling test
Number of respondents	484	228		106	45		378	183	
Total WTP									
Minimum improvement	127.611*** (7.153)	156.324*** (12.749)	– 0.027***	123.269*** (13.478)	159.566*** (29.321)	– 0.119	130.064*** (8.532)	154.021*** (14.275)	– 0.061*
Maximum improvement	182.305*** (9.177)	227.651*** (16.732)	– 0.005***	181.026*** (17.571)	242.317*** (39.579)	– 0.071*	183.698*** (10.833)	222.144*** (18.501)	– 0.027**
WTP for the attributes									
Morbidity reduction	0.167*** (0.020)	0.254*** (0.031)	– 0.009***	0.203*** (0.040)	0.306*** (0.070)	– 0.092*	0.158*** (0.023)	0.236*** (0.034)	– 0.036**
Mortality reduction	1.273*** (0.157)	1.451*** (0.239)	– 0.255	0.938*** (0.276)	1.693*** (0.562)	– 0.106	1.353*** (0.188)	1.406*** (0.277)	– 0.419
Urban tree cover area	3.768*** (0.420)	4.818*** (0.633)	– 0.077*	4.664*** (0.919)	5.332*** (1.320)	– 0.332	3.488*** (0.476)	4.684*** (0.734)	– 0.077*

***, **, * = Significance at 1%, 5%, 10% level; Standard errors are in parentheses, and are based on the Krinsky–Robb simulation using 1000 draws; ^aResampling tests (Poe et al., 2005) were used to test the null hypothesis of whether the WTP estimates from the strategic subsample are equal to the equivalent values estimated from the non-strategic subsample. The negative sign indicates that the WTP estimates from the strategic subsample are relatively lower. P-values of the resampling tests are used to confirm the statistical significance of the negative sign.

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MEASURING THE EFFICIENCY OF IRRIGATION SYSTEMS USING DATA ENVELOPMENT ANALYSIS METHOD: THE CASE OF BAC HUNG HAI

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Abstract

The efficiency of the Bac Hung Hai irrigation system is measured using Data Envelopment Analysis. Bac Hung Hai region can be divided in to ten sub-areas based on the design and structure of the system. The results show the relatively high level of technical and scale efficiency of the Bac Hung Hai irrigation system. Besides, the difference in efficiency level between sub-areas is due to the impact of industrialization and urbanization. Accordingly, the less impacted sub-areas are more efficient.

Keywords: *Bac Hung Hai region, Irrigation system, Efficiency*

1. Introduction

Water has become an increasingly important resource and input of economies or agricultural systems. The consumption of food is increasing substantially due to the growth of the global population and the rise in average per capital income (Bjornlund and Pittock, 2017; Irmak et al., 2011). Besides, trends toward more water-intense lifestyles and diets also intensify the demand for water and food. While water resources are the important driver of econo-socio development in many regions, the world faces the challenges of future supply of water. According to Schneider et al. (2011), these challenges include: limited technical progress in agriculture, limited land expansion and soil degradation, environmental and human health regulations, continued growth in domestic and industrial sector water consumption, and climate change which is likely to change the productivity and agricultural systems and the allocation of water supply.

As water scarcity increases, inefficient allocation of water causes higher costs to society. Missing property rights and inadequate water pricing are major causes of such inefficiencies. Preventing these externalities from growing out of proportion is therefore in societies' best interest. However, national and international policymakers need scientific guidance to adequately regulate water use. In particular, appropriate assessments of agricultural water use need to consider (1) the heterogeneity of natural and farming conditions, (2) international commodity markets especially for agricultural products, (3) agricultural and land use related environmental policies, and (4) synergies and trade-offs between different land use related externalities (Mattison and Norris, 2005; Vanlauwe et al., 2019).

Vietnam has a dense river system, with relatively abundant surface water resources, but because it is a country located at the end of large rivers, flowing through many countries, Vietnam has disadvantages (Hoang et al., 2018). The amount of surface water depends

greatly on exogenous water sources. When the upstream countries build dams and block the flow, it immediately affects the livelihoods of millions of Vietnamese people. Vietnam's surface water is highly dependent on exogenous water sources. Every year, cross-border rivers and streams transfer about 520 billion cubic meters of water into our country, accounting for about 63% of Vietnam's total surface water (Hung et al., 2021). The endogenous water source of Vietnam is only 4,200m³/person/year, lower than the Southeast Asian average of 4,900m³/person/year. Specifically, water sources from the upstream countries of the Mekong River Basin accounted for 90.1%, the Red River accounted for 38.5%, the Ca River accounted for 18.4% and the Ma River accounted for 27.1% of the total water volume. flows in these rivers.

Climate changes bring about additional challenges to water supply and allocation in Vietnam (Ho et al., 2022). Natural disasters such as huge tropical storms, large flooding and salinity in coastal areas can threaten the water resources.

Irrigation systems play essential roles in agricultural practice for food, pasture and fibre production via directing water from the source of supply, such as a reservoir or a river, into the irrigated fields (Qadir et al., 2007). These systems include a number of departments, such as intake structure, pumping station, conveyance and distribution system, and drainage system removing the excess water (caused by rainfall and/or irrigation) from the fields. The operation and efficiency of irrigation systems can determine the water use efficiency in agriculture in particular and agricultural production in general (Van Halsema and Vincent, 2012).

Increasing levels of irrigation will raise the cost of water and in some regions this may have severe consequences (Sauer et al., 2010). As water scarcity increases, inefficient allocation of water causes higher costs to society. Missing property rights and inadequate water pricing are major causes of such inefficiencies. Preventing these externalities from growing out of proportion is therefore in societies' best interest. However, national and international policymakers need scientific guidance to adequately regulate water use. In particular, appropriate assessments of agricultural water use need to consider (1) the heterogeneity of natural and farming conditions, (2) international commodity markets especially for agricultural products, (3) agricultural and land use related environmental policies, and (4) synergies and trade-offs between different land use related externalities (Altieri and Nicholls, 2017; Angus et al., 2009).

Even though the roles of irrigation systems have been mentioned in the literature but their efficiency in agricultural production has not been adequately investigated. In this study, we measure the efficiency of a specific irrigation system and its contribution to agricultural production.

In this paper, the data of Bac Hung Hai irrigation system in the Red river delta and its effective irrigation region is utilised. The method of Data Envelopment Analysis (DEA) is to measure the efficiency of this irrigation system with the number of irrigative structures proxied for the contribution of the system. The results show that the level of technical efficiency is high, while the scale effect has been achievable by the operators.

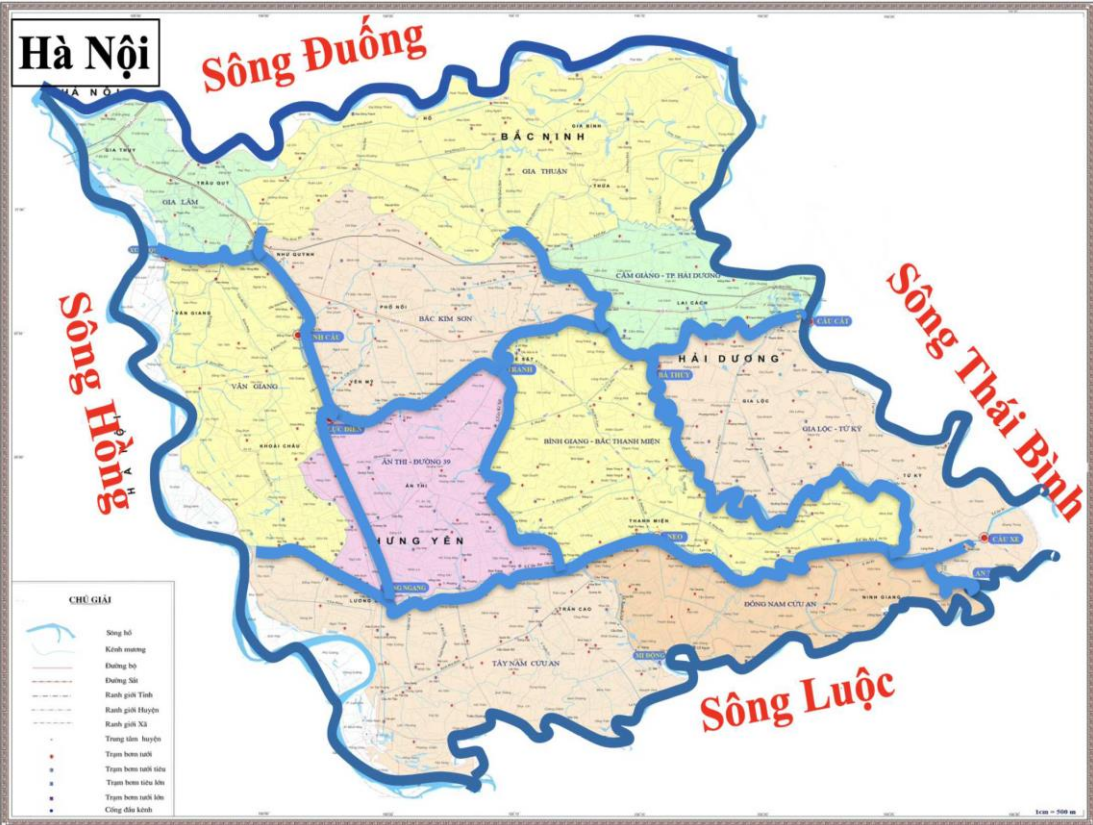
The structure of this study is organised as below. The next section is an overview of Bac Hung Hai irrigation system. The Section 3 of methodology provides the theoretical

framework of measuring efficiency using DEA method. The data and results providing an empirical analysis of the efficiency in Bac Hung Hai irrigated system and its sources of change are presented in Section 4 and Section 5, respectively. Lastly, Section 6 provides several important concluding remarks and open discussions.

2. Overview of Bac Hung Hai Irrigation System

Bac Hung Hai Irrigation System (BHHIR) is a system of canals, dams, pumping stations, and dikes to serve the irrigation and drainage of a quadrangle area bounded by the Red River in the West (57 km) and the Duong River in the North (67 km), Thai Binh River in the East (73 km), and Luoc River in the South (72 km). Construction of the system started at the end of 1958 and finished in May 1959. The total length of the main canal system is 200 km (Grignard et al., 2020)

The area is 214.932 ha with 86% of this area inside dykes. The system plays an important role in the development of local economies when providing irrigation to 110.000 ha of rice, crop and free lands, bringing water for livestock, poultry and aquaculture (12.000 ha), and providing water for daily lives of more than three million residents and hundreds of industrial zones (4.300 ha), controlling floods I the dyke area. (Grignard et al., 2020)



Adopted from Grignard et al. (2020)

Figure 1. Map of Bac Hung Hai irrigation system

Based on the design of the BHH system, the whole are can be divided into 10 sub-areas including Gia Lam, Gia Thuan, Chau Giang, Bac Kim Son, Kim Thi, Tay Nam Cuc An, Cam Giang – Hai Duong city, Tu Loc, Binh Giang – Bac Thanh Mien, Dong Nam Cuc An. These sub-areas belong to four provinces including Ha Noi, Bac Ninh, Hung Yen and Hai Duong.

3. Method

Charnes et al. (1978) developed the so-called Data Envelopment Analysis (DEA) method to measure the technical efficiency of firms. This method uses a linear programming technique to maximise a ratio of the weighted average output index to a weighted average input index for each firm with constraints which bound the same ratios of all firms to not exceed unity. They assume that all firms operate at optimal size and the technology has constant returns to scale. However, there are market limitations, such as imperfect competition and government regulations on the operation of firms, that inhibit them from achieving optimal size. Thus, the assumption of constant returns to scale seems to be inappropriate in many circumstances. Banker et al. (1984) proposes an alternative assumption of variable returns to scale by adding a convexity constraint. Under the latter assumption the overall efficiency of firms can be established by two components. The first is pure technical efficiency component reflecting the ability of managers to utilise the firm's resources at a given scale, while the second efficiency component (so-called scale efficiency) measures the gap between the firm's temporary scale and the optimal scale.

Under the assumption of variable to scale, the DEA output-oriented estimator can be written in terms of the linear program as:

$$\hat{\delta}vrs = \delta(x, y \in \hat{\phi}) = \max\{\delta > 0; \sum_{k=1}^n z_k y_k^i \geq \delta y^i, i = 1, \dots, q; \sum_{k=1}^n z_k x_k^j \leq x^j, j = 1, \dots, p; \sum_{k=1}^n z_k = 1, z_k \geq 0\} \quad (3.1)$$

Under the assumption of constant to scale, the DEA output-oriented estimator can be written in terms of the linear program as:

$$\hat{\delta}crs = \delta(x, y \in \hat{\phi}) = \max\{\delta > 0; \sum_{k=1}^n z_k y_k^i \geq \delta y^i, i = 1, \dots, q; \sum_{k=1}^n z_k x_k^j \leq x^j, j = 1, \dots, p; \sum_{k=1}^n z_k \geq 0\} \quad (3.2)$$

Equations (3.1) and (3.2) can be used to estimate the technical efficiency scores of irrigation systems. The scale efficiency can be identified as the ratio between $\hat{\delta}crs$ and $\hat{\delta}vrs$ as below:

$$\hat{\delta}scale = \hat{\delta}vrs / \hat{\delta}crs \quad (3.3)$$

Data

To estimate the efficiency of irrigation systems, the data of inputs and outputs should be identified. In this paper, water resource is one of inputs of agricultural production and can be proxied by the total irrigation structures including weirs, culverts, bridges, pumping stations. Besides, two other important inputs are labourers who are working in agricultural section and land that is used for agricultural production. Due to the fact that most of agricultural land in Bac Hung Hai region is to grow grain, so that the grain productivity is utilised as the single output of this research's models.

The detail of input and output data can be seen in the Table 1. In which, Binh Giang – Northern Thanh Mien is the sub-area that owns the largest number of irrigation structures. In contrast, Gia Lam is the area having the least. While Cam Giang – Hai Duong city sub-area achieves the highest grain output at 244,927,052 kg, Tay Nam Cuu An has the output equal to one fifth of the former. There is no substantial difference between sub-areas in terms of agricultural labour size.

Table 1. Input and output data of Bac Hung Hai irrigation system

No	Old District	No. of irrigation structures	Irrigated area (km ²)	Labourer size in irrigated area (in person)	Grain output in irrigated area (total in kg)
1	Gia Lam	10	175.19	470,857	59,648,165
2	Gia Thuan	23	331.30	396,253	114,758,831
3	Chau Giang	29	276.68	431,196	133,869,110
4	Bac Kim Son	28	247.01	410,520	127,450,039
5	Kim Thi	25	233.30	253,491	78,698,816
6	Tay Nam Cuu An	40	173.23	173,883	53,983,716
7	Cam Giang - Hai Duong city	14	220.59	667,049	244,927,052
8	Tu Loc	42	265.02	268,211	98,481,715
9	Binh Giang - Northern Thanh Mien	52	186.65	268,470	98,576,796
10	Dong Nam Cuu An	22	175.77	250,627	92,025,240

Sources: Bac Hung Hai irrigation system operator and annual reports of four provinces: Ha Noi, Hung Yen, Hai Duong, Bac Ninh

4. Results

Table 2 provides results on technical efficiency of Bac Hung Hai irrigation system using both variable and constant return to scale and under output orientation. In detail, if the assumption of variable return to scale is utilised, the average technical efficiency score is 1.0816, meaning that the level of efficiency is about 92% ($1/1.0816$) when compared to the best practice level (100%). Alternatively, if the system is operated under the constant return to scale assumption, the efficiency score is 1.2897 or at the 78% efficiency level. The average scale efficiency level is 0.9191 (or 91.91%) and is close to the optimal size at which the system achieves 100% level of scale efficiency.

An interesting finding is that the sub-areas locating closely to Hanoi city have a lower level of technical efficiency, including Gia Lam, Gia Thuan, Chau Giang, Bac Kim Son, Kim Thi, and Tay Nam Cuu An. The reason behind this fact is that these sub-areas are being industrialised and urbanised quickly, hence more land and labour resources are located to industries and service sector rather than agriculture. While the system of irrigation in the mentioned sub-areas has not narrowed proportionally according to the reduction of agricultural production.

The impact of industrialisation and urbanisation can be clearly seen in some cases. For example, Gia Lam, a district of Hanoi city, is the sub-area suffering the least scale efficiency at 0.3450. The agricultural production contributes only 8% of this district's Gross Domestic Product value as a result of industrialising and urbanising processes. More labourers have been moved to and more land has been used for industries and services. However, the irrigation structures have been kept despite their very low efficiency level.

In a contrary, sub-areas located in agricultural provinces including Cam Giang – Hai Duong city, Tu Loc, Binh Giang - Northern Thanh Mien and Dong Nam Cuu An are technically efficient. Using both variable- and constant-return to scale, these sub-areas are all best-practice (technical efficiency score is equal to one) and locate on the production frontier. This issue can be explained by the reality that the main focus of these sub-areas is on agricultural activities, so that irrigation systems are carefully considered by the local governments on the one side. On the other side, the impact of industrialisation is trivial when there is no substantial shift of labour and land resources from agricultural sector to industrial and service sectors. Moreover, the scale efficiency level of these sub-areas are all 100% demonstrating the optimal size of agricultural production.

Table 2. Technical efficiency and scale efficiency of Bac Hung Hai irrigation system in different sub-areas

No	Sub-area	Tech.Eff (Output-oriented, VRS)	Tech.Eff (Output-oriented, CRS)	Scale eff.
1	Gia Lam	1.0000	2.8985	0.3450
2	Gia Thuan	1.2678	1.2678	1.0000
3	Chau Giang	1.1827	1.1827	1.0000
4	Bac Kim Son	1.1827	1.1827	1.0000

No	Sub-area	Tech.Eff (Output-oriented, VRS)	Tech.Eff (Output-oriented, CRS)	Scale eff.
5	Kim Thi	1.1827	1.1827	1.0000
6	Tay Nam Cuu An	1.0000	1.1827	0.8455
7	Cam Giannng - Hai Duong city	1.0000	1.0000	1.0000
8	Tu Loc	1.0000	1.0000	1.0000
9	Binh Giang - Northern Thanh Mien	1.0000	1.0000	1.0000
10	Dong Nam Cuu An	1.0000	1.0000	1.0000
	Average	1.0816	1.2897	0.9191

Notes: Tech.Eff is technical efficiency; VRS is variant return to scale; CRS is constant return to scale

5. Discussion and Conclusion

In this study, the efficiency of Bac Hung Hai irrigation system is measured based on the Data Envelopment Analysis. The Bac Hung Hai system can be divided into ten sub-areas and can be seen as independent decision making units which can adjust the water resources to flow in or out of the cultivated land. Three inputs are employed including the irrigation structures, labourers in agriculture and cultivated land while the only output is grain output.

The results show that Bac Hung Hai irrigation system is operating at a relative high level of efficiency. The sub-areas located near Hanoi city is less efficient due to the impact of industrialisation and urbanisation while those in the agricultural provinces are more efficient and better in terms of exploiting their irrigation systems. And based on these findings, this research suggests that the size of irrigation systems in different sub-areas should be subject to adjust in accordance with the contribution of agriculture sector to the local economy. In detail, in sub-areas where the impact of industrialisation and urbanisation is substantial, the size of irrigation system should be reduced. In contrast, irrigation system should be enhanced and consolidated in sub-areas where agricultural production is their focus and contributes largely to the local economies.

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EFFECTS OF FINANCIAL DEVELOPMENT ON TRADES IN GREEN GOODS: INTERNATIONAL EVIDENCE

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Abstract

This paper is an attempt to empirically examine the influences of financial development (FD) on the trade in green goods (TGG). By applying diverse econometric techniques to a global sample of 85 developing and 34 developed countries during the 2001-2018 period, the estimation results demonstrate that the financialization captured by nine indices from the Financial Development Index database has a light influence on the trade values of green goods. We find robust results by utilizing various econometric techniques and adding more explanatory variables. Furthermore, there is evidence on the long-term cointegration between financial development and TGG and our results confirm its effects in the long term. Finally, the nexus between two samples: developing and developed countries, but the importance of both financial institutions is more evident, especially in the developing countries. Finally, the effects of uncertainty or risk on TGG value become less sizable if these economies have a well-developed financial system.

Keywords: *Economic complexity, trade in green goods, global uncertainty, global sample.*

1. Introduction

Environment is considered to be one of the five biggest threats to global health and the environment in accordance with the UNFCCC (2017), since environmental issues are capable of seriously impacting human health and the environment. Environmental degradation and climate change, for example, might result in extraordinary risks such as glacier melting, harsh weather, unpredictable rainfall, species extinction, low agricultural productivity, food shortages, and water scarcity (Dong et al., 2019; Shahbaz et al., 2018). Global attention has already been drawn to the need for a sustainable environment. Energy efficiency and pollution reduction are regarded vital to the modern world and critical determinants of any economy's long-term growth (Lyu, Khan, Zakari & Bilal, 2021; Zahoor, Khan & Hou, 2021; Zakari & Khan, 2021a; Zakari, Khan, Tan, Alvarado & Dagar, 2022). In the contemporary setting of rising industrialization and urbanization, environmental conservation is more crucial than ever (Patnaik, 2018). According to some academics, a healthy natural environment is both desirable and necessary for businesses (Starik & Rands,

1995). Companies are increasingly aware of the importance of environmental preservation in strengthening their reputation and gaining a lasting competitive advantage, and they consider it a requirement of their operations (Farhadi, Ismail & Fooladi, 2012; Kim, 2018; Singh, Chen, Del Giudice & El-Kassar, 2019; Yadav & Iqbal, 2021). Firms keep a close eye on some environmental challenges, such as ecosystem conservation, air quality, resource sustainability, and maintaining a clean and healthy environment (Zelazna, Bojar & Bojar, 2020). Many business executives know that applying environmental standards to their operations has a positive and significant impact on their expenses, reputation, competitive advantage, and profit (Liu, Koehler, Gailhofer, Gensch & Wolff, 2019). As a result, many businesses have developed practical solutions such as workplace recycling, fostering green communities, forming sustainability committees, and adopting new digitization trends. However, there still exist problems, for example, although European countries have made significant progress in reducing greenhouse gas emissions and strengthening environmental protection over the last two decades, they still face significant environmental challenges, such as biodiversity loss, climate change effects, and natural resource exhaustion.

Financial development (FD) is seen as a major driver of economic development in economic theories (e.g. King and Levine, 1993). It is crucial in the transmission of funds and provision of financial services (Levine, 1999). The policies, circumstances, and institutions that contribute to efficient intermediation and effective financial markets are referred to as financial development. Risk diversification and efficient capital allocation are two benefits of a healthy financial system. The mobilization of savings and their deployment to high-return initiatives would increase as financial development increased. Levine (1993) underlined the significance of the financial sector in economic development. Given the negative effects of trade, it might be claimed that building a green economy will aid in reducing environmental damage and achieving carbon neutrality (UNEP, 2011). In other words, a green economy is a viable option for achieving environmental and development sustainability. The function of trade in green goods (TGG) as a strategy of lowering pollution while promoting economic growth by shifting manufacturing from pollution-intensive to pro-environmental items and fostering technical innovation is gaining traction in the literature (Zugravu-Soilita, 2018). In this study, we focus on exploring the influences of financial development.

In most trade studies, there is a complex relationship between financial development and trade, as evident in a variety of indicators that have been used to measure the degree of financial development, such as the ratio of loans to the private sector to GDP (Beck 2002 and 2003; Hur et al. 2006); Menyah et al. 2014; Kim et al. 2011); and stock market capitalization to GDP (Beck 2003, Kim et al. 2011). These indicators have also been applied to estimates of liquid liabilities (Menyah et al. 2014, Beck 2003 (Becker et al.2013). In addition to exports and imports (Beck, 2002; Becker et al.2013), trade balances (Hur et al, 2006, Beck 2002) and openness to trade (Kim et al.2011; Menyah et al. 2014), other variables have also been taken into account.

The majority of academic studies looking at the effects of financial development on international trade find that there is a significant link between trade and finance: a strong

financial system appears to be associated with an increase in trade volumes as well as a change in its structure (Beck 2002, 2003; Svaleryd and Vlachos, 2005; Hur et al., 2006; Kim et al., 2010; Becker et al., 2013; Manova 2013; Bilas et al., 2017). The impact of financial markets on industrial specialization trends and international competitiveness was examined by Svaleryd and Vlachos (2005) using data from OECD countries. Nevertheless, some studies have found that financial impacts on commerce are weak or inconclusive (Menyah et al., 2014; Sare et al., 2019). The impact of financial markets on industrial specialization trends and international competitiveness was examined by Svaleryd and Vlachos (2005) using data from OECD countries. Across the board, countries with well-functioning financial systems tend to specialize in businesses that are heavily dependent on external finance, with countries with poorly functioning financial systems focusing more on businesses that rely on internal financing. Therefore, the Heckscher-Ohlin-Vanek (HOV) model suggests that the financial sector represents a source of competitive advantage (see Vanek, 1968). It was found by Hur et al. (2006) that there is a link between financial development, asset tangibility, and international trade. According to the authors, the relationship between financial development and the tangibility of assets affects patterns of international trade. The study examined 27 industries in 42 countries, to determine the degree to which enterprises rely on external funding and the tangible nature of their assets. These researchers found that countries with higher levels of financial development had higher export share and trade balances in industries with more intangible assets.

Using data for 87 OECD and non-OECD countries covering 1960-to 2005, Kim et al. (2010) examined the long- and short-run correlations between financial development and trade openness. Based on empirical findings, the authors conclude that the development of financial markets has little impact on trade within OECD countries. Non-OECD nations, on the other hand, show long-term complementarities between financial development and trade openness and short-run substitutability between the two variables. Therefore, emerging economies benefit more from financial development than developed economies. The study examined the relationship between financial development and international commerce in 46 African nations over the period 1980-2016 by Sare et al. (2019). Their findings indicate that there is no significant effect of the expansion of the banking sector on international trade either over the short term or over the long term. After accounting for transmission channels, they discover that finance and trade do not substitute in the long run.

The non-linear impacts of FD on economic development have been described in the form of an inverted-U shape in several empirical results (Asimakopoulos et al., 2019; Botev et al., 2019). In a sample of 50 nations from 1990 to 2016, Asimakopoulos et al. (2019) found that larger FD had a lower positive or insignificant influence on innovation, whereas innovation had an insignificant positive impact on output growth when private sector credit exceeded a threshold of roughly 60% (of GDP). It should be highlighted that FD supports official economic operations at a modest level until a particular threshold is reached (Botev et al., 2019). Due to the possibility of overdevelopment, FD may be harmful to official economic operations after this point.

Based on our discussion, we hypothesize:

H1: Financial development has a positive influence on the trade in green goods.

H2: The effect of financial institution development is more sizable than those of financial market development.

H3: The effect of financial development in the developing countries is more sizable than those in the developed countries.

2. Method

We base on both the environment and trade literature to develop the model to investigate the nexus between financial development (FD) and trade in green goods (TGG)

$$\ln TGG_{it} = \beta_0 + \beta_1 FINANCE_{i,t} + \beta_3 CONTROL_{i,t} + \varepsilon_{ijt} \quad (1)$$

where subscripts i and t represent country i and year t , respectively.

Trade in Green Goods (TGG):

TGG is the value of export of EGs. Data on bilateral trade in APEC products were taken from the UN Comtrade database using the six-digit level of the 2007 version of the Harmonized System (HS 2007). Values are all expressed in current USD. To cover the years 1996 to 2019, the HS codes listed on the APEC were converted from HS 2007 into HS 1996 by the UN Trade Statistics⁹⁰.

Key explanatory variable: Financial Development

The key independent variable ($FINANCE_{i,t}$) in this paper is the overall financial index (LFD), which is measured based on two sub-indices of financial development, including financial institutions (LFI) and financial markets (LFM). We analyze these two sub-indices in three different aspects, including depth, access, and efficiency (for financial institutions (LFID, LFIA, LFIE, respective) and financial markets (LFMD, LFMA, LFME, respectively)). These variables are available from the IMF.

$CONTROL_{i,t}$ is the set of control variables that the selection is based on previous works in the literature, such as Allard et al. (2016), Aslam et al., (2017), and Efogo (2020). Specifically, we incorporate the income level (INC) measured by the real gross domestic product (GDP) per capita at the constant 2010 US dollars, the level of industrialization (IND) measured as a share of value-added in the industry sector to GDP, nature rents (NR) measured as a share of the sum of coal rents, mineral rents, natural gas rents, and forest rents, human capital (HDI) captured by the human capital index, level of democratization (DM), net inflow of foreign direct investment (FDI), tax rate (TAX), which is total tax and contribution tax rate measured a share of profits, and government effectiveness level (PS) captured by the government effectiveness index. Except for the variable DM collected from the Finnish Social Science Data Archive (FSSDA) and PS collected from the World Bank Group Indicator (WBGI), we source the remaining control variables from the World Development Indicator (WDI).

⁹⁰ <https://unstats.un.org/unsd/trade/classifications/correspondence-tables.asp>

After merging and cleaning the country database, our final sample includes 119 countries, including 85 developing and 34 developed countries for the period 2000 – 2018. Table 1 presents a statistical description of all variables. The results in Table 2 illustrate the correlation matrix between all variables. The results show a positive correlation between financialization and TGG.

From an econometric perspective, our study firstly employs the cross-sectional dependence (CD) tests developed by Pesaran (2021) to check for the existence of CD issues in our sample. Subsequently, we conduct the stationarity test of data with the existence of CD by applying the Levin-Lin-Chu unit-root test (Levin et al., 2002) and Im-Pesaran-Shin unit root test (Im et al., 2003). The test results are presented in Table 3, which shows that the issue of CD exists among included variables. Levin-Lin-Chu unit root tests and Im-Pesaran-Shin unit root tests suggest that some variables are stationary. We also apply similar tests for the first difference of included variables, and the stationarity is confirmed.

According to Beck & Katz (1995) and Nguyen et al. (2020), the panel corrected standard error (PCSE) model is adequately applied to the sample data characterized by a large number of countries (N) and small time-length (T) as well as the existence of CD and stationarity of first-difference variables. Besides, the one-year lag of all independent variables is applied to deal with an endogeneity resulting from the simultaneity between TGG and financial variables. The feasible generalized least square (FGLS) model is also employed to resolve heteroscedasticity as stated by Canh & Thanh (2020) and Liao & Cao (2013), while the two-step GMM is applied to resolve the issue of endogeneity (Gala et al., 2018; Nguyen et al., 2020; Sweet & Eterovic, 2019). Another concentration of this paper investigates the relationship between financialization and TGG in the short term and long term. For this purpose, we apply the autoregressive distributed lag (ARDL) method (Pesaran & Smith, 1995). For further checks, a similar estimation process is replicated for subsample by income levels. The existence of cointegration between these two variables is checked firstly by using various tests, including the Kao cointegration test, Pedroni test, and Westerlund cointegration test. These are popular cointegration tests in the literature, respectively developed by Kao (1999), Pedroni (2004), and Westerlund (2005). The results of these tests are depicted in Table 4, implying the long-term cointegration between financial variables and TGG.

Table 1. Description of variables

Variable	Definition	Measure	Source	Obs	Mean	SD	Min	Max
LnTGG	Trade in green goods values	A natural logarithm of TGG values	UN Comtrade	2261	11.41	3.16	2.42	19.11
LFD	The composite financial development index	A natural logarithm of composite financial development index	FD-IMF	2261	-1.51	0.77	-3.55	-0.05
LFI	Financial institutions development	A natural logarithm of financial institutions development	FD-IMF	2261	-1.13	0.58	-3.06	-0.04
LFM	Financial markets development	A natural logarithm of financial markets development	FD-IMF	2185	-3.05	2.72	-24.52	-0.05
LFID	Financial institution depth	A natural logarithm of financial institution depth	FD-IMF	2261	-2.03	1.31	-11.65	0.00
LFIA	Financial institution access	A natural logarithm of financial institution access	FD-IMF	2261	-1.73	1.28	-5.45	0.00
LFIE	Financial institution market efficiency	A natural logarithm of financial institution market efficiency	FD-IMF	2261	-0.59	0.27	-2.15	-0.19
LFMD	Financial market depth	A natural logarithm of financial market depth	FD-IMF	2185	-2.77	2.44	-23.54	0.00
LFMA	Financial market access	A natural logarithm of financial market access	FD-IMF	1558	-2.19	1.76	-6.19	0.00
LFME	Financial market efficiency	A natural logarithm of financial market efficiency	FD-IMF	1216	-1.92	1.90	-11.07	0.00
INC	Real output growth	A natural logarithm of real	WDI	2260	8.32	1.46	5.35	11.24

Variable	Definition	Measure	Source	Obs	Mean	SD	Min	Max
		GDP per capital (constant 2010 US dollars)						
IND	Industrialization level	Value-added of industry sector to GDP	WDI	2259	27.17	10.70	3.24	72.15
NR	Natural rents	Share of the sum of coal rents, mineral rents, natural gas rents, and forest rents to GDP (%).	WDI	2261	7.00	10.08	0.00	58.65
HDI	Human capital	Log of human capital index.	WDI	2261	0.68	0.16	0.26	0.95
DM	Democratization level	Index of democratization	FSSDA	2261	0.45	0.25	0.03	0.89
FDI	Net inflow of foreign direct investment	Proportion of GDP	WDI	2119	-0.02	0.21	-2.92	1.61
TAX	Tax rate	Total tax and contribution tax rate (as the share of profit)	WDI	1604	48.87	39.00	7.40	339.10
PS	Government effectiveness level	Government effectiveness index	WBGI	1640	5.65	2.28	0.70	10.00

Note: WDI: World Development Indicator; FSSDA: Finnish Social Science Data Archive; WBGI: World Bank Group Indicator.

Table 2. Correlation coefficients

(1)	LnTGG	LFD	LFI	LFM	LFID	LFIA	LFIE	LFMD	LFMA	LFME	LINC	IND	NR	HDI	PM
LnTGG	1														
LFD	0.719***	1													
LFI	0.623***	0.902***	1												
LFM	0.636***	0.908***	0.662***	1											
LFID	0.549***	0.855***	0.910***	0.664***	1										
LFIA	0.527***	0.747***	0.869***	0.515***	0.677***	1									
LFIE	0.391***	0.521***	0.528***	0.442***	0.408***	0.269***	1								
LFMD	0.596***	0.902***	0.726***	0.910***	0.771***	0.533***	0.439***	1							
LFMA	0.407***	0.741***	0.531***	0.840***	0.527***	0.471***	0.333***	0.698***	1						
LFME	0.696***	0.695***	0.449***	0.789***	0.428***	0.306***	0.341***	0.685***	0.449***	1					
LINC	0.554***	0.797***	0.814***	0.627***	0.757***	0.783***	0.255***	0.664***	0.545***	0.416***	1				
IND	0.0198	-0.101***	-0.255***	0.0298	-0.301***	-0.157***	-0.0336	-0.0125	0.0557	0.109***	-0.0377	1			
NR	-0.222***	-0.181***	-0.311***	-0.0535	-0.369***	-0.185***	-0.179***	-0.0583*	-0.0162	-0.0132	-0.0601*	0.756***	1		
HDI	0.581***	0.780***	0.825***	0.594***	0.754***	0.823***	0.286***	0.624***	0.525***	0.370***	0.937***	-0.124***	-0.170***	1	
PM	0.207***	0.384***	0.543***	0.182***	0.562***	0.468***	0.103***	0.260***	0.114***	0.0571	0.489***	-0.516***	-0.532***	0.495***	1

*, **, *** are significant levels at 10%, 5%, and 1%, respectively.

Table 3. Cross sectional dependence tests and stationary tests

Variable (in level)	CD-test, Pesaran (2004)	Levin-Lin-Chu unit-root test	Im-Pesaran-Shin test (Z-bar)	Variable (in difference)	Levin-Lin-Chu unit-root test	Im-Pesaran-Shin test (Z-bar)
LnTGG	371.27***	-11.30***	-5.22***	D LnTGG	-11.31***	-5.22***
LFD	145.23***	-6.69***	-3.31***	DLFD	-17.45***	-23.48***
LFI	157.26***	-6.92***	-2.12**	DLFI	-17.06***	-23.09***
LFM	25.85***	-10.45***	-3.55***	DLFM	-17.32***	-20.20***
LFID	153.85***	-9.39***	-0.36	DLFID	-18.84***	-22.84***
LFIA	166.5***	-8.28***	7.89	DLFIA	-7.53***	-12.55***
LFIE	21.66***	-12.94***	-9.66***	DLFIE	-25.78***	-25.77***
LFMD	59.51***	-8.47***	-4.39***	DLFMD	-21.15***	-24.49***
LFMA	12.24***	-5.39***	-5.92***	DLFMA	-16.15***	-24.15***
LFME	9.81***	-19.64***	-8.87***	DLFME	-29.42***	-23.52***
LINC	258.34***	-4.35***	10.55	DLINC	-17.84***	-14.98***
IND	40.14***	-5.43***	-1.69**	DIND	-19.34***	-21.19***
NR	84.69***	-6.72***	-2.95***	DNR	-19.25***	-21.20***
HDI	361.358***	-6.02***	3.63	DHDI	-14.57***	-18.78***
PM	17.71***	-1.15	1.47	DPM	-17.67***	-21.44***

Note: Regarding the CD test, the null hypothesis is that the cross-section is independent. P-value is closed to zero, implying that data are correlated across panel groups. Regarding the Levin-Lin-Chu unit-root and Im-Pesaran-Shin test, the null hypothesis is “All panels contain unit root” and the alternative hypothesis is “At least one panel is stationary”.

, **, * are significant levels at 10%, 5%, and 1%, respective*

Table 4. Cointegration test

Model: f(LnTGG and FD)	Kao test	Pedroni test	Westerlund test
	Dickey-Fuller test	Phillips-Perron t	Variance ratio
FD	-5.92***	-5.94***	6.16***
FI	-5.77***	-5.09***	3.46***
FM	-8.28***	-5.11***	13.53***

Note: Regarding the Kao test, the null hypothesis is “No cointegration”, while the alternative hypothesis is “All panels are cointegrated”. Regarding the Pedroni test, the null hypothesis is “No cointegration”, while the alternative hypothesis is “All panels are cointegrated”. Regarding the Westerlund test, the null hypothesis is “No cointegration”, while the alternative hypothesis is “Some panels are cointegrated”.

3. Results

This study examines the relationship between financial development (FD) and trade values of green goods (TGG). The estimation results are presented in Table 5. Financialization is statistically significant and positive in our estimation model. This finding is consistent when we apply various econometric models, including the PCSE estimate, PCSE estimate with more variables, the FGLS estimate, and the two-step GMM estimate, although the effects of Financial Development (FD), Financial institutions development (FI), Financial markets development (FM) on TGG obtained from PCSE estimate, PCSE estimate with more variables and FGLS estimate are stronger than those from Two-step GMM. This implies that higher values of financialization increase the scale of TGG, hence confirming Hypothesis H1. When considering effects of the specific type of financialization, including financial development (FD), financial markets development (FM), financial institutions development (FI), the estimation results indicate the positive link between these four variables and TGG when studying subsamples of developing and developed countries. Results obtained from the FGLS estimate suggest that the marginal effects of FD are stronger than those of FM and FI in both developing and developed countries, whereas the results from the two-step GMM are more likely to emphasize the impact of FI on TGG. Particularly, the coefficients of FM on TGG on PCSE estimate, PCSE estimate and Two-step GMM are 0.26, 0.21, 0.26 and 0.02 respectively, compared to 2.72, 2.82, 2.72 and 2.79 of FD, and 2.01, 2.07, 2.01 and 0.70 of FI. Therefore, we cannot draw the conclusion regarding a comparison between magnitude effects of FD, FI and FM. of FD and FI.

In the next analysis, we empirically analyze the association between the short-term and long-term effects of financialization on trade in green goods (TGG) by applying the DFE-ARDL model. The results are shown in Table 6. Regarding financialization, as reported in Panel A, its short-term effects on TGG are barely significant, as only financial development (FD) and financial institutions (FI) are negative and significant at 5%. On the other hand, in the long-term, financialization has statistically significant and positive contributions to the rise in TGG, and this is compatible with the results reported in Table 5. In Panel B, in the short-term, financialization does not have an impact on TGG in developed countries, but barely affects TGG in developing countries. Meanwhile, in the long-term, financialization has a larger impact in developing countries. This means that the expansion of financialization leads to the increase of TGG and these effects become more evident in the long-run.

Table 5. The effects of financialization on trades in green goods: Full sample

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	PCSE estimate			PCSE estimate with more variables			FGLS estimate			Two-step GMM		
	lnTGG	lnTGG	lnTGG	lnTGG	lnTGG	lnTGG	lnTGG	lnTGG	lnTGG	lnTGG	lnTGG	lnTGG
L.LFD	2.72*** (0.109)			2.82*** (0.187)			2.72*** (0.095)			0.79* (0.435)		
L.LFI		2.01*** (0.158)			2.07*** (0.278)			2.01*** (0.150)			0.70* (0.402)	
L.LFM			0.26*** (0.028)			0.21*** (0.021)			0.26*** (0.019)			0.02* (0.014)
L.LINC	0.23*** (0.034)	0.21*** (0.032)	0.38*** (0.029)	0.24*** (0.065)	0.23*** (0.051)	0.48*** (0.033)	0.23*** (0.068)	0.21*** (0.075)	0.38*** (0.072)	-0.21 (0.414)	-0.13 (0.425)	-0.10 (0.172)
L.IND	0.09*** (0.005)	0.10*** (0.005)	0.08*** (0.005)	0.10*** (0.004)	0.09*** (0.005)	0.08*** (0.006)	0.09*** (0.005)	0.10*** (0.006)	0.08*** (0.005)	0.01 (0.015)	0.01 (0.016)	0.02*** (0.007)
L.NR	-0.07*** (0.005)	-0.08*** (0.005)	-0.09*** (0.007)	-0.08*** (0.007)	-0.07*** (0.006)	-0.09*** (0.009)	-0.07*** (0.005)	-0.08*** (0.006)	-0.09*** (0.006)	0.03* (0.014)	0.03** (0.015)	-0.01 (0.007)
L.HDI	2.61*** (0.511)	3.86*** (0.560)	4.77*** (0.499)	2.30*** (0.280)	3.79*** (0.415)	4.35*** (0.427)	2.61*** (0.596)	3.86*** (0.696)	4.77*** (0.638)	6.94** (2.901)	7.66** (3.130)	1.30 (1.556)
L.PM	0.11 (0.108)	-0.01 (0.123)	0.41*** (0.109)	0.30 (0.217)	0.07 (0.238)	0.40** (0.188)	0.11 (0.199)	-0.01 (0.227)	0.41* (0.218)	-1.12* (0.653)	-1.32* (0.734)	0.83* (0.451)
L.FDI				-0.05 (0.164)	-0.33 (0.208)	-0.23 (0.224)						
L.TAX				0.01*** (0.001)	0.00*** (0.001)	0.01*** (0.002)						
Observations	2,140	2,140	2,069	1,423	1,423	1,372	2,140	2,140	2,069	2,140	2,140	1,838
Number of countries	119	119	115	116	116	112	119	119	115	119	119	115

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 6. Financialization and trades in green goods: Short-run and long-run effects

Panel A: Total sample						
	(1)	(2)	(3)			
	Whole sample					
VARIABLES	FD	FI	FM			
	Short-term effect					
EC term	-0.42*** (0.017)	-0.43*** (0.018)	-0.32*** (0.015)			
D. Financialization	-0.32** (0.136)	-0.28** (0.134)	-0.02 (0.015)			
	Long-term effect					
Financialization	2.00*** (0.190)	2.00*** (0.178)	0.02 (0.035)			
Observations	2,142	2,142	2,142			

Panel B: Developing and developed economies						
	(1)	(2)	(3)	(4)	(5)	(6)
	Developing economies			Developed economies		
VARIABLES	FD	FI	FM	FD	FI	FM
	Short-term effect					
Error correction term	-0.45*** (0.021)	-0.46*** (0.021)	-0.35*** (0.019)	-0.22*** (0.023)	-0.23*** (0.024)	-0.17*** (0.018)
D. Financialization	-0.36** (0.169)	-0.29* (0.162)	-0.02 (0.017)	0.23 (0.163)	0.27 (0.203)	-0.01 (0.049)
	Long-term effect					
Financialization	1.97*** (0.229)	1.94*** (0.213)	0.02 (0.037)	1.72*** (0.379)	1.91*** (0.359)	-0.13 (0.223)
Observations	1,530	1,530	1,458	612	612	612

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: The DFE-ARDL is employed.

4. Conclusion

By applying diverse econometric techniques to a global sample of 85 developing and 34 developed countries during the 2001-2018 period, the paper examines the influences of financial development (FD) on the trade in green goods (TGG). Both financial market and institutional development boost the TGG because financial development in terms of depth and efficiency has a positive impact on TGG. Furthermore, the effect of financialization on TGG is more evident in the long-term and in developing countries. Finally, if these economies have a well-developed financial system, the effects of uncertainty or risk on TGG value are reduced.

On the policy front, our study suggests that accelerating financial system quality can be considered to be an effective policy in enhancing trade in green goods. This may include controlling central bank operations, taxation, and standards regarding accounting practices. In addition, the government should focus on addressing uncertainty issues and mitigate its effect.

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Appendix

Table A.1. Countries in the sample

High Income

Australia	Austria	Canada
Chile	Croatia	Czech Republic
Denmark	Estonia	Finland
Greece	Hungary	Iceland
Ireland	Israel	Italy
Japan	Korea, Rep.	Latvia
Lithuania	Luxembourg	Malta
Namibia	Netherlands	New Zealand
Norway	Oman	Panama
Poland	Portugal	Saudi Arabia
Seychelles	Singapore	Slovak Republic
Slovenia	Spain	Sweden
Switzerland	Trinidad and Tobago	United Arab Emirates
United Kingdom	United States	Uruguay

Upper Middle Income

Albania	Algeria	Argentina
Azerbaijan	Belgium	Bosnia and Herzegovina
Botswana	Brazil	Bulgaria
China	Colombia	Costa Rica
Dominican Republic	Ecuador	Fiji
Gabon	Georgia	Guatemala
Iran, Islamic Rep.	Jamaica	Jordan
Kazakhstan	Mauritius	Mexico
North Macedonia	Paraguay	Peru
Romania	Russian Federation	South Africa
Sri Lanka	Thailand	Turkey

Low Income and Lower-Middle-Income

Angola	Bangladesh	Bolivia
Burundi	Cambodia	Cameroon
Cape Verde	Chad	Congo, Dem. Rep.
Cote d'Ivoire	Egypt, Arab Rep.	El Salvador
Gambia	Ghana	Haiti
Honduras	India	Indonesia
Kenya	Kyrgyz Republic	Lao PDR
Lesotho	Liberia	Madagascar
Malawi	Mali	Mauritania
Mongolia	Morocco	Mozambique
Myanmar	Nepal	Nicaragua
Niger	Papua New Guinea	Philippines
Rwanda	Sao Tome and Principe	Senegal
Sierra Leone	Swaziland	Tajikistan
Tanzania	Togo	Tunisia
Uganda	Ukraine	Uzbekistan
Zambia		

ACHIEVEMENTS AND CHALLENGES OF RENEWABLE ENERGY DEVELOPMENT IN VIETNAM

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Abstract

In recent years, the demand for energy for production and socio-economic development has increased in Vietnam, which is a great challenge for the energy sector in the context of primary energy supply such as coal, oil and gas is increasingly depleted. Therefore, the shift from exploiting traditional energy sources to developing renewable energy is a common development trend not only in Vietnam but also around the world. This paper presents some key points in the overall picture of the potential, development and challenges of renewable energy in Vietnam. Renewable energy development is a major policy of the Party and State, which has been concretized in Resolution 55 of the Politburo to the Prime Minister's decisions approving the RE development strategy. Vietnam's renewable energy sources, especially solar and wind power sources, have increased rapidly in recent times. To achieve net zero emissions by 2050, Vietnam needs to dramatically increase renewable energy capacity, especially solar and wind power. This will require completing national and sectoral master plans and standards, promoting supporting policies and encouraging investment, especially private and international sectors.

Keywords: *renewable energy, economic growth, planning, wind power, solar power, biomass, feed in tariff.*

1. Introduction

Vietnam is one of the developing countries with a relatively high increase in energy demand, while the proportion of fossil energy is still quite large. In addition to the risk of a shortage of fossil energy sources due to the gradually depleting reserves, the use of fossil energy is polluting, greatly affecting the environment. This is a development challenge that Vietnam faces [1].

The country is known as a place with a fairly large potential for renewable energy (RE), but currently only a very small percentage is exploited and used. Up to now, the number of projects of great size and scale in our country is very small, and the proportion of installed capacity of RE power plants in the total installed capacity of the whole system is still very modest. Although there have been many efforts to promote the development of RE and RE sources in the recent Power Development Plans, the development of RE in Vietnam is still not commensurate with its potential [2, 8, 9].

Climate change is a serious global challenge. Vietnam is one of the five countries heavily affected by the impacts of climate change. At COP26, Vietnam made strong

commitments with 150 countries around the world to commit to bringing net emissions to "zero" by mid-century (2050) [3]. Together with more than 100 countries have participated in the Glasgow's Statement of leaders on forests and land use; together with 48 countries participating in the Global Declaration on the transition of coal power to clean energy; Join 150 countries in the Coalition for Safe Adaptation. The implementation of commitments at COP26, especially the commitment to bring net emissions to "zero" by the middle of the century of Vietnam is an inevitable trend, bringing great and long-term benefits to the country [4].

With Vietnam's commitments at the Summit on Climate Change (COP26), many experts and businesses believe that the draft Power Plan VIII needs to bring RE to develop faster, besides phase out coal power projects. In particular, Power Planning VIII is expected to create an important innovation step; is the basis and foundation for mobilizing resources, investing in the development of the electricity industry, meeting the needs of socio-economic development. Moreover, this is also a tool for effective and sustainable control and management, ensuring the security of energy sources for the country [10, 11, 12].

The reason energy is the top concern is because at present, energy is the largest emitter in our country. According to Vietnam's development-as-usual (BAU) Emissions Scenario, by 2050, 81% of emissions will come from energy. So energy will be the industry that determines Vietnam's net zero emissions target [5].

To achieve net zero emissions by 2050, Vietnam needs to dramatically increase RE capacity, especially solar and wind power. This will require significant investment: Vietnam's Power Development Plan 8 recently estimated annual financial needs of more than \$11 billion, much of which will be devoted to energy regenerative. Historically, almost all RE investments in Vietnam have come from domestic and regional sources. However, sustaining the rapid expansion of RE depends on Vietnam's ability to expand international investment [6].

This article analyzes the potential and status of RE development in Vietnam, mechanisms and policies to promote RE in the past time and identify challenges and propose some solutions to develop RE in Vietnam.

2. Results

2.1. Renewable energy potential in Vietnam

Vietnam has particularly great potential in exploiting RE sources such as: Hydroelectricity, wind power, solar power, biomass power. In particular, hydroelectricity is focused on developing almost to the maximum in Vietnam. By the end of 2018, hydropower was the main energy source of our country, accounting for more than 40% of the total national electricity capacity. Excluding medium and large hydropower, hydropower and other forms of RE (including small hydroelectricity) account for 2.1% of the total capacity of the system [1, 3].

Wind power

With a coastline of more than 3,000 km, the mountains and highlands of the North and Central regions, Vietnam has great potential for wind power development (see map).

According to the World Bank's ESMAP study (see table below), more than 39% of the area of Vietnam has an average wind speed of more than 6 m/s at an altitude of 65 m, equivalent to a total capacity of 512 GW. In addition, about 8% of the land area has an average annual wind speed of more than 7 m/s, equivalent to a total capacity of 110 GW [1, 3].

Table 1. Wind potential of Vietnam at an altitude of 65m

Wind speed average	Low < 6 m/s	Average 6–7 m/s	Relatively high 7–8 m/s	High 8–9 m/s	Very high > 9 m/s
Area (km ²)	197.242	100.367	25.679	2.178	111
Area percentage (%)	60,6	30,8	7,9	0,7	>0
Potential (MW)	-	401.444	102.716	8.748	482

Source: [3]

Another study has shown that 8.6% of Vietnam's territory has potential from "good" to "very good" for the development of large wind power stations. This rate in Cambodia and Thailand is only 0.2%, Laos is 2.9% [5].

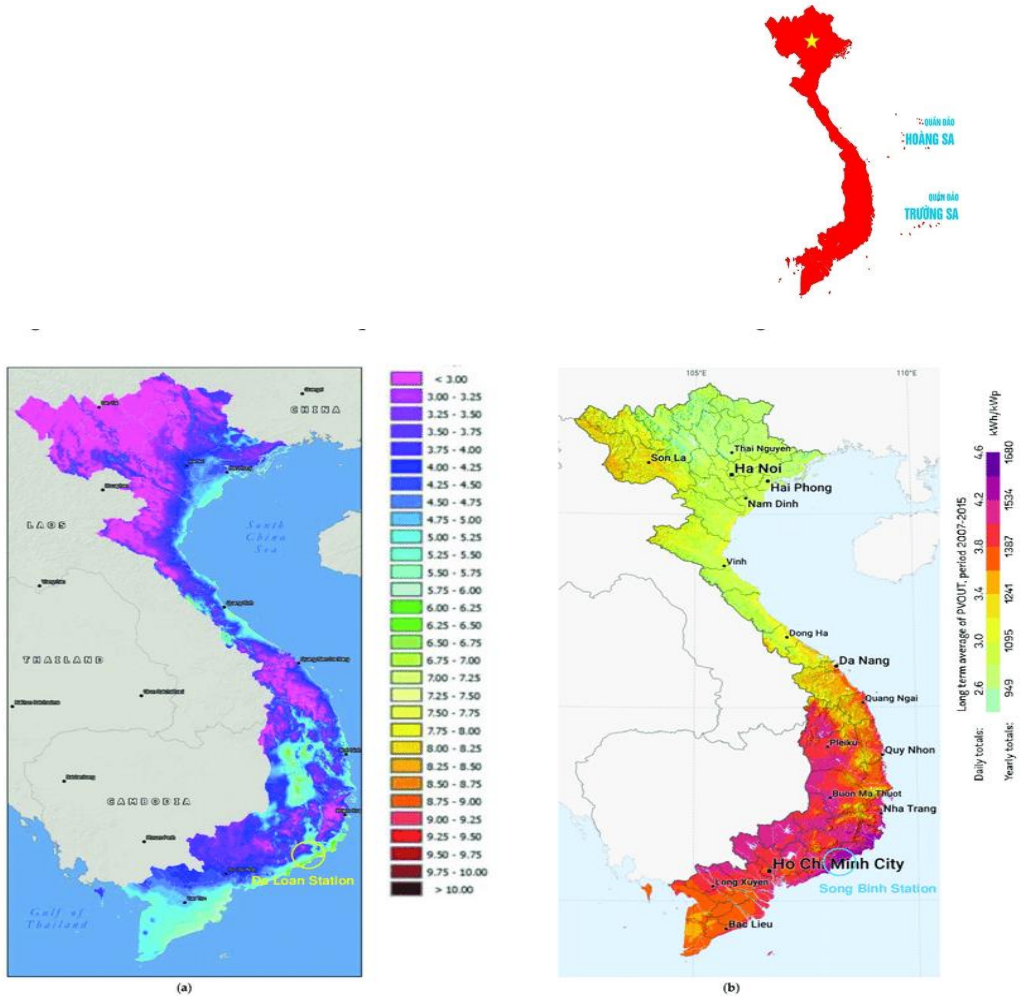


Figure 2. RE map of Vietnam with varying: (a) wind speed at 80 m above sea level; and (b) solar power.

Source: [7]

Solar power

Vietnam has great potential for solar energy development, especially in the central and southern regions. The average number of sunshine hours in the Northern region ranges from 1,500 to 1,700 hours of sunshine per year. The central and southern regions have higher average annual sunshine hours, from 2,000 to 2,600 hours/year.

Table 2. Data on solar radiation in Vietnam

Regions	Hours of sunshine in the year BXMT	Solar radiation intensity (kWh/m², day)	Application
Northeast	1600 – 1750	3.3 – 4.1	Medium
Northwest	1750 – 1800	4.1 – 4.9	Medium
North Central	1700 – 2000	4.6 – 5.2	Good
Central Highlands and South Central	2000 – 2600	4.9 – 5.7	Very good
Southern	2200 – 2500	4.3 – 4.9	Very good
National average	1700 – 2500	4.6	Good

Source: [5]

The average daily solar radiation intensity in the North is 3.69 kWh/m², in the South it is 5.9 kWh/m². The amount of solar radiation depends on the amount of cloud and the local atmosphere. Radiation intensity in the South is usually higher than in the North [7].

Biomass energy

As an agricultural country, Vietnam has a lot of potential for the development of biomass energy. Some common forms of biomass: energy wood, waste - crop by-products, livestock waste, urban waste and other organic waste. Biomass energy sources can be used by burning directly, or forming biomass fuel pellets.

Since the Prime Minister announced Decision 24/2014/QD-TTg on the mechanism to support the development of biomass power projects, many agricultural by-products have become an important source of raw materials. reuse to create a large source of energy. As in the sugar industry, the potential for biomass energy from bagasse is huge. If the source of bagasse is used and exploited thoroughly and effectively, bagasse will contribute significantly to electricity production, contributing to ensuring national energy security [3, 5].

2.2. Orientations and policies for renewable energy development in Vietnam

RE development is a major policy of the Party and State, which has been concretized in the Politburo's Resolution 55 to the Prime Minister's decisions approving the RE Development Strategy and other mechanisms. encourage the development of RE projects.

RE development goals in Vietnam's RE Development Strategy for the period to 2030 with a vision to 2050, approved by the Prime Minister in Decision No. 2068/QDTTg dated November 25th/ In 2015, the proportion of electricity produced from RE (including large and small hydroelectricity) in the total national electricity production must reach 32% by 2030 and 43% by 2050. In the revised Power Master Plan VII, It is expected that RE sources (including small hydropower, wind power, solar power, and biomass power) will account for 21% of the country's total power capacity by 2030. And in Resolution No. 55-NQ/ The Central Government on February 11, 2020 of the Politburo stipulates that the proportion of RE sources in the total primary energy supply will reach 15-20% in 2030 and 25-30% in 2045, corresponding to the proportion of RE in the total energy supply. Nationally produced electricity is about 30% in 2030 and 40% in 2045 [10, 11, 12].

In order to achieve the above-mentioned RE targets, the Ministry of Industry and Trade has advised and submitted to the Government of Vietnam to issue various incentive mechanisms for different types of RE that are assessed as having great potential as follows:

Table 3. Incentive price for RE in Vietnam

Type of solar energy	Type of technology	Incentive and effective mechanism	Selling price (without VAT)
(under 30MW)	Power production	Avoidable cost tariff	The electricity price list is published annually by the MOIT
Wind power (for projects put into operation before November 2021)	Project on land	FIT for 20 years	8,5 USCents/kWh
	Offshore project	FIT for 20 years	9,8 USCents/kWh
Biomass	Co-generation of heat-electricity	FIT for 20 years	7,03 USCents/kWh
	Not Co-generation of heat-electricity	FIT for 20 years	8,47 USCents/kWh

Source: [7]

In addition, ministries and regulatory agencies in Vietnam have also adopted other financial instruments to encourage investment in RE (table 2).

Table 4. Other financial instruments for RE development

No.	Financial Incentive	Mechanism Level
1	CIT	CIT rate: - The first 4 years from the year of taxable income: 0% - Next 9 years: 5% - Next 2 years: 10% - The remaining years: 20%
2	Import Tax	Goods imported as fixed assets, materials and semi-finished products not produced domestically. Investors should check the annual List of goods and products exempt from import tax published by the Ministry of Planning and Investment
3	Using land	Preferential land rental according to the regulations of the Province
4	Environmental protection fee	0%
5	Investment	The Vietnam Development Bank (VDB) lends up to 70% of the total investment cost at an interest rate equivalent to that of a 5-year Government bond plus 1%/year

Source: [7]

2.3. Achievement of renewable energy development in Vietnam

The energy industry is on the right track in developing and using clean energy, RE. Therefore, many mechanisms and policies for RE development have been issued, in which focus is on encouraging the development of power sources using RE, especially wind power, solar power, biomass, etc. Electricity using RE has made great progress in recent times.

About wind power

Wind energy is a RE source that has received the attention of the Government of Vietnam from a very early age. Up to now, the number of wind power projects developed has increased rapidly, especially when the Government promulgated a mechanism to encourage wind power development (Decision No. 37/2011/QD-TTg dated June 29, 2011 and Decision No. 37/2011/QD-TTg dated June 29, 2011). Decision No. 39/2018/QD-TTg dated September 10, 2018). By the end of December 2020, the total capacity of wind power projects has been approved by the Prime Minister on the list of sources and power grids connected to the revised Power Master Plan VII: 11,584MW/176 projects; however, only about 600 MW of wind power has been put into operation nationwide.

According to an update from the Electricity of Vietnam (EVN), by the end of August 3, 2021, a total of 106 wind power plants with a total capacity of 5,655.5 MW have sent documents and application documents to the energizing program. grid connection, testing,

request for recognition of commercial operation (COD) before October 31, 2021 (the price of FIT 2 wind power has expired) [15].

Solar power

Before 2017, despite its great potential, the situation of grid-connected solar power development implemented in Vietnam was still lower than expected. As of August 2017, the total installed capacity of solar power is only about 28 MW, mainly from small-scale power sources (off-grid systems and a number of low-voltage grid-connected demonstration projects - located in high-rise buildings). home and office). However, since the Government issued Decision No. 11/2017/QD-TTg dated April 11, 2017 on the mechanism to encourage the development of solar power projects in Vietnam and Circular No. 16/2017/ TT-BCT stipulates project development and sample power purchase agreement applicable to solar power projects, within more than 3 years, many domestic and foreign investors have sought investment opportunities in solar power projects. large-scale solar power projects nationwide. The projects are mainly concentrated in the central and southern regions where solar radiation is high. By the end of 2020, the grid-connected solar power source has been put into operation up to about 9,000 MW (of which Ninh Thuan and Binh Thuan provinces are nearly 3.5GW) [16].

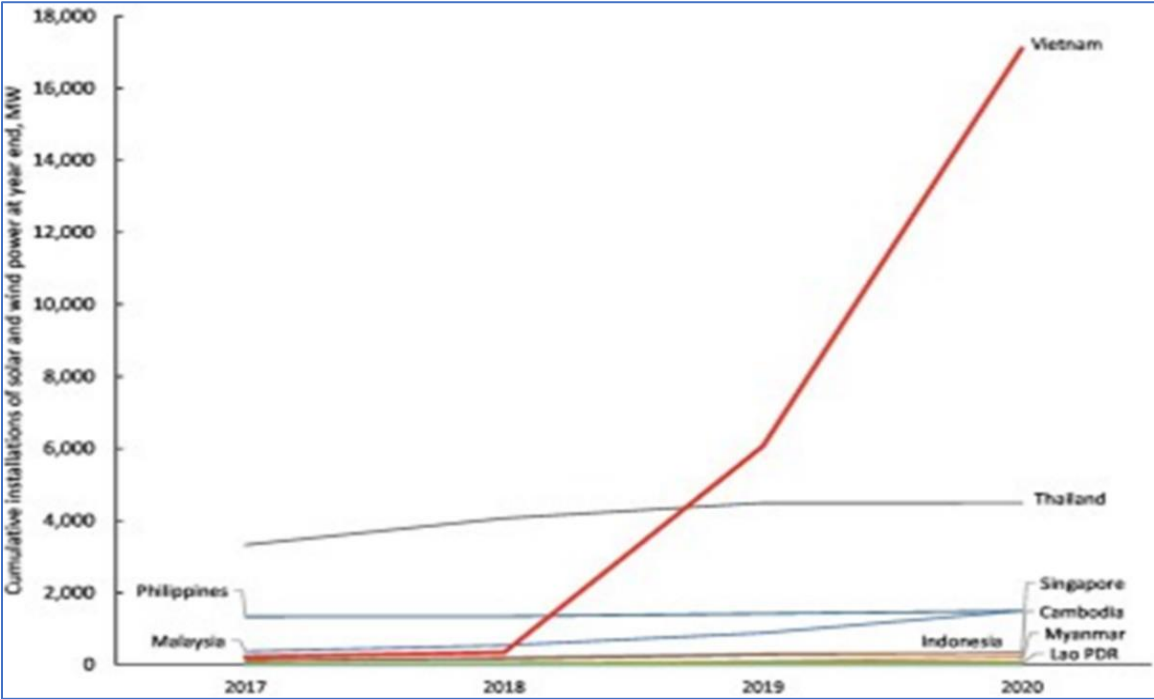


Figure 2. RE energy development in Vietnam during 2017-2020

Source: [7]

The capacity scale of solar power projects that have been added to the planning is over 13GW, the total scale of construction registration but not yet added is about

50GW. Besides farm-type solar power projects (installed on the ground, on water), rooftop solar power projects are also developing at a very fast rate. At the end of 2019, the installed capacity of rooftop solar PV nationwide only reached 340MWp (272MW), but by August 2021, the total installed capacity will reach 9,580MWp. The total capacity of solar power sources added to the adjusted plan VII is 19,079 MWp (15,260MWac)/172 projects. The Southeast provinces (including Ho Chi Minh City) still remain the leading localities in installing rooftop solar power with both the number of projects and the total installed capacity.

Biomass power

Although there is a mechanism to support the development of biomass power projects in Decision No. 24/2014/QĐ-TTg dated March 24, 2014, up to now, the development of biomass power projects not as expected, not commensurate with the available potential. Recently, the Government continued to issue Decision No. 08/2020/QĐ-TTg dated March 5, 2020 amending and supplementing a number of articles of Decision No. 24/2014/QĐ-TTg. The most notable point is the adjustment of electricity purchase price for biomass power projects:

- For heat-power cogeneration projects: Increase from 5.8 UScents/kWh to 7.03 UScents/kWh.

- For projects that are not heat-power cogeneration: switch from Avoided Cost mechanism (with the average price in 2019 about 7.36 UScents/kWh) to FIT (Feed in Tariff) mechanism with the electricity purchase price of 8.47 UScents/kWh.

- + Status of rice husk power development: Up to now, in Vietnam, there is no biomass power plant that only produces electricity separately. Based on available information and additional data collected from localities, currently, only about 10 investors have applied for permission to build with an average capacity of 10MW/plant. Most of them are domestic investors with 8 projects, the remaining 2 projects are joint ventures with foreign countries. The above rice husk power projects are concentrated in the provinces of the Mekong Delta, including Tien Giang: 02 projects; Dong Thap: 03 projects; Can Tho: 03 projects; Kien Giang: 01 project, Hau Giang: 01 project. Among the 10 projects mentioned above, only Dinh Hai rice husk power plant in Can Tho has been invested and built. However, this factory has only completed the construction of the boiler system and steam production for sale to consumers in Tra Noc industrial zone, Can Tho. For the remaining projects, there are 01 projects that have completed the investment project formulation stage, 02 projects have completed the investment report preparation stage, the rest just stop at the step of applying for investment policies. Most of the projects were established a long time ago, from 2007 to 2008. Up to now, many projects have had their investment licenses revoked or have no further information on the next stages.

As of November 2020, there are about 560MW of total capacity of biomass power projects from wood power registered for investment and investment research (Northern: 166MW, North Central: 50MW, Central Central Coast: 166MW, North Central Coast: 50MW, Central Vietnam): 117MW, Central Highlands: 120MW, South Central: 50MW, South: 60MW). In addition, there

are currently 2 biomass power projects from agricultural waste (sorghum) with a registered scale of 600MW in An Giang province being proposed for investment [17, 18].

2.4. Challenges for renewable energy development in Vietnam

Despite significant progress in recent years, the development of RE in Vietnam is facing a number of fundamental challenges, including:

Firstly, challenges on supporting policies and mechanisms

The problems and inadequacies about current policies and legal regulations are reflected in some of the following contents:

The RE market needs clear policies and legal procedures to increase investor interest. State management agencies need to come up with policies with conditions that create a stable investment environment and predictable revenue streams of projects. The support mechanisms in the past time have not given a long-term orientation: Decision No. 13/2020/QĐ-TTg dated April 6, 2020 of the Prime Minister on the mechanism to encourage the development of solar power regulated a number of grid-connected solar power projects and rooftop solar power projects that meet the conditions for application of a support tariff (FIT price) when put into commercial operation until December 31, 2020. The Ministry of Industry and Trade studies to complete the bidding mechanism for solar power projects to apply from 2021. Thus, from the beginning of 2021 up to now, solar power projects are not allowed to apply the FIT tariff. bidding mechanism has not been issued. Similarly, wind power projects after November 1, 2021 also do not have an application mechanism.

The support price (FIT) is applied uniformly throughout the country, leading to the phenomenon of concentration development in areas with great economic potential (high solar radiation, high average wind speed). As a result, it is overloading the power grid in some areas or investing in places with low electricity demand, having to carry electricity far away. To overcome this drawback, it is necessary to have policies to encourage development by region and region.

FIT prices are generally applied, regardless of size, which will lead to inadequacies, large-scale projects will bring higher efficiency than smaller-scale projects if there are similar natural conditions. It is proposed that the FIT price mechanism only apply to small-scale projects (about a few MW), for projects with a scale of several tens of MW or more, direct electricity purchase and sale negotiations between the buyers electricity under the Vietnam Electricity Group with investors, ensuring the project can recover capital and have a reasonable profit.

In the mechanism to support rooftop solar power projects, there are some shortcomings: (i) Regulations on rooftop solar power systems with a capacity of no more than 1 MW, generally applied to households and businesses. business is not reasonable. This leads to many agencies and businesses that have a large construction roof area that can build solar power with a larger capacity to supply electricity for their needs. resources

and resources. It is recommended to separate this regulation into 2 parts. For households, the maximum capacity is smaller (about a few tens of kW); for agencies and businesses, it is possible to stipulate that the solar power capacity does not exceed the maximum capacity demand, and does not limit the maximum capacity. (ii) Regulating that households must sell all the electricity they produce and buy all their electricity needs from the electricity unit, which will result in households having to pay 2 times the tax for the same electricity unit: pay VAT on electricity purchased from the electricity unit and income tax on the amount of electricity sold. To overcome this shortcoming, it is proposed to apply the net metering mechanism as approved by the Prime Minister in Decision No. 2068/QĐ-TTg dated November 25, 2015 [19].

Lack of standards and regulations of RE projects: Standards and certificates are needed to ensure that equipment manufactured or procured from abroad is consistent with current standards. The promulgation of standards is necessary to ensure that the businesses operating the plants are in compliance with applicable laws. The lack of necessary standards also causes confusion and RE producers face unnecessary difficulties.

Secondly, economic and financial constraints

RE projects are high initial capital, lack of financial institutions, lack of investors, competition from fossil fuels and less subsidies compared to conventional fuels. These factors have prevented RE from becoming popular.

It is currently difficult for RE projects to access domestic credit, because many banks consider RE to be risky, so they require a high investor capital ratio (from 30-40%) and high loan interest rate (from 30 to 40%). 10% or more), has caused many difficulties in the financial arrangement process. Borrowing capital from foreign banks and financial institutions, although the interest rate is lower (about 4-5%), but it is difficult for domestic enterprises to access because of the requirement of government guarantee.

In order to ensure the efficiency and early implementation of the project to put the project into operation on schedule, domestic investors often cooperate with foreign investors in the form of transferring part or the whole project to gain access to the project. loans from abroad at low interest rates.

In addition to support in terms of mechanisms and policies, subsidies from the budget for RE projects are not significant. To create financial support, it is suggested that the Government soon issue a policy that organizations and individuals using fossil fuels for energy purposes must pay environmental fees corresponding to the volume of fuel used. Part of the environmental fee is used to encourage the development and use of RE sources through the Sustainable Energy Development Fund [20].

Thirdly, technological problems

Asynchronous development between RE projects and the transmission grid: To build and put into operation an RE project usually takes only about 6 months to a year, while it takes about 6 months to a year to implement investment and construction procedures.

construction of a transmission line or substation normally takes 2 to 3 years, if there are problems with compensation, site clearance, etc., the time may be extended by 1-2 years.

The lack of synchronization between the development of RE sources and the transmission grid has caused "choke points" in transmission, reducing the generating capacity of the sources. To overcome this, there is a need for closer coordination between stakeholders: Central and local state management agencies, investors and electricity units in the process of appraising and approving the master plan. investment promotion in the process of investment preparation and investment. The power grid needs to be newly invested or upgraded before connecting to RE sources. If there is no agreement regarding the responsibilities of each party in the implementation of the grid investment, the construction work may not be started.

Wind and solar power projects with variable capacity depend on natural conditions (wind speed, solar radiation), which partly affects the operation of the power system. When the proportion of wind and solar power sources increases in the coming time, it is necessary to have solutions to ensure the safe and continuous operation of the national power system [19, 20].

3. Discussion and Recommendations

To achieve net zero emissions by 2050, Vietnam needs to dramatically increase RE capacity, especially solar and wind power. This will require significant investment: Vietnam's Power Development Plan 8 recently estimated annual financial needs of more than \$11 billion, much of which will be devoted to energy regenerative. Historically, almost all RE investments in Vietnam have come from domestic and regional sources. However, sustaining the rapid expansion of RE depends on Vietnam's ability to expand international investment.

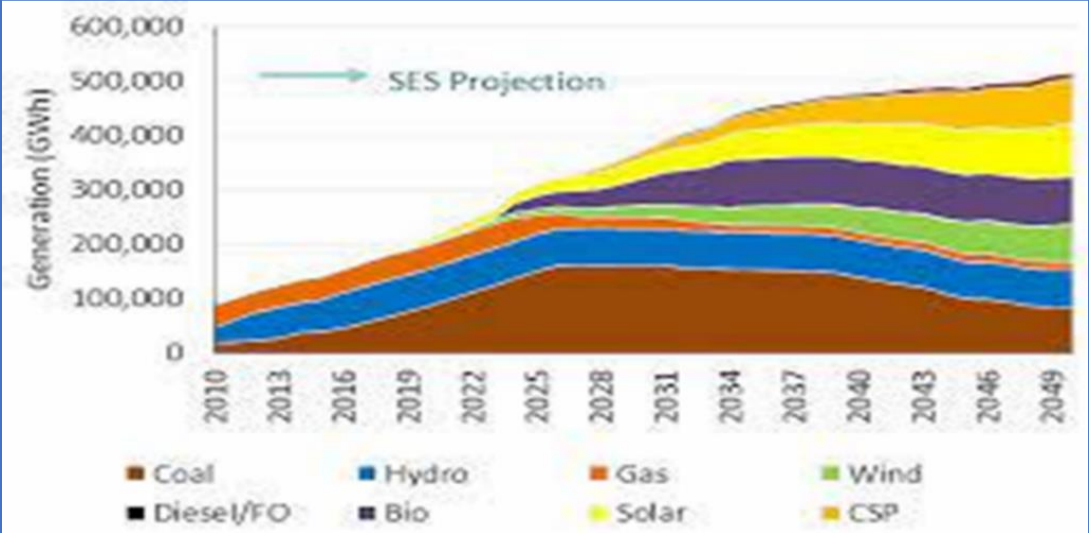


Figure 3. RE energy development to achieve net zero emissions by 2050

Source: [7]

Vietnam has made an impressive record of attracting domestic private investment to rapidly scale up solar from virtually nothing in 2017 to more than 16,000 MW in 2017- 2022, far beyond the Government's targets. While it is not clear exactly how much solar and wind energy will be included in Power Development Plan 8 in the future, it is clear that this energy system is developed to scale up energy.

Here are some solutions to promote the development of RE in Vietnam in the coming time:

Firstly, in the coming time, according to the experience of developed countries, in order to develop strong and sustainable RE, it is necessary to focus on the main contents: policy, transmission infrastructure and system operation regulation. electrical system.

Regarding policy: for large-scale RE projects, the bidding mechanism will be switched. The selected developer will be the one who offers the lowest selling price of electricity from the ground solar power project, the floating solar power project. The implementation of this mechanism will take more time, but it will be fairer and more transparent for investors, ensuring harmony and balance between the development of RE power projects and the transmission grid.

Secondly, it is necessary to promote the development of distributed RE systems to serve local consumption needs such as consumers such as industrial parks, commercial and service consumers, and houses. Install rooftop solar power to supply your own needs in combination with electricity purchased from the grid. Continue to develop and perfect Vietnamese standards and regulations to ensure RE development more sustainably. For some new types of RE in Vietnam such as offshore wind power, tidal power, continue to study and propose a development incentive mechanism suitable to the potential and development capabilities in Vietnam.

In addition, increase investment in upgrading and expanding transmission infrastructure in combination with storage systems and enhance the ability to dispatch and operate the power system, strengthen regional grid connection. This will help improve the ability to absorb RE sources, ensure safe and efficient operation of the power grid.

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AN OVERVIEW OF INFLUENCES OF MICROPLASTICS POLLUTION ON SOILS AND PLANTS

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Abstract

Microplastics (MPs) are plastics (including flakes, fibers, particles, foams, films, etc.) with a particle size of less than 5mm that exist in many environments. Due to their high contents in the soil environment and low degradation rates, long-term impact of microplastics on soil ecosystems has become a major source of concern around the world. Through researching recent literature on microplastic pollution in agricultural soils and its effects, this paper evaluated the effects of microplastics on agricultural soils and proposed research directions in the future. This paper reported the morphology, origin and influence of MPs on soil properties, organisms and plants. It also highlighted the combined pollution of MPs and cadmium to plants. This literature review aimed to provide comprehensive information on the effects of microplastics on agricultural soils and directions for future research.

Keywords: *microplastics, agricultural soil, soil properties, organisms, plants, Cadmium.*

1. Introduction

According to the US Ocean and Atmospheric Administration, microplastics (MPs) are very small pieces of plastic which are less than 5mm in length. Currently, microplastics are divided into 2 categories: primary microplastics which are ≤ 5 mm in length, and secondary microplastics which are created from the degradation of large plastic products such as water bottles, plastic bags and fishing nets. Both types of MPs exist in the environment in large concentrations. In recent years, researchers have defined plastic particles which are 1-1000nm in size as nanoplastics (NPs). The main components of NP are polyethylene (PE), polypropylene (PP), polystyrene (PS), polyvinyl chloride (PVC), polylactic acid (PLA) and polyethylene terephthalate (PET) and other polymers [51].

MPs are widespread worldwide and have harmful influences to ecosystems. They can even be transmitted to humans through food and daily necessities, thereby increasing the risk of chronic diseases and cancer [2].

Around the world, the annual amount of microplastics entering soils exceeds that of the oceans. The input of microplastics in terrestrial ecosystems is 4-23 times higher than in the ocean [10], while the content of microplastics in agricultural soils is even higher [7]. It was estimated that the annual input of microplastics into agricultural soils through sewage sludge was 63,000–430,000 and 44,000–300,000 tons in Europe and North America, respectively [32]. In a study involved 54 landfills from Cambodia, India, Indonesia, Laos, the Philippines and Vietnam, Tun et al (2022) reported that about half of the additives in the

landfill soil came from MPs [39]. In a study with 50 agricultural soil samples collected from Yunnan, China, Zhang et al [55] reported MPs contents of 7,100-42,960 particles kg^{-1} , of which up to 95% were 1-0.05mm in size.

Covering soil with plastic films is a globally popular agricultural technique which has been considered to be effective in heat and water retention, weed prevention, fertilizer conservation and soil fertility improvement [18]. However, in a study with 384 soil samples collected from 19 provinces of China, Yi Huang et al. [12] reported that the macroplastic content in the soil samples was 0.1 - 324.5 kg ha^{-1} and the averaged content was 83.6 kg ha^{-1} . He et al [8] found that the concentrations of microplastics in 20 vegetable and agricultural soils in suburban Shanghai were 78.00 ± 12.91 and 62.50 ± 12.97 particles kg^{-1} , respectively. Most microplastics were polypropylene (50.51%) and polyethylene (43.43%). This study showed that microplastic pollution in soil mainly comes from agricultural humus layer. In recent years, the area covered with plastic film worldwide has increased rapidly. Over time these plastic films will penetrate into the soil and contaminate agricultural land.

In addition, Smith et al. [37] detected 9 types of MPs in human feces. Hu Hanwen et al. [11] also found that polystyrene (PS) and polyvinyl chloride (PVC) particles can migrate through the intestines to the lymphatic and circulatory systems, posing a threat to human health. Rillig [14] showed that the accumulation of MPs in soils to a certain extent alters soil properties, affects soil functions and biodiversity, and then affects plant growth. Currently, there is little information on the effects of MPs in soils on plants. The aim of this paper was to summarize the origins, distribution characteristics and accumulation of MPs in agricultural soils, and focus on analyzing the effects of MPs on soil organisms and plants.

2. Method

The present article reviews and synthesizes the literature relative to microplastics pollution on soils and plants.

3. Results

3.1. Overview of microplastics in agricultural soils

3.1.1. Morphology of microplastics in agricultural soils

Currently, there is no unified MPs classification system. MPs can be classified according to their morphology: pellets/granules, foams, flakes, scales, films, fibers and sponges [35; 56]. (Figure 1)

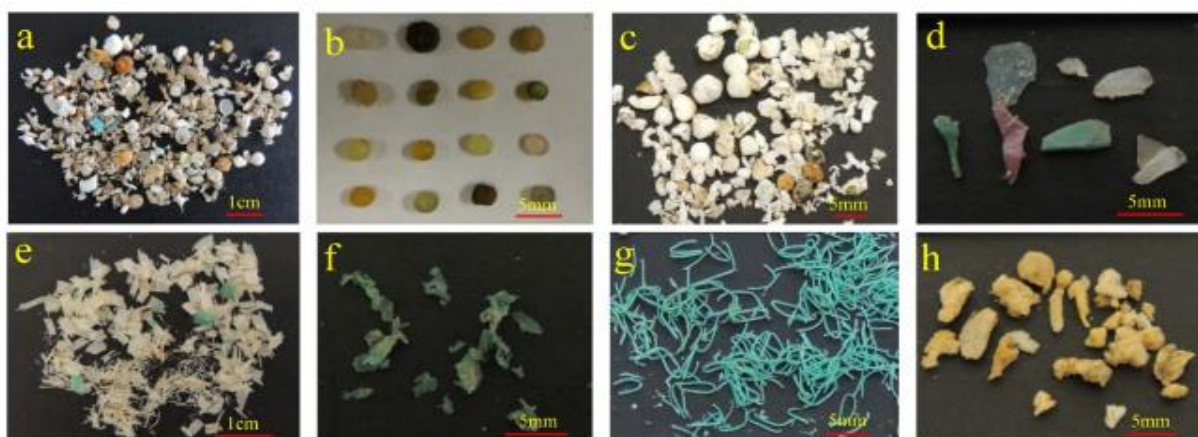


Figure 1. Common morphology of microplastics (a. composites, b. pellets/granules, c. foams, d. flakes, e. scales, f. films, g. fibers, h. sponges)

The types of MPs are closely related to the environment in which they exist. In a study of MPs in coastal soils in Shandong province, Zhou et al. [56] reported seven types: foams, pellets, flakes, fibers, films and sponges. Liu et al. [26] reported that the MPs in the soils of 20 vegetable fields in some suburbs of Shanghai mainly included fibers, flakes and films. In a study on MPs in agricultural lands of Hetao irrigation zone in Inner Mongolia, Wang Zhichao et al. [46] detected 4 types of MPs: fibers (23.34%), flakes (26.31%), films (38.57%) and particles (11.78%). Yue Junjie et al. [53] investigated MPs in soils in Yellow River Delta wetlands and reported three types of MPs: particles (16.67%), fibers (33.33%) and flakes (50%).

Degradation of covering films is a major source of MPs in agricultural soils. The main components of covering films are polyethylene (PE), polyvinyl chloride (PVC), polystyrene(PS), high density polyethylene (HDPE), low density polyethylene (LDPE) and linear low density polyethylene (LLDPE). PVC film has poor light transmittance and produce toxic substances when burned, so it has been banned in the US. However, in Asia, the use of this product in agricultural production accounts for nearly half of the global use as reported by the Food and Agriculture Organization of the United Nations (FAO).

MPs in compost are also another source of pollution in agricultural soils. Germany has strict regulations on fertilizer quality, allowing fertilizers to contain no more than 0.1% plastics, and no plastic particles less than 2mm in diameter [50]. Weithmann et al. [49] found that organic fertilizers produced by composting biological waste often contain MPs with concentrations of about 14-895 particles kg^{-1} , and particle sizes larger than 1mm. China is the largest producer and user of compost, with an annual output of more than 2.5×10^7 tons. The average concentration of MPs in composts can be as high as 1.2 g kg^{-1} [52]. The annual commercial organic fertilizer production in China is more than 25 million tons, and the actual application amount of organic fertilizer is about 22 million tons per year. Some studies estimate the total amount of MPs introduced into agricultural soils through organic fertilizers in China to be 52.4-26,400 tons per year [28].

Using wastewater for irrigation and sewage sludge for growing crop are also causes of MPs pollution in agricultural soils. International surveys of MPs in wastewater treatment plants show that about 90% of MPs in wastewater accumulate as sludge after treatment. Nizzetto et al. [32] found that in Europe, MPs production was 125-850 tons/million people and MPs were discharged into agricultural soils through sludge. In Europe and North America, the amount of MPs in the sludge is 6.3×10^4 - 43×10^4 and 4.4×10^4 – 30×10^4 tons, and about 50% of the sludge is used in the agricultural sector. Several cities in the United States, Germany, Finland and Sweden also have MPs in sludge, in which MPs concentrations ranged from 1,500 to 24,000 particles kg^{-1} [31]. The annual agricultural use of sludge in China is about 3 million tons. In a study with 79 sludge samples collected from 28 wastewater treatment plants in 11 provinces of China, Li et al [21] reported that the average MPs content in the sludge was $(22,700 \pm 12,100)$ particles kg^{-1} .

Surface water used for crop irrigation is also a source of MPs pollution in agricultural soils. The content of MPs in the Yangtze estuary waters (China) was $4,137.3 \pm 2,461.5$ particles m^{-3} [50]. In addition to surface water, groundwater is also one of the main sources for agricultural irrigation. Mintenig et al. [24] detected plastic particles in groundwater and drinking water with a particle size of 50-150 μm . MPs were also found in groundwater of the State of Illinois, USA, with a maximum concentration of 15,200 particles m^{-3} . Panno et al [33] also detected large amounts of MPs in table salt from salt wells. In addition, wastewater contains a large amount of MPs, although wastewater treatment plants can remove a certain amount of MPs, the concentration of MPs is still high in treated wastewater. The direct use of untreated wastewater to irrigate arable land is also increasing. Dris et al. [6] reported that in the world, an area of 2,107 hm^2 is irrigated with untreated or partially treated wastewater, and 10% of the world's population uses wastewater for irrigation in agricultural production.

MPs can also enter soils from the atmosphere. Dris et al. [6] found that atmospheric dust in the Paris metropolitan area contained MPs filaments, and that MPs filaments accumulated into this region through the atmosphere by about 3-10 tons per year. Liu et al. [25] [9] and Klein et al. [17] also detected MPs in atmospheric sediments in Paris, Dongguan, Shanghai, Hamburg and other cities, and the main form of MPs in the atmosphere was fibers. However, there is still little information on atmospheric deposition of MPs [52].

3.1.2. Accumulation of microplastics in agricultural soils

Scheurer et al [31] detected MPs in 90% of soil samples from Swiss plains, with an averaged concentration of 593 particles kg^{-1} , and 88% of MPs ranged from 12.5 to 500 μm in size. In some areas with severe plastic pollution, the MPs content in the soil can be as high as 60% [29]. As modern agricultural practices can affect the MPs content in soils, studies on MPs in agricultural soils have increasingly drawn attention. Huerta et al [32] detected MPs contamination in a rural home garden in Southeastern Mexico at a concentration of 2,770 particles kg^{-1} , and the MPs size ranged from 5 to 150 μm . In a study on long-term plastic covers on agricultural soils in China, Liu et al [33] reported that concentration of residues of plastic covers in the soil was 50-260 kg hm^{-2} . The concentration of MPs in vegetable fields in Wuhan, Hubei was as high as 2.2×10^4 - 6.9×10^5 particles kg^{-1} [3].

3.1.3. Effects of MPs pollution on soil structure

Because MPs are difficult to dissolve, they can accumulate in the soil or combine with other organic pollutants and thus induce changes in soil structure. De Souza et al. [35] found that the effects of different MPs on soil structure and microbial functions were different. Polyester significantly reduces the number of water-stable aggregates in soils, while polyethylene can greatly improve water-stable aggregates and reduce water content and the diversity in soils. In a study on MPs in soil in Dianchi Lake, Yunnan (China), Zhang et al. [8] discovered that about 70% of MPs were closely associated with soil aggregates, especially microaggregates, and participated into the formation of soil aggregates. However, there are few studies, especially long-term ones, on the combination of MPs with soil aggregates, and related mechanisms.

3.2. Effects of MPs pollution on agricultural soil organisms

3.2.1. Effects of MPs pollution on soil fauna

There are fewer studies on the ecotoxic effects of MPs on soil animals, in which earthworms are the main research subjects, compared to those on aquatic animals. Rillig et al. [37] found that MPs in soils can be ingested by earthworms and then transported from the topsoil to deeper soil layers. Current studies on the toxicological effects of MPs on earthworms mainly include growth inhibition, intestinal injury, weight loss, immune responses, changes in gut microbes, reproduction problems and even death [38, 39]. Huerta et al. [39] found that earthworms can selectively feed on LDPE (<150 μm) and accumulate it in their body. The accumulation of LDPE decreased with its size. In addition, high concentrations (>28% MPs) damaged earthworm intestines, inhibited growth and increased lethality significantly, but had little effect on reproduction rate. However, Rodriguez-Seijo et al. [38] found that low MPs content (<1000 mg kg^{-1}) did not significantly affect mortality of earthworms after 28 days of soil exposure, but higher MPs content and prolonged exposure time seriously damaged intestinal tract of earthworms and thus directly caused weight loss and death. Further, MPs were also found in earthworm feces that were swallowed by soil arthropods [52]. Some studies showed that MPs can be transferred from earthworms to chickens, thereby affecting human health [29].

3.2.2. Effects of MPs pollution on soil microorganisms

Additives included in MPs, such as antioxidants, flame retardants, plasticizers and light stabilizers can inhibit microbial activity in the soil [35; 45]. Phthalates and bisphenol A (BPA), which are two important substances used in the plastics industry, can inhibit microbial activity, thus reduce microbial reproduction and growth. Wang et al. [48] found that the plasticizer pollutant dimethyl phthalate can lead to accelerated soil carbon and nitrogen cycling, which would reduce soil fertility. Zettler et al. [54] showed that microorganisms can be adsorbed on MPs surface to form biofilms that last for a long time, which may restrict the ecological function of soil microbes. Kettner et al. [15] found that both parasitic and saprophytic fungi on PE and PS particles proliferated in biofilms of MPs, causing detrimental effects on animal and human health. In addition, MPs alter soil porosity and moisture, thus influence the oxygen flow in soils and then relative distribution of anaerobic and aerobic microbes in soils [36].

3.3. Effects of MPs pollution on plants

It is well documented that MPs have significant effects on the growth and development of various plants such as wheat [34], broad beans [45], watercress [13], onion [5], lettuce [23], and cucumber [24]. However, it is revealed by some studies that MPs have less effect on plants than on animals and soil microbes [14]. For example, Qi et al. [34] first used LDPE and biodegradable plastic films as research subjects in potted experiments. It was found that residues of these plastic films significantly inhibited seed germination and seedling growth and adversely affected the reproductive period. Judy et al. [14] found that when wheat seeds were exposed to MPs, their germination rate and thereafter plant biomass did not change significantly. De Souza et al. [5] found that MPs can induce changes in total

biomass, tissue composition (such as water content, nitrogen content and carbon-nitrogen ratio) and root characteristics (including root length, mean root diameter, and total root area) of onion. Their effects were different depending on the particle size. Li et al. [23] found that PVC sized 100 nm-18 μ m and PVC sized 18-150 μ m with different concentrations (0.5%, 1%, 2%) had no significant effect on lettuce root activity, but at concentrations of 0.5% and 1% PVC (100 nm-18 μ m), overall length, surface area, volume and diameter of roots increased significantly compared to the control without exposure to MPs. Bosker et al [2] found that MPs could accumulate in the pores of pea capsules during seed germination. Liu Yingying et al. [27] revealed that HDPE (23-38 μ m, 100 mg g⁻¹) could inhibit water uptake and growth of green bean plants. Physical impediment of water uptake could be the reason for slow seed germination and root growth. Meng et al [30] found that MPs (LDPE and Bio-MPs) affected the development of kidney beans. Urbina et al [40] reported that HDPE had no adverse effects on maize, while PS had significant phytotoxicity. However, some studies showed that PS with large grain size (8.3 \pm 0.5 mm) had no adverse effects on three crops (mung beans, lettuce and rice) [16]. The average abundance of MPs in the studied sludge samples was 30.940 \pm 8589 particles kg⁻¹ (dry weight). Soils containing MPs promoted tomato plant growth, but slowed fruit production and reduced yield [9].

In addition, NPs can enter plant cells. Bandmann et al. [1] reported that nano-sized MPs entered tobacco cells through endocytosis and PS (20 and 40 nm) microspheres were taken up by the cells. This indicates that NPs with small particle size can be absorbed into plants. Li Ruijie et al. [20] found that submicron PS can penetrate the roots of wheat plants under sand culture conditions, and distribute in the outer bark and vascular system of leaves. Bosker et al. [2] revealed that among different MPs sizes (50 nm, 0.5 μ m, 4.8 μ m), the 4.8 μ m size was able to penetrate pores in the roots of watercress. Li Lianzhen et al. [1] reported that the 200 nm particle size of PS in lettuce roots would be transferred to its stem and leaves, causing inhibition of the subcellular structure. PS particle sizes of 500 nm and 700 nm could be transported from roots to flowers and fruits of cucumber [24].

Furthermore, the phytotoxicity of MPs is related to the production of reactive oxygen species (ROS), and the accumulation of reactive oxygen in plant cells can influence plant photosynthesis [4]. Plants can inhibit ROS-producing enzymes and interfere with chlorophyll synthesis, thereby affecting chlorophyll and carotenoids [19]. Li et al. [23] found that PVC (100 nm-18 μ m) did not have much effect on malondialdehyde content, however, at 1% concentration, PVC significantly increased superoxide dismutase activity and promoted carotenoid synthesis. In a study on physiological effects of NP on lettuce, Li et al. [23] also reported that 100 nm PS could significantly reduce chlorophyll, soluble sugars, carotenoids, proline and fluorescence contents in cucumber leaves. Due to polystyrene nanoplastic pollution, the enzyme activity of acid and peroxidase-related genes, the hydrogen peroxide content increased significantly. Further, an increase in particle size would lead to a decrease in the relative expression and activity of the major antioxidant enzymes *superoxide dismutase* (SOD) and catalase (CAT) [24].

Finally, the presence of MPs can lead to changes in soil structure, bulk density, water holding capacity and nutrients [5; 41]. These changes can directly affect plant yield by altering root characteristics, growth states and nutrient uptake processes [34].

3.4. Effects of co-contamination of MPs and Cd on plants

Currently, many countries in the world, especially some countries in Asia, are facing serious heavy metal pollution. MPs can adsorb heavy metals and carry them into fauna and flora as carriers [42]. However, there are very few studies on the heavy metal adsorption of MPs and effects of this phenomenon on plants, and most of these studies focused on the combination of MPs and Cd [38]. MPs and Cd which coexist widely may interact to influence plants in agro-ecosystems [44]. In a study on effects of MPs and Cd contamination on cucumber seedlings, Li Zhenxia et al [22] reported that PVC (<18 μm , 18–150 μm) could alleviate the effects of Cd on cucumber root growth, while the combination of MPs and Cd had an adverse effect on SOD of cucumber leaves. In a study on Cd absorption by HDPE and PS at different dosages, Wang et al [43] found that the co-existence of HDPE and PS was more toxic to plants than PS alone. They also reported that co-occurring MPs can change Cd bioavailability, plant performance, and soil properties. In addition, a high-dose of HDPE (10%) led to an increase in soil pH, thus promoted plant growth. But when the high-dose of HDPE was combined with Cd, it had an inhibitory effect on plant growth, indicating that MPs can amplify Cd phytotoxicity. In another study, Wang et al. [44] reported that the coexistence of MPs (PE and polylactic acid) did not affect the Cd content in plant tissues, but influenced the structure and diversity of arbuscular mycorrhizal fungi (AMF) community. In a study on effects of co-contamination of MPs and Cd on rice plants, Wang Zezheng et al [47] reported that low concentrations of MPs (100mg L⁻¹) and Cd (2mg L⁻¹) inhibited rice shoot and root growth. It can be concluded that combined effects of MPs and Cd on plants may depend on MP particle sizes, concentrations of MP and Cd as well as plant species.

4. Discussion and Conclusion

Studies on effects and mechanisms of MPs on agricultural soils have not been systematic and relatively dispersed. Future research can be in the following directions:

(1) At present, methods for detecting MPs in agricultural soils are limited and there is no uniform standard for identification and quantification of MPs. An accurate and practicable standard procedure of identification and quantification should be established.

(2) Studies on MPs pollution in agro-ecosystems have been carried out, but activities of MPs after they enter the soil have not been studied in depth. Further, most of these studies only completed in simulated laboratory conditions. In the future, it is necessary to carry further research on the influence of MPs on soil microbial genes, and changes in soil nutrient cycling, degradation mechanism of MPs and soil microbes. It is also vital to conduct studies on migration pathways and distribution of MPs to control them at the beginning of pollution.

(3) Some heavy metals and other pollutants might form compounds with MPs. There are few studies on combined effects of MPs and heavy metals on some plant species. Further

research on co-contamination of MPs and other pollutants and its effects on various organisms should be carried out.

(4) MPs in soils and nanoparticles formed upon the degradation of MPs will enter the plant, thereby affecting plant growth. An array of studies have shown that MPs have toxic effects on the growth and development of plants. However, it is necessary to further clarify the transportation of MPs from soils to plants and mechanisms of harmful effects of MPs on plants. In addition, exposure pathway of MPs and their effects on human health need to be further studied.

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FACTORS AFFECTING FINANCING DECISION FOR WIND ENERGY PROJECTS IN VIETNAM

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Abstract

Wind energy is considered as one of the most potential energy sources in the future, as it can benefit the environment, economy and the society in the long-term. However, wind energy still accounted for a small proportion in the national energy sources in Vietnam. One of the main reasons is the hesitation of investors and financial institutions in the decision-making process in financing wind energy projects. The research has pointed out that, besides economic and financial factors, financing decisions for wind energy projects of financial organizations in Vietnam are also influenced by non-financial factors. Our research uses a combination of qualitative research method, deep interview and quantitative analysis with Structural Equation Modeling (SEM) to analyze data of 200 institutions that have been investing in wind energy projects. Our results show – the positive impact of the priori beliefs in the effectiveness of wind power’s existing policies and technological adequacy, knowledge of wind energy operational context as well as the institutional influence from normative sources - on wind energy financing decision of Vietnamese institutional investors. Based on our research, we also make some recommendations for investors and policy-makers to encourage more capital invested in wind energy projects, which contributes to the sustainable growth of renewable energy in Vietnam.

Keywords: *wind energy, financing decision, non-financial factors, institutional investors, SEM*

1. Introduction

Currently, problems of energy supply and to use are not only related to global warming, but also to environmental concerns such as air pollution, acid precipitation, ozone depletion. Therefore, renewable energy development has become the major concern of many countries around the world to maintain the current electricity supply as well as to minimize environmental impacts caused by fossil fuels. According to the (IRENA, 2020), by 2025, renewable energy will become the main source of electricity generation, providing a third of the world's electricity.

Among the types of renewable energy nowadays, wind energy is emerging as one of the most potential energies, besides solar energy. Wind power is expected to play an important role in the energy future supply of the world. By 2020, around 180 GW of onshore and offshore wind was installed in the European Union, accounting for 15% of the EU's total electricity demand. Worldwide, wind power also provided a sizable amount of electricity - around 16% by 2020, according to data by the Global Wind Energy Council. In Vietnam, renewable energy development is a major concern. According to (EVN, 2021), by the end

of August 2020, Vietnam has about 102 solar power projects in operation with a total capacity of 6,314 MW, 11 wind power plants with a total capacity of 435 MW, as well as 325 MW capacity of biomass power plants. Overall, the proportion of renewable energy capacity accounts for about 11.6% of the total capacity of the power system.

Although the potential for renewable energy development in Vietnam is huge, the capital sources for renewable energy are still very modest. The actual survey shows that only 17/35 commercial banks participate in financing renewable energy. During the credit appraisal, banks have encountered lots of obstacles: The terms of loans usually last for 10-15 years, in which case, banks have to face several limits to these projects (Nguyen Quoc Viet, 2021). Moreover, the risks of capacity release as well as EVN's refusal to purchase electricity on PPA make it much more difficult for banks to appraise the projects' efficiency.

This situation shows that the understanding of factors that affect financial institutions in the process of capital allocation for renewable energy technology projects in general and wind energy projects, in particular, is still limited. The authors believe that, in addition to the rational assessment of investment opportunities, a number of non-financial factors also influence investor decisions, which can lead to very different resource allocation results when financial institutions decide to invest in wind energy projects. However, previous studies have only mentioned the highlights of the issues surrounding development potential and general policies to support wind power projects in Vietnam without going into deep understanding. carefully examine the financial and non-financial factors that influence investors in financing wind energy projects.

Determining the importance of factors affecting investment decisions in wind energy projects, the authors have selected: "Research about the factors affecting financing decisions of financial institutions on wind energy projects in Vietnam" as the topic of our research paper. The research team hopes that this paper provides an overview of the non-financial factors which affect the financing decisions on wind energy projects in Vietnam, thereby proposing solutions and strategic wind energy policies to develop energy system in the long run.

2. Literature Review

2.1. Current situation of financing wind power in Vietnam

Vietnam has witnessed a current trend in financing wind energy in 2021. In a report released by SSI Securities Corporation on the electricity sector, in 2020, energy enterprises will issue 35,700 billion VND of bonds, which is an increase of 274% compared to 2019 (EVN, 2021). Most recently, Vietnam Electrical Equipment Corporation (Gelex) decided to finance 5 wind power projects in Quang Tri, with the capacity of each plant being 30 MW. This might be due to the fact that the price mechanism of investment in wind and solar energy receives preferential treatment compared to coal and gas power, hence more bank credit can be accessed.

However, due to high financial leverage, lots of wind projects in Vietnam are under bad debt pressure. According to (Do et al., 2020), by the end of 2020, banks have poured VND 84,000 billion into renewable energy loans. Even though this figure is not too large compared to the total credit balance, the capital mobilized by credit institutions is usually short-term and at the cost of commercial capital in the market. Moreover, another risk is that the majority of

enterprises investing in renewable electricity today do not have strong financial capacity and experience. Besides, in 2021, EVN estimated to cut down on 1.3 billion KWh of renewable energy, and this increases the risk for banks and financial investors (EVN, 2021)

Currently, lots of banks and institutions have implemented green credit programs with green credit accounting for 3.6% of the total outstanding loan of the whole economy (Do et al., 2020), however, the credit from the programs to renewable energy projects in general is still small.

International financial institutions:

Japan International Cooperation Agency (JICA) has signed a loan agreement worth 25 million USD for an onshore wind power project in Quang Tri province with a total generating capacity of 144MW in 2021. This is JICA's first debt financing wind energy production project in Vietnam.

International Finance Corporation (IFC) and the Managed Co-Lending Portfolio Program (MCP) managed by IFC will provide a \$57 million funding package to Thuan Binh Wind Power Joint Stock Company (TBW) to build 2 wind power plant projects. This funding package is for the construction of onshore wind power plants - Phu Lac 2 in Binh Thuan province and Loi Hai 2 in Ninh Thuan province, with a total capacity of over 54MW. It is expected that the two wind power plants Phu Lac 2 and Loi Hai 2, which will start operating at the end of 2021, will produce about 170 million kWh of clean energy per year

Banks:

HSBC Bank Vietnam has just confirmed the agreement to provide short-term green credit in the field of general contractor for construction and installation of renewable energy projects for the Power Construction Joint Stock Company No. 1 (PCC1) - a leading Vietnamese company in energy construction general contractor (Ngo Hai, 2021).

Military Commercial Joint Stock Bank (MB) has arranged capital for lots of wind energy projects, with a total of more than 60,000 billion VND, helping investors to generate about 2,800 MW of renewable energy. Besides domestic projects, MB has arranged foreign capital for five wind energy projects in the form of a payment guarantee for the projects' loans from ECA. With strong financial potential, MB intends to continue arranging capital for 1,000 MW of wind power in 2021. At the same time, MB also arranged the deal for the purchase of bonds issued by a domestic credit institution to pay for construction and equipment costs to implement the Wind Power Plant project in Phong Lieu (Minh Trang, 2021).

Asian Development Bank (ADB) has signed a green loan worth 116 million USD with Lien Lap Wind Power Joint Stock Company, Phong Huy Wind Power Joint Stock Company, and Phong Nguyen Wind Power Joint Stock Company to build and operate 3 wind power farms with a total capacity of 144MW in Quang Tri Province, Vietnam (Nhat Minh, 2021). This project will increase Vietnam's wind power capacity by 30% and help Vietnam meet its rapidly increasing energy demand.

For wind power investment and development to unfold, specialized policies will be needed to promote capital inflows into wind power in a more efficient way, remove barriers, and take advantage of all the decision-making drivers to make investment decisions. However, up to now, in Vietnam, there have not been any in-depth studies that have been conducted to elucidate the factors affecting investment decisions in the field of wind energy. In addition to financial criteria, non-financial factors affecting the decision-making process of financing wind power projects are also an attractive topic and a useful source of reference for policy makers to provide solutions to promote investment capital for renewable energy in general and wind energy in particular.

2.2. The impact of factors on wind power financing decision

After researching a wide range of relevant documents and research about investing in wind energy projects, as well as conducting deep interviews with some experts in the industry, we had the elementary base to develop the model which illustrates the relationship between non-financial factors to investing decisions in wind energy projects in Vietnam. The model is presented in Figure 1. Through the model, we expect that the financing decision will be affected by 4 main non-financial factors: priori beliefs (PB), institutional influence from legal obligations (IO), institutional influence from normative sources (IN), and knowledge of wind power operational context (KC).

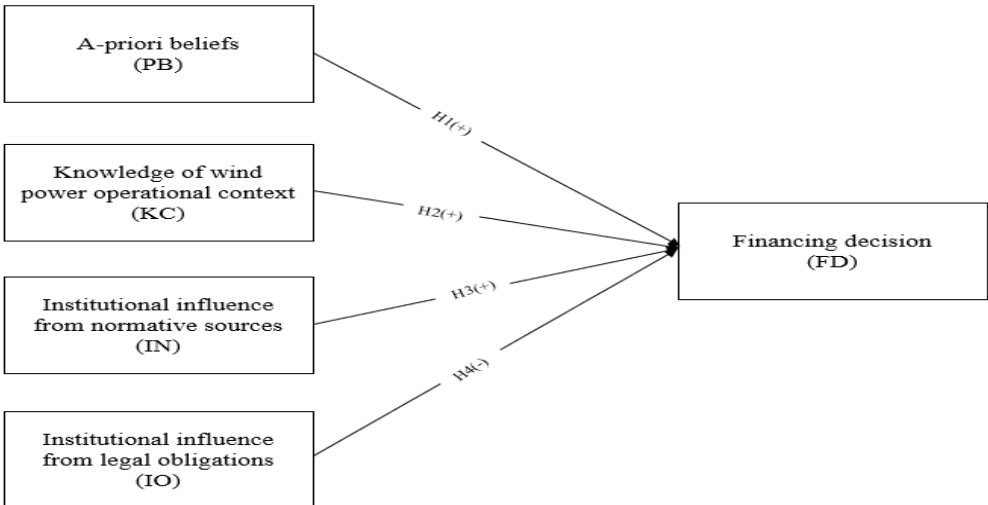


Figure 1. Conceptual model

Source: Authors, 2022

2.2.1. A Priori Beliefs

Institutional theorists and behavioral economists have long questioned the rational agent models of classical economics and proposed that cognitive and cultural factors, as well as personal beliefs influence personal decisions. (Daniel Kahneman, 2014) The research literature in the field of renewable energy has begun to examine the role of personal beliefs. Especially in the study of barriers to investment and widespread development of clean energy technologies in general and wind energy in particular. Scholars in this field have suggested that, in addition to the well-known "NIMBY" syndrome and purely technical and

economic factors, a variety of social and behavioral factors which influences human interactions with social and political institutions and possibly causes resistance to investment and adoption of renewable energy systems [(West et al., 2010),(Upreti, 2004)]. Previous studies have also documented how individuals use their priori beliefs to form opinions about investing in renewable energy, and use different sources of information to rationalize these views [(Woods, 2003), (Haggett & Toke, 2006), (Szarka, 2004)].

In line with the views from previous studies, the research team expects priori beliefs that an investor form from his/her personal history, educational background, and previous experience in either wind energy investment to have an influence on further financing and investment decisions. The research team examines whether investors' transcendental beliefs affect their trust in the technological feasibility of wind energy and the confidence in the effectiveness of current wind power policies.

First, the technological feasibility of a project has been identified as one of the most relevant barriers to the adoption of RE in general and wind power in particular. It is also regarded as one of the primary reasons leading to pitching sessions which introduced and interpreted the potential of projects (Hendry et al., 2010). The team predicts the potential attractiveness of a wind energy project and the positive outlook an investor holds depends on his/her priori belief in technical and efficiency completion of wind power technology - a basis for evaluating funding and investment opportunities.

Second, since the economic survival of most wind power projects often depends on incentive mechanisms, the research team expects the view and decisions of the investors to be affected by the level of their confidence in the effectiveness of policies as well as support programs encouraging promotion and investment in wind energy. Particularly, the uncertainty of public policies has been determined as a significant impediment to securing investment in wind energy in the private sector (Barradale, 2010). This has been proved by the decline in investment in clean energy projects, including wind power, due to alterations in regulations and policies in Denmark, Germany and the US.

To conclude, the overview of the priori belief factor has led the research team to assume that the belief in the effectiveness of wind power policy and technology exerts a positive effect on the willingness of investors to allocate capital for wind energy projects. Thereby, we proposed the following hypotheses:

H1: A priori belief in the effectiveness of wind power policy and technology has a positive impact on an organization's decision to finance wind energy projects.

2.2.2. Knowledge of Wind Energy Operational Context

According to (Masini & Menichetti, 2013), investment decisions are strongly influenced by the knowledge of the investors about renewables energy's operational context. At the same time, the study also shows that investors with greater knowledge of the renewable energy sector are more likely to go against the conventional wisdom and invest in risky renewable energy projects. In addition, other studies have concluded that the gap in technical knowledge has become a barrier for institutional investors to make financing decisions as well as for green energy projects to obtain bank loan approval [(Mustapa et al.,

2010); (Amran et al., 2020)]. Therefore, a greater knowledge of the projects' operational knowledge makes investors more likely to make financing decisions, and the proposed research hypothesis is as follows:

H2: Greater knowledge of wind power operational context has a positive impact on the investors' willingness to finance wind energy projects

2.2.3. Institutional Pressure from Normative Sources

Normative isomorphism is determined by the sources of information that investors use to make decisions. The effect of institutional isomorphism is even more significant in the context of incomplete information because when decision-makers lack the knowledge necessary to make objective judgments about investment or using complex technological options, they will consult experts and recognized authorities to reach their conclusions. Research by (Masini & Menichetti, 2012) indicates that agents or investors use two main sources of information to make their investment decisions: first, they consider the opinions of investors or external consultants, experts in the renewable energy industry; and second, they also use factual information derived from technical reports or from due diligence conducted by other organizations. Accordingly, the research team expects that the decision making to finance or invest in wind energy projects or the proportion of wind energy segments in the investment portfolio will be affected by the sensitivity of the investors with these sources of information. Therefore, we propose the following hypotheses:

H3: Institutional influence from normative sources has a positive impact on investment and financing decisions for wind energy projects.

2.2.4. Institutional Pressure from Legal Obligations

According to institutional theory, the coercive isomorphic is constituted by pressure from other organizations on which the stated institution is dependent and pressure from the cultural expectations of the society. Previous studies have highlighted the effect that coercion exerts on the organizations' behavior through regulatory control and financial regulations of central banks (Hoque & Hopper, 1994). Banks are required to operate in accordance with central bank regulations, such as privacy regulations and the Basel Accords. However, the updated Basel Accord III is likely to increase the cost of long-term financing, which will eventually affect the funding of capital-intensive renewable energy technologies such as wind power due to its reliance on long-term financing. In addition, the strict requirements of Basel III related to capital and liquidity could limit the number of banks' available sources of funds to finance renewable energy in the future. Moreover, the requirements of Basel III on the minimum capital adequacy ratio that banks must maintain are also the limitations to long-term capital sources to invest in capital-intensive projects such as wind energy. Based on the theory of coercive isomorphism as well as the theoretical overview of previous studies about the impact of regulations and institutional policies of the banking industry on the investors' willingness to make financing decisions, the proposed research hypothesis is as follows:

H4: Institutional influence from legal obligations has a negative impact on the investors' willingness to finance wind energy projects

3. Method

3.1. Sample Selection and Data Collection

The above hypotheses have been studied and tested by analyzing a sample of primary data. The study design consisted of a combination of qualitative and quantitative methods and was divided into two phases. In the first phase, the research team conducts document analysis and interviews with experts along with fine-tuning the conceptual model and ensuring the validity of the content for different structures in the model. In the second phase, a web-based survey questionnaire was developed, pre-tested and presented to a sample of institutional investors in Vietnam.

As the first step in the data collection process, the research team put together a list of the target institutional investors that the team will survey. Contact details for companies, organizations and their senior representatives are obtained from a variety of sources including institutional websites, government websites and other different specialized directories. Additional resources include a list of participants in some of the most prestigious international conferences on sustainable energy finance, such as the Wind Energy Investors Conference, the renewable energy financial forum and the New Energy Finance Summit. Overall, the list includes about 211 contacts in investment institutions and financial institutions operating in Vietnam. Investor profiles include venture capitalists, private equity funds, mixed funds, commercial banks, energy companies and associations of foreign institutional investors operating in Vietnam. In total, we received 200 responses, 11 of which had to be removed because they were unreliable or incomplete. The resulting 200 questionnaires were ultimately retained for analysis consistent with studies of this nature.

The investment organization survey process was conducted by the team from December 2021 to February 2022. Before conducting the survey, the research team had the opportunity to do in-depth interviews with several senior representatives of the investment organizations to understand more about their decision to finance wind power projects and confirm the appropriateness of the research model and scales. Investors selected for the full survey received individual invitations via email, reminders were sent at regular intervals, and the survey was also sent to the EuroCham association (European Chamber of Commerce) in Vietnam for a survey. The research team guarantees that the information collected will be kept completely confidential and we promise to share the final results of the research with the institutions that invested in the research team.

3.2. Verification Process

The raw processed data will be processed in SPSS 20.0 software. Descriptive statistical methods are used to analyze frequency statistics and describe the characteristics of the sample, including: type of investment organization, wind power investment experience and proportion of wind power investment in the organization's portfolio. Data of the remaining variables of the study are analyzed through the following steps: scale reliability test (Cronbach's Alpha), exploratory factor analysis (EFA), evaluate the scale by Confirmatory Factor Analysis (CFA), test the model and the research hypotheses using structural equation model (SEM) and test the reliability of the model using Bootstrap technique.

4. Results

4.1. Sample descriptive

The team has conducted a survey of senior leaders of financial institutions joining wind energy financing projects in Vietnam, along with international experts of economic and trade organizations in Europe, who is working in Vietnam. The survey recorded 211 responses, 11 of which were rejected due to dissatisfaction with the quality of the answers. The number of verified samples inserted into the analysis was 200.

Statistics show that all respondents have engaged in investing in wind energy. In particular, the majority of officers and specialists responding are working at Banks with 138 votes (accounting for 69%), 5 times higher than the number of people working in private enterprises (15.5%) and group of venture capital funds, private, or hybrid (12.5%). This shows that banks seem to take much interest in the wind energy market in Vietnam, and the results of the factors affecting wind power financing decisions will be highly affected by the Banking team.

Regarding investment experience, the number of investors with less than 5 years of experience accounts for the largest number with 74 people, followed by those with 5-10 years of experience (69 people) and over 10 years of experience respectively (57 people). The disparity in experience can be understandable, as the wind power industry in Vietnam used to be quite young, facing many obstacles; however, today it is on the way to growing and displaying a strong potential market. As for the share of wind energy investment, 43.5% of financial institutions tend to spend 5% - 9% in wind energy portfolios, nearly double the figure for enterprises which invest less than 5% and from 10% - 49%.

4.2. Evaluate The Scale By Cronbach's Alpha Confidence Coefficient

Table 1 shows the Cronbach's Alpha analysis results in which all the Cronbach's Alpha coefficients are greater than 0.6 so that the scale used in the research is well evaluated. The corrected item-total correlation is checked to eliminate variables with unsatisfactory correlation coefficients. In addition, the results show that all variables have correlation coefficients greater than 0.3. Therefore, the authors conclude that the scale can be evaluated and suitable for further analysis and evaluation.

Table 1. Results of scale's Reliability

Factors	Items	Cronbach's Alpha	Minimum value of corrected Item-Total correlation
A priori beliefs	4	0.848	0.775
Knowledge of wind energy's operational context	4	0.857	0.799
Institutional influence of legal obligation	3	0.868	0.792
Institutional influence of normative sources	3	0.899	0.814
Wind energy financing decision	3	0.817	0.700

Source: Investigated by authors in 2022

4.3. Explore Factor Analysis EFA

Table 2. KMO and Bartlett's test results

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.870
Bartlett's Test of Sphericity	Approx. Chi-Square	1983.159
	df	136
	Sig.	0.000

Source: Investigated by authors in 2022

From the table 2, the KMO coefficient = 0.870 > 0.5 was satisfactory and showed that the sample size of the study was appropriate for factor analysis. Sig coefficient of Bartlett's Test = 0.000 < 0.05, we can conclude that the observed variables are correlated with each other in the population and it is satisfactory and statistically significant. The obtained values of the extraction sums of squared loadings as well as those of the initial eigenvalues were larger than one. The cumulative value of the extraction sums of squared loadings for five components was 75.566% which satisfies the requirement of greater than 50%. In addition, all the variables used have the values of factor loadings greater than 0.5, indicating a practical significance.

4.4. Evaluate The Scale By Confirmatory Factor Analysis (CFA)

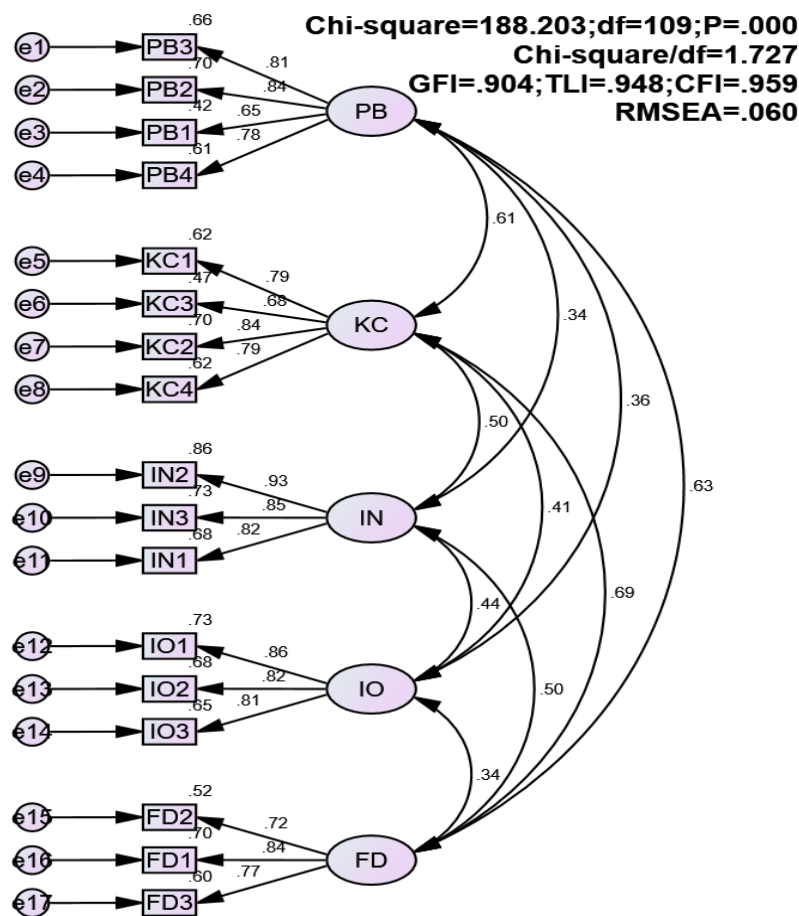


Figure 2. Confirmatory factor analysis (CFA) results – Normalized form

Source: Investigated by authors in 2022

After performing the confirmatory factor analysis (CFA) in AMOS, the results extracted are as followed: χ^2 (Chi-square) = 188.203; df = 109; p = 0.000; $1 < \text{CMIN}/df = 1.727 < 3$, indicating an acceptable fit between sample data and hypothetical model (Kline, 1998); CFI = 0.959 > 0.9, GFI=0.904 (>0.9) và RMSEA = 0.060 < 0.08. The Model Fit test showed that the statistical model fits well with the set of observations.

Moreover, constructing Convergent Validity, Discriminant Validity, and Reliability tests in CFA is also an important step. If the scales did not meet the requirements, certain deviations from the analysis results would be foreseeable, and the estimates obtained would not be statistically significant as well as would not represent the real situations. According to Table 4, the Composite Reliability (CR)>0.7, proving the reliability of the scale; Average Variance Extracted (AVE)>0.5, meaning the convergent validity of the construct is adequate; MSV are smaller than AVE and SQRTAVE values are greater than Inter-Construct Correlations, which shows that the discriminant validity of the construct is adequate.

Table 3. Model Validity test results

	CR	AVE	MSV	MaxR(H)	SQRTAVE	PB	KC	IN	IO	FD
PB	0.855	0.597	0.399	0.867	0.773	0.773				
KC	0.858	0.603	0.471	0.867	0.777	0.615***	0.777			
IN	0.902	0.754	0.253	0.915	0.868	0.345***	0.503***	0.868		
IO	0.869	0.689	0.194	0.871	0.83	0.363***	0.410***	0.440***	0.830	
FD	0.822	0.607	0.471	0.832	0.779	0.632***	0.686***	0.499***	0.340***	0.779

Source: Investigated by authors in 2022

4.5. Test The Model And The Research Hypotheses

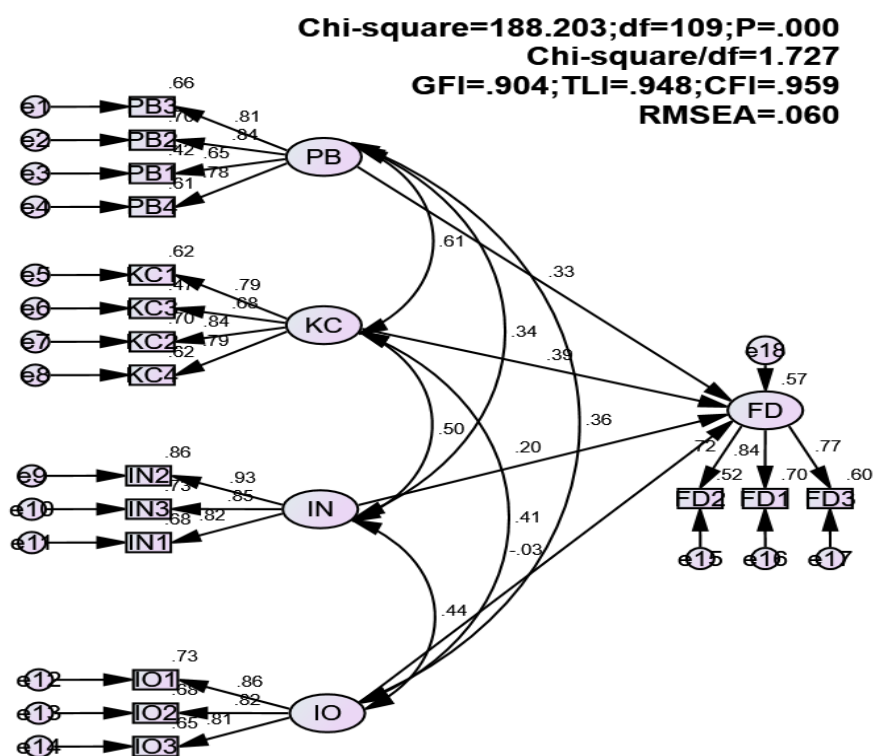


Figure 3. Structural Model Analysis (SEM) – Normalized Form

Source: Investigated by authors in 2022

The numbers are used to evaluate the value of model is presented: $\chi^2 = 188.203$; $df = 109$; $p = 0,000$; $CMIN/df = 1,727$ (between 1 and 3) (Seiler et al., 2010); $CFI = 0.959 > 0.9$, $GFI=0.904 (>0.9)$ and $RMSEA = 0.060 < 0.08$. Therefore, the model is suitable and qualified to use SEM analysis. Moreover, with the data set collected from the survey on financing decisions for wind power of investment organizations in Vietnam and the factors affecting the decision, the research model is expected to be built from the overview and appropriate theoretical basis and the relationship between the scales ensure statistical significance.

Table 4. Results of the structural equation modeling (SEM) analysis

Impact relationship			Standardized weight	Unstandardized weight	P-value	Hypothesis	Status
FD	←	PB	0.332	0.399	***	H1	accept
FD	←	KC	0.394	0.386	***	H2	accept
FD	←	IN	0.199	0.220	0.011	H3	accept
FD	←	IO	-0.03	-0.320	0.692	H4	reject

Source: Investigated by authors in 2022

After conducting analysis all the hypothesis H1, H2, H3, H4 by the Structural Equation Modeling, we make these following conclusions:

A priori belief in the effectiveness of the current policy to support wind power development and belief in the efficiency of wind energy technology has a positive impact on the financing decision of the organization with the coefficient $\beta = 0.399$ and $p\text{-value} < 0.01$, so hypothesis H1 is supported. The research results of the group in the Vietnam market are similar to the research results of (Masini & Menichetti, 2012), (Amran et al., 2020). The research results presented by the team imply that institutional investors in Vietnam are more willing to make investment decisions and pour capital into wind energy projects when they have strong confidence and beliefs on the effectiveness of current wind power development support mechanisms and policies as well as confidence in the economic viability of wind power projects.

Knowledge of the operating context of wind power projects has a positive impact on financing and investment decisions of organizations with the coefficient $\beta = 0.386$ and $p\text{-value} < 0.01$, so hypothesis H2 is supported. Knowledge of the operating context of a wind power project is the factor that has the strongest impact on an organization's financing decision with the largest standardized impact weight of 0.394.

Normative institutional pressure has a positive impact on the organization's decision to finance wind power projects with the coefficient $\beta = 0.220$ and $p\text{-value} < 0.05$, so the hypothesis H3 is accepted. This result implies that with the source of information, the normative knowledge about knowledge in specialized projects such as wind power projects plus the support from technical reports will help banks, investment organizations and

individuals investors have multiple sources of information to evaluate projects and make funding decisions by reduce the risks of investing in projects as well as storing information to improve their knowledge of project appraisal. Wind power projects serve as a premise for the organization's future investment and financing of renewable energy projects. This facility is completely in line with the practice in the Vietnamese market. When the renewable energy industry is still a young market, investment institutions and financial institutions such as banks do not have much experience and knowledge in lending to green energy projects such as solar power or wind power, along with apprehension about the risks that these projects bring, organizations are still very restrained in funding wind power projects. Therefore, good quality reference information from consultants or technical reports will be a quality reference source to support investment organizations in making financing decisions for wind energy projects.

Coercive institutional pressure has a negative impact on the organization's capital financing decision with the coefficient $\beta = -0.032$ and p-value >0.05 , so hypothesis H4 is not statistically significant and hypothesis research is not accepted.

4.6. Test the reliability of the estimates

Table 5. Bootstrap results

Parameter	SE	SE-SE	Mean	Bias	SE-bias	CR	
FD ← PB	.117	.004	.340	.009	.005	1.8	
FD ← KC	.110	.003	.394	.000	.005	0	
FD ← IN	.092	.003	.193	-.006	.004	-1.5	
FD ← IO	.080	.003	-.045	-.015	.004	-3.75	

Source: Investigated by authors in 2022

From the Bootstrap test results, the study team calculated the critical value Critical Rate for Standard Errors of Bias. The combined results of the research team are seen for CR as the only number of estimates of the impact relationship between trust, operational prior knowledge, and normative application for project financing decisions. All wind projects are less than 1.96. Therefore, we can reject the null hypothesis that zero bias means that statistics and conclusions are quantified in the model with 3 variables namely a priori belief, knowledge of operating context and standard pressure that can be trusted.

5. Discussion and Conclusion

Currently, although Vietnam has a favorable natural potential for wind energy, the investors are still hesitant to finance this energy sector due to concerns about the efficiency of the wind power system. policy, land use, grid connection, and access to new technology. At the same time, the investors' low levels of knowledge about the technique and operation of the energy systems have become a barrier to the development of wind power in Vietnam. From the aforementioned research results, the authors would like to recommend several possible solutions for Vietnamese financial institutions as follows:

First, in order to attract capital inflows to wind power, Vietnam needs to ensure stable and complete policy schemes as well as up-to-date research and development technology. The Vietnamese government needs to focus on promoting the process of socializing the development of the transmission grid, encouraging businesses to actively mobilize capital to invest in the development of the transmission grid. This solution will help accelerate investment in the transmission network infrastructure in coastal areas, creating favorable conditions for the development of offshore wind power projects.

Second, the government and ministries should focus on building, developing and completing a complete policy framework for offshore wind power development, which is the foundation for achieving the goal of reaching net zero emissions by 2050, requires careful preparation in terms of the policy framework, including including support mechanisms, licensing procedures, as well as power purchase and sale contracts in accordance with international standards. In the case of wind power projects that are not eligible for the preferential FIT price mechanism, there may be other support mechanisms such as fixed price support for the first GW of wind power of the project. Besides, the The government level also needs to focus on the process of developing Power Master Plan VII, because this is one of the wind power policies that investors in the industry are particularly interested in.

Third, in order to ensure that the development of wind energy projects meets the standards, units (not only officials operating in the field of wind power but also public agencies) need to be trained and improve expertise in the field of wind power, especially knowledge of environmental impacts, impacts on the power grid, safety and security requirements and other requirements. Improving wind energy expertise and knowledge is crucial for investors to make financing policy decisions.

Moreover, improving knowledge of the operating context should also apply to with people in the area. Proposals for renewable energy projects are often opposed by people and some social organizations. Public outcry occurs for a number of reasons, such as environmental degradation, landscape impact, and lack of interest in consultation among local communities. Thus, in order to encourage the development of renewable energy projects, the government in general and localities in particular need to solve the problems in the hearts of the people and overcome the above situation by the public's support. conducive to the implementation of renewable energy policies.

Finally, data for wind power development research in different regions need to be supplemented. The thorough assessment of renewable energy potential fluctuates greatly due to the lack of reliable data, in addition to the new technology in the renewable energy segment, complex techniques and domestic contractors. Not having much experience in construction and installation of wind turbines on the sea makes many investors afraid of making decisions to finance these projects.

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DETERMINANTS OF WILLINGNESS TO PAY FOR IMPROVING SERVICES OF MUNICIPAL SOLID WASTE COLLECTION AND TRANSPORTATION: THE CASE OF THANH HOA CITY

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Abstract

Thanh Hoa is one of many cities in Vietnam, which has to face many difficulties of solid waste management due to a shortage of human resources, equipment and especially financial problems. In order to overcome these challenges, it is essential to assess households' willingness to pay for improvement of solid waste management services. By using Contingent Valuation Method, the survey results of 325 households in the city estimate the WTP of households to be 13,464 VND /person/ month. The regression model reveals that gender, age, education level, household size, household spending and level of satisfaction are factors influencing their WTP. This can be considered as an important information for Thanh Hoa authority to mobilize the participation and financial contribution from the community. This also set up a bridge to design a feasible service charge for solid waste collection and transportation which is suitable with community's payment.

Keywords: *Municipal Solid Waste, Municipal Solid Waste Management, Solid Waste, Willingness to Pay.*

1. Introduction

Solid waste is an inevitable consequence of production and consumption in the economy. In Vietnam, solid waste (SW) is increasing rapidly in both volume generated and hazardous perspectives. According to the Ministry of Natural Resources and Environment (2020), quantity of SW in 2019 reached 64,658 tons/day, higher than 46% as compared this of 2010. Meanwhile, the annual average rate of SW collection in 2019 was 87% and 66% in urban and rural area, respectively. There are 1,322 solid waste treatment facilities, including 904 landfills, 381 incinerators and 37 composting processing lines. The main form of treatment for SW in Vietnam is still landfilling (accounting for 71% of the collection quantity), of which only about 20% of facilities are hygienic. The remaining SW, which is not collected, is either improperly disposed of into open dumpsites or illegally thrown to the city's roads, rivers and lakes, causing negative impacts on environment and community's health.

Like many other cities, Thanh Hoa city is facing the problem of SW management due to strong economic growth and urbanization. Currently, the municipal solid waste

(MSW) management system in Thanh Hoa city is currently implemented in 30 wards and 4 communes. According to Thanh Hoa City People's Committee (2017), it is forecast that the quantity of SW generated in urban areas will be 754,000 kg/day in 2030, higher than 71.36% as compared to 2020. Under pressure of managing a large volume of SW, the MSW system in Thanh Hoa has many difficulties due to limitation of equipment, human resources and especially financial resources. The lack of financial resources significantly reduces the scope and quality of MSW service delivery.

In 2019, the People's Committee of Thanh Hoa City issued the 'Regulation on the maximum price for the service of collection, transportation and treatment of domestic solid waste funded by the state budget in Thanh Hoa province'. This is a bridge to calculate correctly and fully the full cost of SW collection and transportation into the price for service users to pay in the future. However, whether this policy is feasible and accepted by the people is still an open question. Therefore, estimating and defining factors influencing Willingness To Pay (WTP) of households for the improvement of MSW services are essential to mobilize financial contribution from the community and provide input data for the Thanh Hoa authorities to design price of SW service in coming time.

This paper includes 3 purposes. Firstly, identifying the factors affecting the household WTP level for improvement of MSW services. Secondly, estimating the household's WTP. Thirdly, based on the analysis results, some policy implications are proposed to encourage the participation and financial sharing of the community for MSW management in Thanh Hoa City.

2. Method

2.1. Primary Data collection

In the research, quantitative information was collected through the survey using pre-designed questionnaires. The questionnaires were developed to collect quantitative information at the household level. The survey was conducted from September to October in 2021.

Subjects of information: To collect information, the subjects providing information include:

- (i) Households who use the MSW services of collecting and transporting in the Thanh Hoa city
- (ii) Representative of People's Committee of Thanh Hoa City

Sample Scale: Due to the situation of Covid 19 pandemic, the household survey was implemented by online form. After conducting the survey, some of the receipts were removed. There are 337 survey participants, of which 12 were misinterpreted. After filtering out the questionnaires, the valid votes were 325. The reliability of the questionnaires was acceptable as sampling procedures were in accordance with statistical principles. The questionnaire design and conduct of the survey attempt to ensure that the questionnaires are designed appropriately, that the respondents understand the questions. Based on the principles of statistics, results of the survey in Thanh Hoa can provide a certain level of confidence.

2.2. Research Method

Contingent Valuation Method (CVM) is used to quantify household WTP levels for positive changes in solid waste collection and transportation services in the study area. This is a commonly used technique to determine the non-use value of resources and the environment with the following process (Bolt et al., 2005).

(i) Focus group discussions - FDGs

To build a questionnaire suitable for research, two group discussions were conducted. The first discussion (1) was conducted with representatives of city authorities to understand the current status and propose some recommendations for improving the performance of the MSW system. The second discussion (2) was conducted with 12 people to assess the quality and expectations of improving SW collection and transportation services. In addition, the household was also asked if they were willing to pay a sum of money for the improvement of MSW services. Individuals who answer 'Yes' will be asked about the WTP/person/month. To determine the number of payment levels and the gap between reasonable levels, Open-ended questions were used to ask households about the 'highest willingness to pay for improvement of SW collection and transportation services'. After group discussion with 12 people, 7 levels of WTP were determined: VND 3,000, VND 5,000; VND 7000, VND 9,000, VND 11,000; VND 13,000 and VND 15,000. These WTP levels are edited and designed as payment cards in the questionnaires.

(ii) Pre-test

In order to improve the questionnaires and the range of WTP, the author conducted a trial survey of 22 households. Among the WTP levels obtained from in-depth interviews, 4 more levels were selected, bringing the total selected payment level to 12 levels. On that basis, the willingness to pay range is designed in the payment card in ascending order with the lowest payment being VND 1,000 and the highest being over 25,000 VND/person/month; the distance between the payment levels is 2,000 VND

(iii) Survey content

The household questionnaire was designed according to the guidelines of Mitchell & Carson (1989) with 3 groups of information. (i) Firstly, the general household information group, including information on age, sex, education, occupation, and income. (ii) Secondly, questionnaires on MSW behaviour at household level and assessment of MSW service quality. (iii) Thirdly, questionnaires on the selection of the household's WTP level. A scenario for improving MSW services was introduced to the people based on the results obtained from in-depth interviews. This scenario presents the main outline of the current status and the need to improve the quality of MSW services. After the scenario is presented, people will be asked if they are willing to pay a sum of money to improve service quality. WTP level is selected at random within the willingness to pay range of the payment card.

(iv) Models and factors influencing WTP

To analyze the influence of some key factors to WTP households performing SW collection services, manage and handle, regression function is used used for evaluation. WTP

is a dependent variable with independent variables, including: Gender, Age, Education level, Household size, Household spend and and Level of satisfaction with the segment of SW collection and transportation. The model is presented as follows:

$$WTP = C + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6$$

Where:

X₁: Gender (Equal to 1 if female, equal to 0 if male)

X₂: Age (Average of age ranges included)

X₃: Education Level (Dummy variable: Under Secondary school: 0, High school: 1, College and University: 2, Post university: 3)

X₄: Household Size (Number of people in the household,)

X₅: Household Spending

X₆: Level of satisfaction with the segment of MSW collection and transportation (Dummy variable: Very dissatisfied: 0; Dissatisfied: 1; Medium: 2; Satisfied: 3; Very satisfied: 4)

C: Intercept coefficient of the regression model

B₁, B₂, B₃, B₄, B₅, B₆: Corresponding coefficients of the variables

3. Results

3.1. Socioeconomic profile of respondents

Among 337 survey participants, 325 votes were valid. The number of men participating in the survey is 119 people, accounting for 36.6%, and women are 206 people (accounting for 63.4%). The age variation in 325 valid questionnaires is from 18 to 60 years old, the average age of the research survey is 35 years old, the most common age is from 30 to 40 years old. It can be said that most of the interviewees are family heads who have certain financial independence. The highest percentage of education is high school, accounting for 54.3% of the respondents. The percentage of college and university is about 21.5%, and the rest accounts for 14.9%. Among the 325 households surveyed, it can be seen that size of households are quite different, ranging from the size of a nuclear family to a large family with many generations. Specifically, the most common is the family with a size of 3-5 people (accounting for 79.1%), the largest is 5-8 members (accounting for 11.7%). The socio-economic characteristics of respondents are presented in the following table

Table 1. Statistical Description of variables

Variable	Age	Gender	Education level	Household size
Mean	35,09	0,82	1,94	4,11
Variance	100,96	0,15	0,18	1,45
Median value	35	1	2	4
Mod	35	1	2	4
Standard deviation	10,05	0,39	0,43	1,20
Min	23,5	0	0	1,5
Max	65,5	1	3	9,5
Observation	325	325	325	325

Source: Calculated from the survey by author

3.2. Willingness to pay of households for improved MSW collection and transportation

To find out the willingness to pay of households for the segment of MSW collection and transportation, A hypothetical scenario is designed. That is “If the SW collection and transportation services can be improved as noted in Box 1, how much are you willing to pay per month for these?”. There are 325 people participating their willingness to pay for this service. The survey shows that this answer depends on the needs, desires of the household. There are people who are not satisfied with the current service but still accept to pay a higher price with the desire to ensure a change in service quality, and there are households who are satisfied with the service provided. and at the same time do not want to pay more to upgrade the current service.

Box 1. Scenario for upgrading solid waste collection and transportation service

- **SW Collection service:**
 - Collection location
 - + Traditional household collection
 - + There are more places to put large cans so that people can put their trash if they miss the collection time.
 - Increasing the frequency of SW collection to 3 times per day
- **SW Transportation service:**
 - In each residential area, build a reasonable temporary garbage collection place, avoiding causing odors to residential areas.
 - Frequency of transportation from temporary gathering area to treatment area in all wards and communes: 2 times/day on average.
- **Public sanitation:**
 - Provide more trash cans in public places.
 - Maintain sanitation of village/commune roads throughout the day.

Source: Compiled from the survey by author

Among 325 valid interviewees, 265 people agree that they are willing to pay more than 11,000 VND/person/month to improve the quality of solid waste collection and transportation services. Therefore, for households who do not agree to pay a price higher than 11,000, the statistical value for the remaining cases will be the price of 11,000 VND. The author has synthesized the willingness to pay of interviewees through the Descriptive Statistic tool in Excel to describe the WTP level.

Table 2. Descriptive statistics of WTP of respondents

WTP Value	
Mean	13.464,61
Variance	4.558.157,64
Median value	13.000
Mod	13.000
Standard deviation	2134,98
Min	11.000
Max	20.000
Observation	325

Source: Calculated from the survey by author

The highest WTP is 25,000 VND/person/month, the lowest is 0 VND/person/month. The maximum payout is 13,000 VND as shown by the mode value = 13,000 in Table 2. To calculate the WTP of the respondents, the random evaluation method is performed by choosing to use the mean WTP value of the research sample. This value is random and depends on the research object, time and location of the study, but the results are different.

The average WTP in Thanh Hoa city 13,464.61, equivalent to VND 55,000/ household/ month. With the number of households in this city, financial sources can be mobilized from the community. This can be seen as a potential source of funding from the community to share limited government budgets, solving financial difficulties in the MSWM model and improving the quality of SWM services.

3.3. Factors detemining households' Willingness to pay

The study identifies the coefficients for the regression model as follows

Table 3. Results of willingness to pay model estimation

Variables	Unnormalized coefficient	Unnormalized coefficient	P-value	VIF
C	11696.942		0.000	
X₁ (Gender)	449.367	0.811	0.028	1.113
X₂ (Age)	9.334	0.914	0.074	1.007
X₃ (Education)	157.571	0.310	0.054	1.046
X₄ (Household Size)	187.464	-0.106	0.053	1.156
X₅ (Household Spending)	0.000	0.314	0.000	1.282
X₆ (Level of satisfaction)	548.244	0.251	0.000	1,024
R₂	0.188	Hệ số Durbin - Watson		2.040
R₂ hiệu chỉnh	0.172	P-value		0.000

Source: Calculated from the survey by author

So, the model is described in the form of a normalized regression equation as follows:

$$WTP = 0.81X_1 + 0.91X_2 + 0.31X_3 - 0.106X_4 + 0.2X_5 + 0.251X_6$$

In the above model, we see that $R^2 = 0.172$ that is, from the survey data, it can be seen that the independent variables in the model explaining the change of the dependent variable (willingness to pay) are 17.2% for the model. Durbin - Watson coefficient = 2.040 fill in the range of 1.5-2.5, so there is no first order series autocorrelation. Therefore, the sequence of numbers has no delay, the independent variables do not depend on the period of time. Sig. F = 0.000 < 0.05 test, then this linear regression model fits the data set and can be used. Sig. The t-test (P-value) of the coefficients of regression of the independent variables is quite different. There are 5 variables, including Gender, Age, Education level, Household spending and Satisfaction level are positively related to WTP; meanwhile only household size variables is inversely proportional to WTP.

For the Gender variable, P-Value = 0.028 < 0.1, which means that the gender variable is positive related to WTP. In other words, the women are more likely to accept

higher payment than men (coefficient of 0.811 is statistically significant). According to Ezebilo (2013), this is also consistent with the traditions of developing countries where women often take responsibility for the care of household waste. Therefore, they are expected to be able to pay higher for improving the MSW services.

With the Age variable, P-Value = $0.05 < 0.074 < 0.1$, which means that the Age variable has a relative relationship with WTP. The estimating coefficient of Age variables with positive sign indicates that people of older age have better awareness of environmental protection.

With the variable of Education Level, P-Value = $0.054 < 0.1$, which means that this variable is closely related to WTP. This result is consistent with Zerbock's result (2003). His research pointed out that people with higher levels of education are probably willing to spend more for improving SWM services because they understand the benefits and importance of SWM system for the environment and their health.

With the variable Family Size, P-Value = $0.05 < 0.053 < 0.1$. The coefficient of the variable is negative, implying that when households' size is large (consist of many people), their WTP tends to decrease. Householders believe that WTP may add the burden on family spending. Therefore, the increase of household population will reduce WTP. This result is supported by the study of Nkansah E. (2015).

With the Household Expenditure variable, P-Value = $0.00 < 0.01$, which means that the expenditure variable is closely related to WTP. The level of expenditure per household in the month affects the WTP. Households with high spending levels are often willing to pay a higher price for SW collection and transportation (WTP). $\beta_5=0.314$ can be understood that if the spending level increases by 1 unit, the WTP will increase by 0.314 units. When income or expenditure increases, people's needs for the quality of the living environment are also higher than those with lower income.

For the Satisfaction level variable, P-Value = $0.00 < 0.01$, which means that this variable is closely related to WTP. The higher the satisfaction level of the interviewee, the higher the willingness to pay. This explains why households feel satisfied and tend to want better services. $\beta_6 = 0.251$ can be understood that if the spending level increases by 1 unit, the WTP increases by 0.251 units.

The VIF coefficients of the independent variables are all smaller than 2, so there is no multicollinearity phenomenon. That is, the independent variables in this regression function do not depend on each other.

In summary, for the dependent variable which is the WTP for improved SW collection and transportation services, there are 6 influencing factors which are Gender, Age, Education Level, Household Size, Spending and Satisfaction Level. In fact, these six independent variables also affect WTP. When the size of the household is large, it also means that the expenditure level of the household increases, while there are many households with small children and the elderly who are not yet of working age and are not old enough to work, partly affect the willingness to pay of the interviewees. In terms of monthly expenditure, when households spend more for daily living needs, the amount of waste increases, when people's living standards are improved, the needs of households are also

increasingly diverse and complex. At that time, households tend to want to pay more for SW collection and transportation services and at the same time, the demand for service quality is also improved. The last variable is about Satisfaction, it can be said that when the satisfaction level of households increases, the ability to want to pay for this service also increases. The regression results of this study have similarities with the results of previous studies. Therefore, it is increasing confidence about the relationship between the independent variables and the WTP variable.

4. Conclusion

The MSW system in Thanh Hoa city is facing many challenges due to limited financial resources, human capacity and equipment. The lack of these resources significantly reduces the quality and scale of MSW service delivery, creating potential risks that negatively affect the environment and public health.

Also, from the household's point of view, many outstanding problems in the quality of SW collection and transportation services have been noted. The difference in service quality between regions is a clear demonstration of the city government's limited capacity to provide environmental goods and services. That shows that the participation and sharing of the community is absolutely necessary to reduce the burden on the public sector.

The results of research and calculation of WTP levels of 325 households in Thanh Hoa show that the average WTP level is 13,464 VND/person/month in research sample. It can be seen that the WTP level of the household is higher than the current price of collection and transportation services. This is a good basis for the Government and the People's Committee of Thanh Hoa City to develop a roadmap to increase the price of collection and transportation services to suit their ability to pay and the desire to improve service quality. community service when the quality of life is increasingly improved.

The regression model identifies a number of factors that positively affect the WTP level of the household, such as: gender, age, education level, household spending and satisfaction level. That shows that in order to mobilize the participation and financial contribution from the community, it is necessary to combine and support many factors. Improving income, developing education, raising awareness for the community, especially diversifying content, forms and objects of propaganda are important platforms to encourage sharing from the community, open up a new direction, in line with the current trend of socialization and empowerment

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APPLICATION OF FISHING MANAGEMENT SYSTEM, METHODS: CHINA'S EXPERIENCE AND LESSONS FOR VIETNAM

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Abstract

China is the leading country in terms of seafood export value, and at the same time ranks number one in the world in terms of fishery output caught at sea. Like Vietnam and many other countries, China's fishery resources are facing the pressure of declining stocks due to overfishing. Therefore, the article studies the system and measures of Chinese fishing management, thereby drawing necessary lessons for Vietnam's seafood industry in the coming time.

Keywords: *China's experience, fishing management system, fishing management methods.*

1. Introduction

China is the number one country in the world in terms of seafood export value (with nearly 20 billion USD). At the same time, China also leads the world in fishing output at sea. In 2013, China's fishing fleets harvested nearly 14 million tons, nearly three times the catch of the next largest fishing nation, Indonesia. Due to the pressure on fishery production leading to prolonged overfishing along with marine environmental pollution, it has severely reduced marine fishery resources and reduced the health of marine and coastal ecosystems in China. More and more waters of China appear the phenomenon of "rare fish in the sea". For example, the fishing grounds in the Zhushan Islands, covering an area of 220,000 square kilometers, were once so productive that the area was known as the home of China's fishing, the region's large yellow croaker catch, which reached 170,000 tons in 1957, fell to just 400 tons in 2015, a decrease of more than 99%. The trend of declines in catches for other Chinese fishery species is similar, especially for the highest value species, although the loss has been offset by increased catches of these low-value and more abundant species. Facing the problem of decreasing fishery resources, and facing economic and social pressure, the Chinese government has applied many drastic management measures.

Vietnam possesses many natural advantages to develop the fisheries economy. Taking advantage of available advantages, the fishery industry has made significant contributions to Vietnam's economy, especially promoting exports, creating jobs, improving livelihoods for fishing communities, contributing to ensuring food security, and protecting

the country's sovereignty over the sea and islands. However, due to overexploitation and eradication, the aquatic resources in Vietnam have been and continue to be in serious decline. According to "Report on survey results on marine seafood resources of Vietnam for the period 2011-2015" published by the Institute of Fisheries Research in 2018, a comparison of marine fishery reserves in the period 2011-2015 and the period 2000-2005 shows that reserves of major groups of marine resources are lower than 13.9% (equivalent to about 710 thousand tons) the reserve of small pelagic fish group decreased by 3.2%; bottom seafood group decreased 41.7%; group of large pelagic fish decreased by 10.2% (Institute of Fisheries Research, 2018).

Thus, like in China, aquatic resources in Vietnam's sea are being seriously reduced. Therefore, studying China's experiences in the application of marine fisheries management systems will help Vietnam gain practical reference lessons.

2. Method

The methods used in this study includes researching, summarizing and analyzing secondary data. The researched data is from Vietnamese and foreign studies from 2011 to 2021. Some of the foreign research is in Chinese.

3. Results

3.1. Economic and social challenges in fisheries management in China

Fisheries are an important economic engine of China. In 2016, the total value of China's fisheries industry was 2.366 trillion yuan, of which the fishery output value was 1.2 trillion yuan, and the output value of the industry and Construction, circulation, and related services are about 1.16 trillion yuan. In terms of the global market, China is the leading country in the world in terms of seafood export value (ranked first with nearly 20 billion USD). China leads the world in marine fisheries production. In 2013, China's fishing fleets harvested nearly 14 million tons, nearly three times the catch of the next largest fishing nation, Indonesia. Thus, if the restriction of fishing is to protect natural marine aquatic resources, it is imperative for China to promote aquaculture to ensure maintain the number one position in the world market for aquatic products. However, the promotion of aquaculture has not received much support from seafood consumers because the majority of consumers still prefer wild-caught seafood over farmed seafood. Therefore, increasing the application of fisheries management measures is really a big economic challenge for China.

In addition to the economic challenge, fisheries management in China also faces a social challenge from the requirement of changing livelihoods for the fishing community. This is considered an important social issue that needs to be resolved to realize the goal of sustainable management of aquatic resources in China. According to statistics, China had 9.4 million fishermen engaged in fishing activities and 5 million aquaculture farmers in 2016 (FAO, 2018). In theory, the solution to restoring and stabilizing fisheries is simply to reduce fishing pressure to allow supplies to recover. With a large number of fish, even a low fishing effort can produce high yields and profits because of abundant resources, high fishing efficiency. In practice, however, economic and social pressures often prevent governments from taking the necessary actions to restore marine fishery resources. If the government takes drastic action to recover, the fishing community will face the risk of job loss, loss of

income. Therefore, livelihood transformation for fishermen is considered the most important job to solve the problem of "rare fish in the sea" and restore fishing grounds. The Zhejiang provincial government is an example of China's early and successful implementation of the livelihood transformation model for fishing communities.

3.2. Experience in applying China's fisheries management system and measures

Since the founding of the People's Republic of China, the Government of China has continuously issued and implemented a series of fisheries management systems and measures to promote the sustainable development of the fisheries industry to the actual economic and social conditions of this country.

China's fisheries management systems and measures are broadly grouped into six groups as follows: input control, output control, technical or managerial measures, and control measures economy, offshore fisheries management systems, and international cooperation mechanisms on fisheries management (Table 1).

China's fisheries management systems and measures are broadly divided into six groups as follows: input control, output control, technical management or control measures, economic control measures, offshore fisheries management systems and international cooperation mechanisms on fisheries management (Table 1).

Table 1. China's Fishing Management Systems and Measures

Shape	System or measure
Input control	<ul style="list-style-type: none"> - Fishing License System - Fishing Vessel and Fishing Gear Restraint System - Resettlement support system for fishermen - Fishing Vessel Circuit Breaker System
Outlet control	<ul style="list-style-type: none"> - TAC System - “Zero Growth” and “Negative Growth” Policy Regarding Mining Production at Sea
Technical management or control measures	<ul style="list-style-type: none"> * Time or area of closure * Seafaring area for bottom trawling Summer moratorium on sea fishing Spring Fishing Ban in Yangtze River Spring Fishing Ban in Chu Giang River The fishing period or the closure of the area established by the local authorities
Technical management or control measures	<p>Protected areas:</p> <ul style="list-style-type: none"> - Aquatic Germ Resource Reserve - Aquatic reserve - Marine Protected Areas (MPA) - Net limits of fishing nets - Allowable individual size limits= - Sub-size fishing rate limits - Prohibited fishing methods: explosive, poisonous or electric fishing, etc.

Shape	System or measure
Economic Instruments	Fees for protection of fishery resources
Management of inshore fisheries	<ul style="list-style-type: none"> - Offshore fisheries application and approval system - Annual system of testing and accreditation of capacity for offshore fisheries enterprises - Management system for inshore fisheries - Monitoring of vessel position, fishing standards, log books - State observers, legal fishing certificates - Crew Management System and Offshore Fishing Vessels - Self-regulation and coordination mechanisms of inshore fisheries
International cooperation mechanism on fisheries management	China's bilateral fisheries agreements with Japan, South Korea and Vietnam

Source: Shuolin Huang, Yuru He, 2019.

3.2.1. Input control

- Fishery license system

The fisheries license system adopted in 1979 is one of the management systems implemented by the competent national administrative authorities of China to plan and control fisheries activities and production. China's fishing permit system was originally defined under the “Regulations on the Reconstruction and Conservation of Fishery Resources” issued by the State Council in 1979. In the same year, the State Fisheries Administration issued a provisional regulation on a number of issues related to aquaculture licenses.

The system of fishing permits is defined by the 1986 Fisheries Law. Article 16 of the Fisheries Law stipulates that "Any unit or individual intending to exploit inland fisheries or inshore fishing must first apply for a fishery exploitation permit at the fisheries management department. Licenses for the use of large driftnets and driftnets in fishing shall be granted with the approval of the Fishing Authority of the National Assembly. Other fisheries permits will be issued with the approval of the local government at or above the county level, but fishing permits for marine activities that have been issued are not allowed to use driftnets and other fishing gear in excess of the state-regulated quota. Specific measures shall be taken by the people's governments of provinces, autonomous regions and centrally run cities.

Fisheries permits may not be sold, leased or transferred by other unlawful means and they may not be altered. The provisions on liability related to violations of aquaculture licenses are clearly stated in Article 30, Article 31 and Article 32 of the Fisheries Law. Accordingly, “Any person who fishes without a mining license in accordance with this Law shall be confiscated from illegal fishing products and income and may also be subject to a fine. In serious cases, his fishing gear may also be confiscated” (Article 30); “Anyone who catches in violation of the type of activity, location, duration and quantity of fishing gear stated in the permit, shall be confiscated of the fishing product and illegal income and shall be concurrently fined. In serious cases, his fishing gear may also be confiscated and his fishing license revoked” (Article 31) and “Anyone who trades in, leases or transfers fishing

licenses by other illegal means shall forfeit his illegal income and have his fishing license revoked, and may be subject to a fine ” (Article 32)

In keeping with the provisions of the 1986 Fisheries Law and its implementing regulations, the MOA has developed and promulgated the “Fishing License Regulations”, and introduced specific regulations on the fishing license system in the waters under the jurisdiction of China. This Regulation was amended in 1997. In 2000, the Fisheries Law was amended, consolidating the relevant provisions of the fishing permit system (Shuolin Huang, Yuru He, 2019). Although the fisheries license system has been strengthened in practice, according to the results of the first national survey of fishing vessels conducted in 2000 organized by the MOA, 67,200 illegal vessels without fisheries license, fishing vessel registration certificate, fishing vessel registration certificate, accounted for 27.5% of the total number of vessels (Huang KJ, 2001).

Despite the fact that the fishing license system has been strengthened in practice, the MOA's first national census of fishing vessels in 2000 revealed that there were still 67,200 illegal fishing vessels without fishing licenses, fishing vessel registration certificates, accounting for 27.5 percent of total vessels (Huang KJ, 2001).

Moa issued the "Regulation on Management of Fishing Licenses" in 2002 to tighten the management of fishing licenses. This Regulation describes the requirements for obtaining a fishing license, fishing zones, the number of fishing gear that may be used, and the types of sanctions that may be imposed if regulations are broken. In 2004 and 2007, this regulation was updated (Gongming Shen, Mikko Heino, 2014).

In general, fishing permits are issued in China depending on the state of fishery resources, which is defined by biomass and total authorized catches (TAC). However, in Chinese practice, this requirement is frequently neglected, and as a result, the system serves only a limited role in the conservation of fisheries resources.

- Restricted fishing vessel and fishing gear system:

China began using the "Dual Control" system in 1987, which controls both the total number of fishing vessels and their total engine capacity (Ou et al., 2011). In practice, however, the data did not indicate a positive overall effect. The "Dual Control" concept has not yet been fully implemented in many coastal locations. The number of fishing vessels surged by more than 60,000 between 1986 and 2002, and their machine capacity more than doubled (Gongming Shen, Mikko Heino, 2014). China has pushed to strengthen its "Dual Control" system since 2003. The MOA established a "Implemented Attitude toward the Control of Fishing Vessels at Sea for the Period 2003-2010" in 2003, which defined clear goals and specific implementation requirements.

By 2010, the fishing fleet's number and total machine capacity are expected to be reduced to 30,000 vessels and 1.27 million kilowatts, respectively. As a result, despite the fact that the number of fishing vessels has fallen since 2003, the overall number of capacity machines has constantly climbed, with the exception of 2003. As a result, it is clear that the "Dual Control" system failed to meet its objectives. This method has failed to halt the tide of rising fishing attempts, particularly in terms of total fishing vessel capacity. The low efficiency of the "Dual Control" system can be explained by three key issues: 1) Local

authorities' inadequate inspections; 2) Illegal fishing vessels; and 3) the introduction of additional fishermen (Ou HK, Yu CD, 2011).

- Fishermen's resettlement assistance system

According to data, China has paid out 25.167 billion yuan (\$3.84 billion) in compensation and subsidies to fishermen who have stopped fishing as of January 31, 2021. 129,743 workers were relocated to different occupations in important waters, and 171,626 were given social security benefits. For example, China's desire to restore the environment can be shown in the instance of resettlement assistance for fishermen affected by the 10-year fishing ban on natural waterways along the Yangtze River, which went into force on January 1, 2021. This "fish in, people out" program intends to not only rehabilitate river fish stocks, but also to give new life to fishermen who fish far from shore. Because the prohibition directly impacts almost 231,000 fishermen and roughly 111,000 boats in a dozen provinces, local governments have been actively assisting fishermen in their relocation. Local authorities have created and implemented a range of relocation measures, including job introductions, insurance support, and monthly living allowances, in addition to giving up fishing boats and equipment for a one-time financial compensation of more than 200,000 yuan (\$30,562). Work in the industrial park has been introduced to many fishermen. The "Resettlement Assistance System for Fishermen" is, in reality, a good measure in China's fisheries resource management.

3.2.2. Controlling the output

- Quota system for fishing (TAC)

The amended Fisheries Law of 2000 introduced a fishing quota system (TAC), which presents a significant compliance difficulty for Chinese authorities. As a result, China has approached the TAC with caution.

In northern Zhejiang province and Shandong Province's Lai Chau Bay, a pilot project of sea crab fishing quotas (*Portunus trituberculatus*) and jellyfish (*Rhopilema esculentum*) was launched. The projects aimed to identify tac and allocate fishing quotas, as well as set up a number of support systems, such as fishing log management, fishing business in designated market areas, fishing vessel inspection process, fisheries observers system, marine management system, reward and sanctioning system, and quota prevention mechanism (Chen, 2017).

Pilot projects in five provinces were expanded in 2018: Zhejiang, Shandong, Liaoning, Fujian, and Guangdong. Silver anchovies (*Engraulis japonicas*) are on the pilot list in Zhejiang; Shandong continues to set jelly fishing quotas (*Ropilema esculentum*); Liaoning chose Chinese tiger shrimp (*Fenneropenaeus chinensis*) from certain waters in the Pulandian region of Dalian; Fujian chose swimming crabs (*Portunus trituberculatus*) from the waters of Zhangzhou city. By 2020, China's coastal provinces should have selected at least one location with relatively mature quotas to manage mining quotas, as planned. These pilot projects are a concrete step toward promoting the implementation of fishing quotas in China, assisting in the resolution of difficult issues, identifying viable methods for effectively conserving fisheries resources, and investigating a new model for making reasonable use of fisheries resources in China.

- Policies relating to the output of marine fishing include "zero growth" and "negative growth."

To alleviate the strain of the fishing effort, China began to examine regulating overall marine fishing output through a framework that regulates fishing production, rather than seeing high catches as a political triumph of local governments. The MOA proposed a "Zero Growth" program in 1999.

The MOA suggested a policy of "Negative Growth" in 2000 in order to boost the strategy's execution. In China, the regime of controlling fishing output to regulate total catches and sustain fishing levels is regarded as a suitable approach in the face of the depletion of marine fisheries resources as well as the necessity to safeguard the livelihoods of fishermen (considered vulnerable populations).

3.2.3. Measures of technical direct oversight

- Area or duration of closure

In 1955, China started defining the borders of its bottom-fishing sea-closing area. The boundary line has been relocated to 27°N, 121°10'E. On August 16, 1957, it was added to two base points to the south. A completely protected region along the continental shore was constructed on May 6, 1980. Bottom fishing is prohibited in the land-side portion of this line all year. This strategy helps to maintain and make fair use of coastal fishing resources while also supporting fisheries management, small-scale fisheries protection, China's maritime rights and interests, fishing production, and border restrictions.

Moreover, to safeguard and enhance fishery resources, China has established a "summer fishing restriction." In 1995, the South China Sea and the Yellow Sea implemented a summer fishing restriction. In addition to limiting fishing gear, all fishing at sea is prohibited for two to three months each year during the summer, with varied prohibition laws in different seas. In the meantime, during the early summer, local governments in coastal regions suspend all fishing netting in their waterways for at least two months. Summer fishing rules in China began in 1998, with changes to operating hours and kinds of fishing gear. The banned areas were expanded to include the South China Sea in 1999, while the Yellow Sea closure time was prolonged and the seas in Fujian province were also altered. On an annual basis, the system is modified and perfected in terms of sea, type of operation, time range, and other factors.

Since 2017, the summer fishing season has been prolonged (the net closure period has been extended from 2 to 3 months) and the closing time for all forms of fishing has been universally extended from 2-3.5 months to 4.5 months, with the exception of fisheries. It is widely acknowledged that China's summer fishing prohibition system provides breeding groups and fry with adequate protection for a period of time, thereby providing opportunities and sufficient space for fishing resources to grow and develop, as well as increased resource volume and mining output throughout the year. The strategy also aims to cut down on the amount of time spent at sea each year, total fishing efforts, and the impact on fishing resources. Summer fishing bans are widely regarded as one of China's most effective fishing management techniques. This system's success may be attributed to two factors: The fishing ban is less difficult to create and requires less scientific evidence than other solutions.

All fishing vessels must be anchored in the harbor during the embargo so that enforcement officers may readily locate unlawful fishing vessels. The quick rise in fishing efforts after the restriction, however, totally restored the ban's conservation impact. As a result, this approach has a negligible impact on long-term fishing resource conservation and restoration. China has also banned spring fishing in the Yangtze and Zhujiang rivers in order to reduce fishing time. Since 2002, the Ministry of Agriculture has prohibited spring fishing in the middle and lower Yangtze Rivers for three months, and the Yangtze river fishing ban has been fully operational with State Council permission since 2003. The Yangtze River's major lines and several of its important tributaries are among the locations. The higher portions of the Dau Chau Dam close from February 1 to April 30 each year, while the downstream side of the dam closes from April 1 to June 30 each year. During this period, all forms of fishing are restricted (Yangtze Fisheries Resources Management Commission, 2011). The Ministry of Agriculture released a notification on December 23, 2015, stating that the Yangtze River fishing ban would be adjusted beginning January 1, 2016. As a result, the closed areas should be expanded to include the Yangtze River's main lines and tributaries, as well as major lakes; the closing period should be agreed upon and extended from 0:00 am on March 1 to 24 hours on June 30; and all fishing activities should be prohibited during the closed time and area. This strategy is critical for the conservation of the Yangtze River's aquatic resources, the protection of the river basin's environment, the maintenance of biodiversity and ecological balance, and the safeguarding of national food security (Li, 2016). From midnight on April 1 to 12:00 p.m. on June 1 each year, China banned spring fishing on the Zhujiang River, encompassing the main currents, main rivers, and pine lakes in the sea of six provinces (districts): Jiangxi, Hunan, Guangdong, Guangxi, Guizhou, and Yunnan. In February 2017, the Ministry of Agriculture tweaked and finished the system, increasing the shut-down duration from 0:00 a.m. on March 1 to 24 hours on June 30 and widening the closure zones (Ministry of Agriculture, 2017). The policy's execution has resulted in a significant increase in the amount and quality of fish captured, although its usefulness is limited (Han et al., 2015).

- Areas of protection

Increasing reserves is a good strategy to help ecosystems and fisheries resources recover. The Chinese government has begun to standardize herd augmentation initiatives by issuing a number of rules, including the "Wildlife Protection Regulation" and the "Announcement on the Promotion of Fisheries Resources Enhancement." 24.8 billion pieces of shrimp larvae were released between 1980 and 1992; 3.5 billion breeds were released between 1999 and 2001; and 88.2 billion breeding fish were released in 2005 alone. During the same time period, over 3,000 Chinese sturgeon, as well as over 3 million oysters and mussels, were released. With the help of the Fisheries Department, three coastal provinces—Guangdong, Fujian, and Zhejiang—have started artificial reef initiatives to aid in the restoration of marine natural ecosystems and the enhancement of fishing resources.

Article 29 of the People's Republic of China Fisheries Law mandates that fishing germ protection zones be established in places where live aquatic resources of high economic and genetic importance are cultivated and bred (AGRPAs). Article 29 of the People's

Republic of China Fisheries Law mandates that fishing germ protection zones be established in places where live aquatic resources of high economic and genetic importance are cultivated and bred (AGRPA). China launched the first phase of the AGRPA's formation in 2007. MOA released "Interim measures for the management of fishery germ protection areas" in 2011 with the goal of enhancing and harmonizing protected area management. Artificial reefs and marine breeding facilities have been constructed, and reclamation and emancipation efforts have had a significant impact. China has created 492 national aquatic germ nature reserves and 23 national aquatic nature reserves as of 2015, both of which are vital for the preservation of fishery resources. The development of the AGRPA is one of China's most significant new management initiatives. The reason for this is that the AGRPA lacks specialized regulatory entities and funding to carry out its mandate. Furthermore, ordinary people have limited understanding of AGRPA, with many unaware of the organization's role (Yang WB, Li JL, Feng GF, Li XS, Li HQ, 2011).

In 2007, China began the first phase of the establishment of the AGRPA. In 2011, MOA issued "Interim measures for the management of fisheries germ protection areas" to strengthen and standardize the management of protected areas. Artificial reefs and marine breeding have been built, and reclamation and emancipation measures have had a marked effect. As of 2015, China has established 492 national aquatic germ nature reserves along with 23 national aquatic nature reserves, which play an important role in preserving fisheries' resources. The establishment of the AGRPA is one of China's important new management measures. However, the actual level of protection that AGRPA provides remains limited. The reason is that the AGRPA lacks specialized regulatory bodies, lack funds to implement. In addition, ordinary people have very little knowledge of AGRPA, many of whom do not know the role of AGRPA (Yang WB, Li JL, Feng GF, Li XS, Li HQ, 2011).

In addition to introducing regulations on protected areas, China has introduced technical measures such as regulations on net limits of fishing nets, limits on the size of fish allowed, limits on the rate of fishing below size, and prohibited fishing methods.

In China, research on minimum mesh size began in the 1970s. However, regulations on mesh size were not implemented until later. Article 30 of the Fisheries Law of the People's Republic of China stipulates that fishing gear with meshes smaller than the minimum mesh size is not allowed. Only after 2004, did the MOA begin to fully implement regulations on minimum mesh size. The minimum allowable mesh size depends on the fishing gear as well as the fishing area (Table 2). However, it can be seen that this regulation still has many limitations. For example, there is a very small number of legally binding standards for mesh size, which currently has only six standards. There are currently at least 40 major commercial fish species and more than 10 fishing gear in Chinese waters, and current standards make many fishing gears and fish species out of regulation. There are no rules regarding technical limits for shrimp and crab fishing. Moreover, the state of fisheries resources in China has changed a lot in the last 30 years so standards need to be updated. Although there are shortcomings, it should be acknowledged that the "Minimum Mesh Size Regulation" is a very important means to protect fisheries resources in China.

Table 2. Regulations on Minimum Mesh Size (MMS)

Fishing gear	MMS (mm)	Scope of application		Standard (year)
		Area	Major species	
Dragnet drop	54	The Yellow Sea, East China Sea	All	GB11779-1989a, b (1989)
	39	South China Sea (South China Sea)	All	GB11780-1989a, c (1989)
Drip nets	137	The Bohai Sea, The Yellow Sea, East China Sea	White bird fish (Pampus argenteus)	SC119-1983d (1983)
	90	The Yellow Sea, East China Sea	Chinese beet/Herring (Ilisha elongata)	SC120-1983d (1983)
	90	The Bohai Sea, The Yellow Sea, East China Sea	Japanese mackerel (Scomberomorus phonics)	SC121-1983d (1983)
The drop of the netting profession	50	East China Sea	Pilotfish/Sawfish (Trichiurus lepturus)	SC4013-1995d (1995)

a. GB - National Standard

b. The standard was revised in 2005. The size has not changed.

The standard was revised in 2005. The size is adjusted to 40mm.

SC - Industry Standards

Source: Gazette of the Ministry of Agriculture of the People's Republic of China, 2003 (Gongming Shen, Mikko Heino, 2014).

In addition, China specifies the fishing methods prohibited in Article 20 of the Fisheries Law. Specifically: "It is strictly forbidden to use explosives and poisons in fishing. Fishing is not allowed in no-fishing areas and in closed seasons, fishing by equipment and methods prohibited by fisheries management agencies, or using fishing gear with meshes smaller than the minimum size as prescribed. Fisheries management agencies under the people's administration of the district or district level shall designate specially protected species, prohibited fishing areas and closed seasons, prohibited or restricted fishing gear and methods and minimum sizes for the mesh, as well as other measures to protect fisheries resources." In addition, the Law on Fisheries also clearly stipulates liability for cases of violations of prohibited fishing methods in Article 28, specifically "Those who use explosives and poisons for fishing and fishing violate regulations on fishing zones and closed seasonalities, use of prohibited fishing gear, means of fishing or rare fishing vessels under the State protection will be confiscated products.

3.2.4. Economic instruments

In the late 1980s, the Chinese government began to charge a fee to protect fishery resources. Article 19 of the Fisheries Law stipulates that "Fisheries management agencies

under district and district people's governments are responsible for formulating a master plan and taking measures to increase fishery resources in the sea area fisheries under its jurisdiction. These agencies can collect fees from entities and individuals who profit from the use of such waters and spend the proceeds to enhance and protect fishery resources. The procedures for collecting these fees are developed by the Department of Fisheries Management and the Department of Finance under the State Council and must be approved by the State Council before they take effect. Fishery resource protection fees are collected from fishing organizations and fishermen and used to conserve and develop fish resources. Specifically, the fee for the protection of aquatic resources is used for activities such as stocking the whole seed, buying the necessary means of support for culturing the fingerlings; construction of artificial coral reefs, fish houses, and other reclamation works in coastal and inland waters; loans to fishermen for production, relocation or business; subsidies for scientific research on the protection and development of fish resources; and provide financial support to implement management approaches to enhance, protect, and monitor fisheries resources. Fishery resource protection fees have added to the operating costs of fishermen, thereby reducing their fishing efforts. The system plays an important role in developing and protecting fishery resources and building the fisheries law enforcement team in China.

3.2.5. Offshore fisheries management

China has promulgated a series of offshore fisheries management systems and measures, including: Offshore fisheries registration and approval system; A system of accreditation and annual inspection for fishing enterprises in offshore waters; Management system for offshore fisheries; Monitoring vessel position, fishing standards, logbook; State observer, legal catch certificate; Crew management system and offshore fishing vessels; Self-regulating and coordinating mechanism of offshore fisheries.

The offshore fishery registration and approval system stipulate that businesses wishing to engage in fishing in remote waters must submit an application to the provincial government and obtain approval from the Ministry of Agriculture before obtaining a permit for such activities. The Department of Agriculture grants to top businesses with the necessary qualifications for offshore fisheries and no record of illegal activities or violations.

The annual capacity testing and recognition system for fishing enterprises in offshore waters is also a measure adopted by China in the management of offshore fisheries. The Department of Agriculture conducts an annual assessment of participating businesses and checks their overseas operations through fishing vessel inspections, location monitoring, and verification by embassies and consulates in the country. Appropriate penalties will be given for any major problems discovered (Ocean & Fishery, 2015). In recent years, China has applied an annual ranking of offshore fishing companies (DWF) based on 42 factors considered, in four areas: internal rules; supervision and management; compliance and innovation; and violations. According to the Ministry of Agriculture, the rating system draws on the experience of regional fisheries management organizations (RFMOs). RFMOs set regulations for governments and fishing vessels to limit fishing activities, conserve fishery resources, and ensure the sustainable development of fisheries in the region. China's DWF rating is basically according to RFMO requirements and China's DWF management rules

into a scoring system. According to the Ministry of Agriculture's 2020 White Paper on DWF Compliance, as of the end of 2019, China had 178 registered DWF companies, operating 2,701 fishing vessels. Of these, 1,589 vessels fish in the open waters of the Pacific, Indian, Atlantic, and Antarctic oceans, as well as in the national waters of other countries. The 13th Five-year Plan (2016–2020) for the DWF sector states that to protect fishery resources, “in principle” will not issue more permits to DWF companies or vessels, and the fleet will not exceed 3,000 ships. The DWF ratings are intended to “encourage” rather than force companies to “improve their management systems and implement strict monitoring measures... to avoid illegal practices.” The MOA also said there are plans to use compliance data as a factor for DWF licensing.

In addition, China has also taken a series of measures to monitor fishing boats in remote waters. Since 2007, the Ministry of Agriculture has started deploying a position monitoring system for offshore fishing vessels, this system is required to be equipped with a positioning device and be integrated into the position monitoring system of fishing vessels of the country. The Ministry of Agriculture; along with it was the development of a catch log system, requiring fishing boats to fill in the log accurately and give it to fisheries agencies; National servers have also been sent to large fishing vessels operating on the high seas (Wang, 2013). . The development of technology and the evolution of management objectives pose challenges for fisheries monitoring in transitioning to a timelier and accurate data reporting scheme. This transformation features the replacement of traditional paper diaries with electronic diaries (e-logbooks). In 2017, China launched its first total allowable catch (TAC) pilot in Zhejiang province, which aims to develop and implement an electronic log plan in fisheries monitoring and management. . The results show that electronic diaries can improve data quality and timely reporting. There are mixed opinions when evaluating electronic diaries, for example, fishermen consider it difficult to use and often malfunction, while managers, observers, and scientists highly appreciate electronic diaries. The electronic diary is more important than paper diaries and considers that the application of electronic diaries is necessary for fisheries monitoring.

In addition, offshore fishing vessels must be inspected by the Fishing Vessel Inspection Department and registered with the fishing port authority before being issued with relevant certificates. Crew members must be trained by specialized agencies, pass the fishing port or admiralty exams authorized by the Ministry of Agriculture and state management agencies, and have more than 1 year of fishing experience. Furthermore, as a member of 7 Regional Fisheries Management Organizations (RFMO), China actively participates in the negotiation of fisheries management measures in these areas. The waters under the jurisdiction of such RFMOs include essentially all areas of operation of offshore fishing vessels. Meanwhile, China has signed eight Fisheries Agreements or Memorandums of Understanding with other countries or regions, which define terms and conditions regarding the access and operation of Chinese fishing vessels. Country. As can be seen, China has established a remote water fisheries management system compatible with international fisheries management rules (Wang, 2013). These systems require further improvement in

functionality and specification to be compatible with increasingly stringent international fisheries management systems.

As can be seen, China has basically established a remote water fisheries management system compatible with international fisheries management rules (Wang, 2013). These systems require further improvement in functionality and specification to be compatible with increasingly stringent international fisheries management systems.

3.2.6. Mechanism of international cooperation on fisheries management

In 1994, China established many international cooperation mechanisms on fisheries management with neighboring countries including Japan, Korea, and Vietnam. China and Japan signed the Sino-Japanese Fisheries Agreement on November 11, 1997, which officially entered into force on June 1, 2000. China and Korea signed the China-Korea Fisheries Agreement on August 3, 2000, effective from June 3, 2001. China and Vietnam signed the Sino-Vietnamese Fisheries Agreement on December 25, 2000 and commenced operations on June 30, 2000. 2004. Those bilateral fisheries agreements all established Fisheries Committees, requiring the parties to conduct long-term fisheries cooperation in the spirit of mutual benefit in the waters with provisional measures or in other agreements.

To date, China has signed more than 20 bilateral fisheries cooperation agreements, related to the management and maintenance of fishery resources in the Exclusive Economic Zone, fishing, aquaculture, scientific exchange and technology and cooperation in different fields. The participating countries are Korea, Japan, Vietnam, United States, Australia, Malaysia, Seychelles, Uruguay, Norway, Indonesia, and Russia. In general, the areas of international cooperation are operating smoothly, but management cooperation has not been fully implemented in the co-management areas.

In summary, the fisheries management systems in China basically belong to the input control system and the technical control measures, the output control system is still very limited. To date, input controls and engineering controls are still the oldest and earliest fisheries management practices worldwide, used by both developing and developed countries. . China's input control system and technical control measures have achieved a certain degree of fishery resource protection. However, due to system limitations and fisheries law enforcement, engineering control measures have not been fully implemented. As a result, the fishing intensity is still far beyond the resilience of China's fishery resources, and China's fishery resources continue to decline.

3.3. Lessons from applying fisheries management systems and measures to Vietnam

Vietnam has a coastline of more than 3,260 km, an exclusive economic zone of more than 1 million square kilometers, more than 3,000 large and small islands (2,773 coastal islands and more than 200 offshore islands), 114 estuaries, 12 lagoons, 50 coastal coves/bays, of which internal waters and territorial waters account for 37% of the area, with many islands and island clusters interspersed creating a diversity of natural landscapes, ecology and aquatic resources.

Taking advantage of available advantages, Vietnam identifies fisheries as a key economic sector of the country. Over the years, Vietnam's seafood industry has made significant contributions to the economy, especially promoting exports, creating jobs,

improving livelihoods for fishing communities, and contributing to ensuring security and protect the country's sovereignty over the sea and islands. Currently, the fishery industry has created jobs for more than 4 million workers. In 2020 alone, the export value of seafood reached US\$8.5 billion, accounting for 9-10% of the total national export turnover. Vietnam's high exports. In which, seafood exports account for 30-35% of total seafood exports. (From 1998 to 2020: Turnover increased 10 times from 315 million USD to 3.2 billion USD; average annual growth of 11%). Vietnam's fishing production has increased over the years. From 1995 to 2020: Vietnam's fishing output has more than quadrupled, with an average annual growth of 6% from 929 thousand tons to 3.85 million tons. In 2020, there will be 94,572 fishing vessels nationwide. In which: 45,950 fishing boats 6-12m long, 18,425 boats 12-15m long, 27,575 ships 15-24m long, 2,662 vessels >24m long). The whole country has 4,227 teams operating with 29,588 fishing boats and 179,601 workers at sea. Trawl fishing 17,078 vessels, accounting for 18.1%; seine fishing 7,212 ships, accounting for 7.6%; gill netting 33,538, accounting for 35.5%; fishing 16,043 ships, accounting for 17%; other occupations 17,543 ships, accounting for 18.5%; logistics service ships 3,158 units, accounting for 3.3% (VASEP, 2021).

However, due to overexploitation and eradication (due to the excessive number of fishing vessels, especially small-capacity fishing vessels exploiting inshore with unfriendly fishing activities); aquatic products using electric pulses, explosives and poisons; fishing in the wrong areas by fishing vessels of large length operating in coastal waters; mesh size of fishing gears smaller than regulations) together with The increase in marine environmental pollution leads to a serious decrease in fishery resources in Vietnam today. According to the "Report on survey results on Vietnam's marine seafood resources for the period 2011-2015" published by the Institute of Fisheries Research in 2018, the comparative marine fish stocks in the period 2011-2015 and the period 2000-2005 showed that: reserves of major groups of marine resources were 13.9% lower (equivalent to about 710 thousand tons); the reserve of small pelagic fish group decreased by 3.2%; bottom layer seafood group decreased 41.7%; group of large pelagic fish decreased by 10.2% (Marine Research Institute, 2018).

In general, the fishery industry has made important contributions to the economy, due to prolonged over-exploitation, which has severely reduced aquatic resources in general and marine fisheries (seafood) in particular the bottom layer seafood group decreased sharply. Therefore, in the coming time, Vietnam's fisheries sector needs to make appropriate adjustments and drastically apply necessary measures in fisheries management in general and marine fisheries management in particular. Studying the experience of applying China's fisheries management system and measures can draw some lessons for Vietnam as follows:

Firstly, it is necessary to simplify fisheries management systems and measures. Because, like China, Vietnam currently has no shortage of management measures to protect aquatic resources, but what is lacking is that Vietnam has not implemented the existing measures well. Therefore, management measures need to be simplified and easy to implement. For example, a ban on fishing in the summer is one of the successful measures.

Firstly, there are two main reasons that made this measure successful: 1) Compared to other measures, fishing bans are easier to design and require less scientific data. 2) During

the suspension period, all fishing vessels must be anchored at the port, so that the law enforcement agencies can easily find out the illegal fishing vessels.

Secondly, It is necessary to strengthen the supervise capacity of all systems, measures to manage the fisheries. In fact, illegal fishing remains a major challenge in fisheries. Due to the pressure on real life income of some fishermen, the management cannot completely depend on their self-consciousness in order to achieve the goal of effective policy implementation. Therefore, strengthening the supervise capacity need to be considered four main aspects: 1) Strengthening the establishment of enforce teams and building the implementation infrastructure. 2) Enhancing self-discipline and transparency. 3) Strengthening, supervising and enforcing. 4) Increase penalties for illegal fishing to prevent the extension of that practices.

Thirdly, it is also essential to strengthen the settlement system for fishermen. According to the experience of China, this is a highly effective measure in fisheries management. The most important reason for fishermen to leave fisheries is to have an opportunity to access a new job, financial support for livelihood and resettlement to settle into a new life. For example, the settlement of fishermen policy was affected in 10 years because of the fishing embargo on natural waterways along the Yangtze River (China). Including a one financial compensation of over 200,000 yuan (US\$30, 562), the local government has assisted fishermen in changing their careers through job placement, insurance support and a monthly living allowance.

Fourthly, we need to strengthen management measures or technical control. Therefore, it is required that we apply the seasonal fishing restriction system, step up the establishment of protected areas, such as aquatic germplasm conservation areas, aquatic reserves, marine protected areas (MPA). In addition, we need to keep up to date and adjust the standards on fishing gear to suit the practical conditions that need to be protected of aquatic resources. Besides, strengthening the stronger level of handling with violations of time, fishing area, fishing gear and fishing method.

Fifthly, we need to consider and adjust the fees and charges for the exploitation and protection of aquatic resources in line with Vietnam. According to the experience of China, the fisheries resources protection fee plays an important role in the development and protection of fishery resources and building the fisheries law enforcement team in this country. The revenue from the free for the protection of aquatic resources is used for activities, such as stocking the whole seed, buying the necessary equipment to support growing breed fish, constructing of artificial coral reefs, fish house and other reclamation works in coastal and inland waters, loans to fishermen for production, relocation or business, subsidies for scientific research on the protection and development of fish resources and provide financial support to implement management approaches to enhance protect and monitor fisheries resources. Fishery resource protection fees have added to the operating costs of fishermen, therefore reducing their fishing efforts.

Sixthly, it is necessary to strengthen monitoring of offshore fishing activities through the application of advanced monitoring support tools such as electronic diaries. At the same time, creating an incentive to encourage offshore fishing activities to improve their

management systems, implement strict monitoring measures, and not commit illegal acts through reviewing ratings enterprises annually as a basis for granting offshore fishing permits.

Seventhly, to promote international cooperation in fisheries, in which to promote international cooperation in training, scientific research, technology transfer in the field of fisheries. At the same time, developing measures to protect, manage and sustainably use biological resources in fishing in the common fishing area.

4. Discussion and Conclusion

Although the scale and potential of fishing are not the same, they are similar in terms of challenges and pressures in fisheries management, so China is a good and typical case for Vietnam to consult and learn from experience. In fact, fishery management in China has implemented six groups of systems and measures, including: input control, output control, technical control or management measures, economic control measures, offshore fisheries management systems and international cooperation mechanisms on fisheries management.

However, China focuses on applying input control measures and technical control measures, the application of an output control system is still very limited. The actual results shows that China's input control system and technical control measures have achieved a certain degree of protection of aquatic resources. Nevertheless, because of system limitations and the law enforcement agencies, engineering control measures have not been fully implemented. As a result, the fishing intensity is still far beyond the resilience of China's fishery resources, and China's fishery continues declining.

From the experience of applying the system, China's fisheries management measures, we can draw seventh lessons for Vietnam, including: First, it is essential to simplify fisheries management systems and measures. Second, it is necessary to strengthen the supervise capacity of fisheries management systems and measures. Third, we need to strengthen the resettlement system for fishermen. Fourth, strengthening technical control or management measures. Fifth, we need to consider and adjust the fees and charges for the exploitation and protection of aquatic resources in line with current practical Vietnam. Sixth, it is necessary to strengthen monitoring of offshore fishing activities through the application of advanced monitoring support tools and annual assessment of offshore fishing enterprises. Finally, to promote international cooperation in fisheries management, in which to promote international cooperation in training, scientific research, and technology transfer in the field of fisheries.

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RESPONSES TO GLOBAL CLIMATE CHANGE: VIETNAM'S INITIATIVE AND IMPRINTS

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Abstract

In recent years, the phrase “climate change” has been mentioned frequently to refer to negative changes in nature, weather, and climate that directly affect humans on a global scale. That practice requires all countries to reflect on their responsibility to climate change. The article is based on clarifying the manifestations and impacts of global climate change, the initiative, and the importance of Vietnam in coordinating with the international community to respond to climate change. Increasing resilience, adaptability, and minimizing the damage and causes of global climate change are the set goals.

Keyword: *Climate change, responses to climate change*

1. Introduction

Like many countries in the region and the world, Vietnam's climate in recent decades has changed significantly, with temperature warming, seawater penetrating deep into the mainland, and extreme weather events such as big storms and tropical depressions making landfall more often, causing serious consequences for people and property, not to mention the impacts on the ecological environment that can take many years to surmount. Finding solutions to limit the damage caused by climate change is mentioned in many agendas of the Communist Party and the Government of Vietnam. Along with promoting afforestation, greening bare land and bare hills, and protecting the ecological environment, Vietnam has been actively participating in activities of the international community implementing greenhouse gas reduction commitments., preventing the risk of increasing climate change. Vietnam's actions have left strong marks in the international arena in responding to climate change.

2. Method

To complete the research, the author uses analytical, synthesis, statistical, contrastive, and comparative methods to clarify the manifestations and consequences of climate change for the world and Vietnam today, affirm that responding to climate change is a common task of all nations and races around the world, and the initiative and imprints bearing the name of Vietnam in the process of joining the world community in responding to climate change.

Sources of materials are articles published in Journals, presentations at seminars, interviews, data from organizations, monographs, Resolutions of the Communist Party of Vietnam, Plans, strategies, and policies of the Government on responding to climate change.

3. Results

3.1. Global climate change and Vietnam's proactive response

3.1.1. Global climate change and its manifestations

Today, climate change or climate change in the Earth is mentioned a lot to illustrate the change in the climate system including the atmosphere, hydrosphere, biosphere, lithosphere, ice sphere, present and in the future by natural, man-made causes (Wikipedia, 2021). Climate change manifests itself mainly in the following issues:

Atmospheric warming and Earth's temperature in general. According to a report by the Environmental Protection Agency (EPA), the average temperature of the Earth in the late 19th century increased by +0.8°C and in the 20th century increased by 0.6±0.2°C. Climate modeling projects of the Intergovernmental Panel on Climate Change (IPCC) indicate that the Earth's surface temperature will likely increase by 1.1 to 6.4°C throughout the 21st century (Viet Lam, 2016). Sea surface temperatures have also tended to increase markedly since the beginning of the 20th century across the oceans.

According to the IPCC, an average increase in the earth's temperature of 1.5°C will put 20-30% of the world's species at risk of extinction because they cannot adapt to the changes in weather and temperature. Some other species are learning to change their habitat and body size in order to survive.

In 2020, rising temperatures set wildfires in Australia, Siberia, the US West Coast, and South America, creating plumes of smoke that circled the world. In 2021, a record heatwave rages in western Canada and the United States. In the Canadian state of British Columbia, temperatures higher than 49°C were recorded. Temperatures in many parts of the US also reached more than 50°C. Over 800 people have died in the two countries from heat-related causes (Electronic newspaper VTV news, 2021). It is forecasted that in 2022, the winter months's climate will be relatively hot. Wildfires will still persist in many areas, especially in the western United States. And not just in 2021 or 2022, it will probably be every year from now on that extreme weather patterns will persist on Earth.

High temperatures make the ice melt, and sea levels rise, leading to flooding in lowlands and small islands in the sea. Sea level increases in the direction of the following period faster than in the previous period. The main causes of sea-level rise are thermal expansion and melting ice. Worldwide, glaciers continue to shrink and in the spring snow cover in the Arctic Ocean and Northern Hemisphere continues to decrease (National Assembly of Vietnam, 2017, p.24). Scientific measurements from tidal stations and satellite images have shown that the rate of sea-level rise due to climate change is about 3mm/year with positive acceleration. It is expected that by the end of the next century, the sea level will rise in the range of 35-85 cm, causing global economic losses of trillions of dollars with many development consequences. Even if humans completely stop emitting greenhouse gases into the atmosphere, not only global temperature but also sea level will continue to increase in the long term, not decrease (Luu Quang Hung, 2020). In the years 2020-2021, floods appear frequently and unexpectedly in many areas of Africa, China, and Southeast Asia. In the first 9 months of 2020, China experienced 21 floods, a record 1.6 times higher than in

previous years, setting a historic record since 1998. Flooding also took place seriously in the capital. Jakarta, the capital of the Indonesia, result in the death of 60 people and 60,000 others had to evacuate. In July 2021, floods stole the lives of more than 300 people in central China's Henan province. Meanwhile, in Europe, nearly 200 people were reported to be dead because of heavy rains that caused flooding in Germany, Belgium, and the Netherlands. By November, the worst flooding in 60 years in South Sudan had affected about 780,000 people. The scientists combined, that climate change increases the risk of higher levels of flooding by up to 20% (Tran Hong Thai, 2020).

The year 2021 also witnessed an unprecedented cold in the US state of Texas, with a thick layer of snow and ice with temperatures in many places dropping to -18°C , killing 125 people and millions of people having to live without power and lack of drinking water in the middle of cold weather. In March 2021, the sky of Beijing, China's capital turned orange, flights had to make emergency landings due to the worst sandstorm in a decade occurring here (Tran Hong Thai, 2020).

The change in the composition and quality of the atmosphere is harmful to the habitat of humans and organisms on Earth. Concentrations of carbon dioxide, methane, and nitrous oxide in the air have increased to levels not seen in at least the past 800,000 years. Carbon dioxide concentrations have increased by 40% since pre-industrial times, mainly due to emissions from burning fossil fuels and deforestation of land. The oceans have absorbed about 30% of the carbon dioxide emitted by humans, causing ocean acidification, with an average decrease in surface pH of 0.1 units (National Assembly of Vietnam, 2017, p.24).

Variation of tropical cyclones. The trend of increasing tropical cyclone activity is most pronounced in the North Pacific, Southwest Pacific, and Indian Oceans. In the period 1978 to 2015, the number of tropical cyclones reaching very strong storm intensity accounted for about 55% and 34% of the total number of tropical cyclones in the Northwest Pacific Ocean and the East Sea. Tropical cyclones are usually most active in late summer when the difference in temperatures between high terrain and sea surface is greatest. However, each region has its own storm season pattern. Globally, May is the least active tropical cyclone month, whereas September is the most active. November is the only month in which all tropical cyclone areas are in full-fledged activity.

In terms of consequences, in 2020, only the ten most terrible weather disasters occurred, causing damage of 150 billion USD worldwide, severely affecting countries, especially developing countries whose economic recovery speed is low. This leads to food insecurity. It is forecast that about 1.8 billion people around the world will face difficulties in accessing clean water and 600 million people will be malnourished due to food shortages in the coming years (Tran Hong Thai, 2020).

Vietnam is ranked 5th on the Global Climate Risk Index 2018 and 8th on the Long-Term Climate Risk Index (CRI). In recent years, Vietnam has continuously achieved new records in terms of temperature and rainfall. With regard to temperature, intense heat in the Northern and North Central provinces in 2014, with the common high temperature from $39 \div 40^{\circ}\text{C}$, in many places over 40°C , the longest period of heat in the past 60 years has just

appeared. In 2018, Hanoi recorded record numbers of temperatures within 46 years, the highest temperature sometimes reached 42°C. On April 20, 2019, the temperature observed at Huong Khe meteorological station (Ha Tinh) was 43.4°C, the highest temperature ever observed in Vietnam (Tran Hong Thai, 2020).

Along with the heat, drought taking place on a large scale, in the Cuu Long Delta and the Central region, the drought in 2019-2020 will be larger in scale and more severe than the drought and intrusion and salinity in 2016. In 2020, water resources in rivers, streams in the Central region the central highlands will decrease and lack from the average of many years in the same period from 35% to 70%, some rivers lack more than 80%. Along with that is the phenomenon of sea-level rise, and salt intrusion in a large area. In the year 2019-2020, saltwater intrusion is at the highest level in history in the Cuu Long Delta region, damaging about 58,400ha of rice, 6,650ha of fruit trees, 8,715ha of aquaculture and leaving about 96,000 households with 430,000 people to suffer from lack of drinking water. It is forecasted that by the end of the 21st century, the intrusion depth with the salinity of 1 ‰ can increase to over 20km in Dong Nai, Tien, and Hau rivers, and approximately 10 km in Hong river - Thai Binh. According to the data of Hon Dau national station, within 50 years, the sea level rises about 20 cm. And if this situation persists, when the sea level rises another 100cm, Vietnam will lose 40,000 square kilometers of land area, 10% of our population will be directly affected, the loss to GDP is about 10%, and this situation is expected to happen in 2100 (Nguyen Hong Diep, 2021).

Heavy rains occur frequently on a large scale and locally, causing large floods, inundations, flash floods, and serious landslides in many areas across the country. Large floods and historical floods continuously occurred in regions and regions across the country, typically in 1996, 2002, and 2015 in the North; in 1999, 2000, 2003, 2007, 2009, 2010, 2011, 2016, 2017 in the Central region and 2000, 2001, 2002, 2011 in the South. In 2017 and mid 2018, landslides were extremely serious on a large scale in the northern mountainous provinces; at Quan Son (Thanh Hoa) in 2019 (Tran Hong Thai, 2020). In 2020, Vietnam had 13 storms in the East Sea; 264 thunderstorms, whirlwinds, and heavy rain in 49 provinces and cities, of which 9 waves cover a large area in 21 provinces and cities in the North and Central Vietnam; 120 floods, flash floods, landslides (Nguyen Hong Diep, 2021). Especially, at the end of 2020, the phenomenon of floods, storms, and storms has caused enormous loss of life and property of the State and people in Central Vietnam.

Vietnam has a coastline of over 3,000km with nearly 110,000 fishing vessels, along with economic and transportation activities at sea and along the coast, so it is often directly affected by storms forming in the Pacific Ocean. On average, there are 11 to 12 storms and cool down in the East Sea every year, of which 5 to 6 storms directly reach the mainland. In 2013, there were 14 storms and 05 tropical depressions affecting our country, including super typhoon Haiyan (Tran Hong Thai, 2020). Especially, in 2017, there were 16 storms, and 04 tropical depressions appeared and operated in the East Sea. According to the summary of the National Steering Committee for Natural Disaster Prevention and Control, from the beginning of 2021 until now, Vietnam has had 8 storms, 3 tropical depressions in the East

Sea, 109 light earthquakes, 316 hail and lightning storms, lightning; 140 heavy showers of rain, local floods, of which 9 floods, flash floods, 157 riverbank heat waves, 7 sunny spells, and 6 cold airwaves, northeast monsoon. The estimated value of the damage is about 1,428 billion VND (Nguyen Hong Diep, 2021). Not only does climate change damage the property, but it also results in infectious diseases such as malaria, hemorrhagic fever, etc., increasing many lungs, cardiovascular and dermatological diseases in humans. According to statistics, the death rate due to time-saving in Vietnam ranks 11th in the world, with a loss of 0.6782% of the country's GDP (Bui Phuong Linh et al., 2022).

Bitter cold bad cold also occurs frequently and lasts for many days, especially in the northern and northern mountainous regions. In particular, the first cold wave of 2016, was assessed as having the lowest temperature in the past 100 years (Tran Hong Thai, 2020). It is predicted that unusual cold waves may occur more in the future.

Climate change is a complex issue that not only affects people's lives in the present but also threatens the living environment in the future. With its wide-ranging effects and exponential growth, climate change is exacerbating the world's problems today. The solution is both immediate and long-term. The scope of influence of climate change is wide, in all fields, from natural to socio-economic of the country, region, and the world. Therefore, the response to climate change must be fully understood, with the participation of ministries and branches from central to local levels, close cooperation with the international community can bring about positive results certain results.

3.1.2. Vietnam actively cooperates with the international community to respond to climate change

Realizing that climate change is one of the urgent global issues related to human destiny. Responding to climate change requires the cooperation and high sense of responsibility of all countries in the world. As a responsible member of the international community, Vietnam has always actively and proactively coordinated with other countries and international organizations to limit and minimize negative impacts on the environment, climate, and environment, reduce the level and intensity of greenhouse gas emissions, is the main cause of climate change. Adjusting natural or human factors in response to changing environmental circumstances, along with actively coordinating with the international community to respond to climate change.

Immediately after the United Nations Framework Convention on Climate Change (UNFCCC) was adopted at the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil in June 1992, to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. And the Kyoto Protocol was adopted (December 1997), and entered into force on February 16, 2005, requiring industrialized countries and countries with transition economies to commit to reducing the total amount of greenhouse gas emissions was lower than in 1990, at an average rate of 5.2%, during the first commitment period (2008-2012) under specific reductions. Vietnam actively joined and signed the Climate Convention on June 11, 1992, ratified on November 16, 1994; signed the Kyoto Protocol on December 3, 1998,

and ratified it on September 25, 2002. At that time, Vietnam was not obliged to commit to a quantitative emission reduction of greenhouse gases (“GHG”) but actively implemented the contents according to the signed documents. Vietnam proactively develops a national notice on climate change; a national inventory of GHGs from anthropogenic sources and the amount of GHG absorbed by sinks; assesses the impacts of climate change on socio-economic fields; identifies domains and areas vulnerable to climate change and sea-level rise. Conduct research and monitoring activities on issues related to climate and climate change; updating and disseminating information to raise awareness of agencies and people about climate change, clean development mechanism (CDM)...

Actively implement the CDM, which is a new method of international cooperation under the Kyoto Protocol to reduce GHG emissions on a global scale through investment mechanisms between developing countries, increasing incentives for agencies, organizations, and businesses of developed countries to implement GHG emission reduction projects in the form of “Certified Emission Reductions (CERs)”. Contrast to recent decades, official development aid (ODA) has become popular and is considered a measure to promote economic growth in developing and least developed countries, the CDM is a tool for implementing national environmental policy in many countries that are party to the Kyoto Protocol. To create a legal corridor for domestic as well as foreign organizations and individuals to implement CDM activities, the Prime Minister of Vietnam issued Decision No. 47/2007 on approving the plan to organize the implementation of the Kyoto Protocol under the UNFCCC for the period 2007 - 2010; Directive No. 35/2005 on the implementation of the Kyoto Protocol under the UNFCCC. The Ministry of Natural Resources and Environment has issued legal documents on the CDM with specific instructions and is regularly updated following international regulations. Therefore, the operation of the CDM in Vietnam has achieved high efficiency.

Join the NAMAs Mechanism. Since the 13th Conference of the Parties to the UNFCCC in 2007 (COP 13 in Bali, Indonesia), a new approach to GHG mitigation for developing countries has been established and referred to as “nationally appropriate GHG mitigation actions (NAMA)”. By COP 17 in Durban, South Africa, NAMA registration was established. Accordingly, developing countries should participate in the GHG mitigation process and should receive technical, financial, and capacity-building support from developed countries. On November 21, 2012, the Prime Minister of Vietnam issued Decision 1775 approving the project on the management of greenhouse gas emissions and carbon credit business activities to the world market. To implement the above project, on February 21, 2013, the Ministry of Natural Resources and Environment issued Decision No. 187 to establish a Working Group to prepare to integrate NAMAs with the task of advising and proposing with the Minister of Natural Resources and Environment, relevant ministries, branches and agencies on measures to establish an institutional framework including policies and documents to facilitate the integration of NAMAs into programs, master plans and plans sustainable development plans of ministries, branches, agencies, and localities. On March 4, 2013, the Government issued Decree No. 21/2013, according to which the Ministry of Natural Resources and Environment is responsible for: Building and implementing domestic

and international MRV systems; organizing national GHG inventory; proposing and recommending policies and measures to reduce GHG emissions of Vietnam suitable to socio-economic development in each period; Guide, inspect and organize the implementation of measures to manage carbon credit business activities following the law and international treaties to which Vietnam is a signatory, issue certifications to the investment projects under the clean development mechanism and other international mechanisms on GHG emission reduction of all economic sectors. The Department of Climate Change under the Ministry of Natural Resources and Environment is the national focal point for NAMA registration with the UNFCCC Secretariat. Currently, several NAMAs are being deployed in the fields of wind power, construction, waste management, biogas.

Intended Nationally Determined Contributions (INDCs) are new to the Decision at the 19th Conference (COP19) in Warsaw, Poland in 2013. Vietnam has submitted INDCs decided by the country to the UNFCCC Secretariat at COP21 in Paris. Following the ratification of the Paris Agreement on climate change, the INDCs officially becomes the Nationally Determined Contribution (NDC). Viet Nam submitted INDCs early in 2015 to the UNFCCC and subsequently submitted NDC update in 2020. Vietnam is also one of the first 20 countries to complete the review and update of the NDC, and at the same time significantly increased its contribution to GHG emission reduction in line with the country's socio-economic development up to 2030. Accordingly, with domestic resources, by 2030, Vietnam will reduce its total greenhouse gas emissions by 9% compared to the normal development scenario. Compared to the NDC submitted in 2015, Vietnam's updated NDC has increased its GHG emission reduction efforts by 2%, matching the overall increase of the 75 countries that have submitted the updated NDC up to December 2020. 2.8%. Recently, Vietnam has issued the National Plan to adapt to climate change for the period 2021-2030, with a vision to 2050 with the common goal of reducing vulnerability and risks to the impacts of climate change through strengthening resilience, and adaptive capacity of communities, economic sectors, and ecosystems; promote the integration of climate change adaptation into the strategy and planning system. Vietnam's national-determined contribution includes the GHG emission mitigation component and the climate change adaptation component. The GHG emission mitigation component includes unconditional contributions and conditional contributions. Unconditional contributions are activities that will be carried out with domestic resources, while conditional contributions are those that can be completed if new and additional financial support is received and technology and capacity transferred building from abroad.

The United Nations Climate Change Conferences, are held annually to assess the process of coping with climate change and develop legally binding obligations for developed countries to reduce the amount of greenhouse gas emissions (from 1995 to the present). Vietnam always participates as a responsible member and has a consistent view: climate change is happening and will have a strong impact on all people, ecosystems, and countries around the world; climate change is anthropogenic, due to excessive emissions of greenhouse gases into the atmosphere; Humans can limit or solve the problem of climate change by reducing greenhouse gas emissions. Reducing greenhouse gas emissions is the responsibility of nations.

To strengthen bilateral cooperation activities on climate change, Vietnam and Japan signed a Memorandum of Understanding on Cooperation on Low Carbon Growth in July 2013. On the Vietnamese side, the Ministry of Natural Resources and Environment was assigned by the Government to assume the prime responsibility for, and coordinate with concerned ministries and branches in, negotiating with the Japanese side to establish a Joint Committee and issue Guidelines for the implementation of the Joint Crediting Mechanism (JCM) in Vietnam. According to the content of the Memorandum of Understanding, Japan and Vietnam will conduct consultations and close policy cooperation at all levels towards low-carbon growth within the United Nations, regional and bilateral frameworks. The two sides also promote investment and development of low-carbon technologies, products, systems, services, and infrastructure in Vietnam. Following the direction of the Prime Minister in Official Dispatch No. 10728 dated December 19, 2013, of the Office of the Government, the Ministry of Natural Resources and Environment has coordinated with relevant agencies to implement JCM. Currently, the Circular guiding the implementation of JCM has been developed by the Ministry of Natural Resources and Environment to regulate activities related to the construction, registration, and implementation of projects under the JCM within the framework of the Memorandum of Understanding on Cooperation on Low Carbon Growth between Vietnam and Japan.

Sponsored by the Dutch Government, the Government of Vietnam has proposed to coordinate the development of the Cuu Long Delta Plan to learn from the Dutch experience in responding to climate change and developing safely, prosperously, and sustainably in both economic and environmental terms and respond to climate change. The Cuu Long Delta Plan has been developed by Dutch and Vietnamese experts and submitted by the Vietnamese Ministry of Natural Resources and Environment and the Dutch Ministry of Environment to the Government of Vietnam at the 3rd meeting - December 16, 2013) of the Vietnam - Netherlands Intergovernmental Committee. The Cuu Long Delta Plan is built with a 100-year vision based on synthesizing strategies, master plans, and plans of sectors and fields into one master plan. The Ministry of Natural Resources and Environment in collaboration with Dutch experts completed the 2nd Recommendation for the Cuu Long Delta Plan with 9 proposals to ensure the sustainable development of the Cuu Long Delta. On November 17, 2017, the Government approved Resolution No. 120 on Sustainable development of the Cuu Long Delta to adapt to climate change, which sets out a vision and goals of turning the Cuu Long Delta into a region with a good level of development compared to the whole country in 2050, with an advanced level of social organization; per capita income is higher than the national average, people's livelihood is guaranteed; the proportion of ecological agriculture, high-tech agriculture accounts for over 80%, forest coverage is over 9% (compared to 4.3% at present), important natural ecosystems are preserved and developed.

With specific actions, the Party, Government, ministries, and branches according to their functions and tasks have issued many legal documents to carry out activities to respond to climate change. Practical actions Vietnam has been contributing to the fight against global climate change. Besides the action plans and programs to respond to climate change such as National Strategy on Climate Change (1911-1920); Project “Management of greenhouse gas

emissions; manage carbon credit business activities to the world market” according to Decision No. 1775 dated November 21, 2012, published, to effectively implement the Climate Convention and other treaties. International organizations that Vietnam participates in, take advantage of opportunities to develop a low-carbon economy, and green growth, work with the international community to reduce GHG emissions and implement the goal of sustainably developing country; Target programs to respond to climate change and green growth for the period 2016-2020; On October 28, 2016, the Prime Minister issued Decision 2053 promulgating a plan to implement the Paris Agreement on climate. In which, ministries, branches, and localities have been assigned to implement 68 tasks related to climate change response; Greenhouse gas emission management scheme; The national plan to adapt to climate change for the period 2021-2030, with a vision to 2050... was in turn approved. Vietnam also legislates issues of response to climate change such as the Law on Natural Disaster Prevention, the Law on Irrigation, the Law on Water Resources, the Law on Economical and Efficient Use of Energy, and the Law on Environmental Protection. The National Assembly adopted the 2013 Constitution, which for the first time included the task of responding to climate change into the Constitution, in Clause 1, Article 63 “The State has an environmental protection policy; manage and use effectively and sustainably natural resources; nature conservation, biodiversity; proactively prevent and combat natural disasters and respond to climate change”. Vietnam also develops and replicates ecosystem-based, community-based, and nature-based climate change, adaptation models. Some of the main goals, tasks, and targets of the National Strategy on Climate Change for the 2011-2020 period have achieved important results. Greenhouse gas emissions from energy activities are reduced by 12.9% compared to the normal development scenario. Along with that, energy consumption per GDP decreased by 1.8%/year on average; the percentage of industrial enterprises with awareness of cleaner production has increased from 28% in 2010 to 46.9% in 2020; the forest cover rate in 2020 will reach 42% (Ministry of Planning and Investment, 2021).

In the region, Vietnam actively signed and implemented commitments signed in the Agreement on Disaster Management and Emergency Response (AADMER) 2010. This is considered a breakthrough in strengthening cooperation within the bloc for disaster control, emergency response coordination, and search and rescue. Vietnam has gradually affirmed its role in implementing the AADMER and putting the ASEAN Coordination Center for Humanitarian Affairs in Disaster (AHA) into operation.

Participating in cooperation programs in Asia-Europe, Asia-Pacific, East Asia, within ASEAN, and the Mekong sub-region in response to climate change, resource management, and environmental protection. Promote cooperation with relevant countries, international organizations, and forums to protect transboundary water sources, access new technologies and mobilize resources for GHG emission reduction, adaptation to climate change, and environmental protection. As a developing country, Vietnam soon proactively set out guidelines and solutions to respond to climate change, and at the same time made specific commitments to adapt to climate change and mitigate greenhouse gas emissions, gradually receiving enthusiastic support from countries in the region and around the world. Vietnam's proactive coordination with the international community to respond to climate

change is affirmed by the Communist Party of Vietnam in the Resolutions of all congresses and symposiums on climate change response and environmental protection.

Climate change is a global issue, one of the major challenges that Vietnam and many countries around the world are facing. Realize that climate change will be severe and complicated, causing many consequences for the development of the country in the forthcoming time. Therefore, “Proactively adapting to climate change, preventing, combating and mitigating natural disasters and epidemics”, “implementing international commitments, contributing to the international community's adaptation to climate change”, “protect the global ecosystem” (Communist Party of Vietnam, 2021, p.155) is also the task that Vietnam is strongly implementing today.

3.2. Vietnam's imprints in responding to global climate change

3.2.1. The 21st Climate Change Summit (COP 21) and Vietnam's strong commitments

Since signing the Climate Convention on June 11, 1992, and the Kyoto Protocol on December 3, 1998, Vietnam has always actively participated in international activities, conferences, seminars, and negotiations on climate change and has made important imprints.

2015 marked a major event in Vietnam's international cooperation on climate change, which was the participation in the COP 21 Climate Change Conference in Paris (France). The Paris Agreement focuses on comprehensively addressing the contents of the UNFCCC, which is expected to replace the Kyoto Protocol in 2020. The Agreement reaffirms the goal of controlling levels increase in the average global temperature below 2°C and calls on countries to make efforts to limit the increase in global average temperature to 1.5°C. In addition, the parties also reached an agreement on issues such as: converting the INDC into NDC, periodically reporting on emissions levels and “progress made in NDC implementation”; through an international review process every five years, the first being in 2023.

At the Conference, Vietnam committed to:

Firstly, in the period from now to 2020, Vietnam will continue to actively implement strategies, programs, and plans for responding to climate change in many fields with practical measures. Strictly execute the obligations under the UNFCCC and the Kyoto Protocol. Vietnam will contribute 1 million USD to the Green Climate Fund for the 2016-2020 period.

Secondly, for the period after 2020, Vietnam still commits to reducing greenhouse gas emissions by 8% by 2030 and can reduce them by up to 25% if it receives effective support from the international community. Vietnam will periodically review and adjust in accordance with actual conditions.

Regarding the solutions that Vietnam will implement, including: In the energy sector, which is considered the main source of emissions, efficient and economical use of energy, and the use of renewable energy. In transportation, towards increasing the use of public transport, reducing private vehicles in big cities, switching to low-emission fuels such as using new fuels, gasoline, etc. biology... In the forestry sector, Vietnam develops options to increase the absorptive capacity of forests through sustainable forest conservation, planting mangroves in coastal areas to increase carbon sinks; at the same time, it also increases the ability to prevent natural disasters when storms and floods occur in estuaries and coastal areas.

As for the goal of sustainable development, Vietnam is actively implementing the National Strategy on Sustainable Development 2011-2020, restructuring the economy, and transforming the growth model to improve economic efficiency and ensure social justice. Accordingly, Vietnam is moving towards a green industry with the principle of maintaining efficient economic activities, based on minimizing the use of energy and resources, through the use of renewable energy and implementing energy efficiency; reducing pressure on the environment, developing forests, changing land usage purposes, and change wasteful consumption habits.

With these commitments, Vietnam demonstrates political determination and close cooperation in seriously, fully, and effectively implementing its national commitments to the Global Climate Agreement. Participating in COP 21, demonstrating the responsibility and strong commitment of the Government of Vietnam, has been and will continue to be proactive and responsible with the international community to join hands in efforts to respond to climate change using concrete action both at the national and international level.

3.2.2. At the 26th Climate Change Summit (COP26) - Vietnam's mark

Climate change is increasingly complex, COP 26 is expected to be the “best and last hope” to save the planet. At the Conference, 197 countries affirmed that the top priority is to limit the increase in global temperature to 1.5°C above pre-industrial levels - the goal set out in the 2015 Paris Agreement on climate change. Exceeding this threshold, scientists warn, poses the risk of deadly heatwaves, violent storms, drought, and ecosystem disruption. Earth's temperature has now increased by 1.1°C. According to politicians and some activists, the results achieved at COP 26 show the consensus of all countries and send a strong message about the need to step up climate action...

COP 26 calls on countries to come up with more aggressive deflation targets by 2030, aiming to be carbon neutral by mid-century. To accomplish this goal, countries need to accelerate the process of phasing out coal use, limiting deforestation, accelerating the transition to electric vehicles, and encouraging investment in renewable energy.

The climate has been changing and will continue to change with more devastating effects, even as the world struggles to cut emissions. Many communities are vulnerable to and most at risk from climate change, even though they are not the biggest contributors to climate change. Therefore, COP 26 calls on the international community to do more, unite and support those most vulnerable to the impacts of climate change. Facilitate and encourage countries affected by climate change, to protect and restore ecosystems; as well as build a system of natural disaster prevention, control and warning, infrastructure development, and agriculture that is resilient to climate change.

The focus of the negotiations at COP 26 was to finalize the rules needed to implement the 2015 Paris Agreement, including solutions to promote carbon markets, with a higher focus on both actions to reduce emissions and adaptation to climate change. Here, Vietnam made a strong commitment to responding to global climate change. For the first time, Vietnam is committed to developing and implementing strong greenhouse gas emission reduction measures with its resources, along with the cooperation and support of the international community, especially developed countries in both finance and technology

transfer, including implementing mechanisms under the Paris Agreement, to achieve net-zero emissions by 2050.

The declaration of net emissions of “zero” by 2050 demonstrates the determination and political commitment of the Party and State in accelerating the economic transformation to contribute to solving the climate crisis. Vietnam's commitment is highly appreciated by the President of COP 26 and countries around the world for its strong and very practical determination. We have emphasized responsibility, ethics, and awareness of organizations, collectives, and individuals on climate change and environmental protection.

At the same time, Vietnam pledged to reduce methane emissions by 30% by 2030. And called on all rich countries and developed countries to share, support, and help developing countries and poor countries in perfecting the institution; training workforces associated with innovation; appropriate and effective green finance arrangement; green technology sharing; national governance to implement methane reductions. Vietnam has also joined the Declaration focusing on the role and interrelationships between forests, biodiversity, and sustainable land use, contributing to achieving a balance between anthropogenic greenhouse gas emissions and natural greenhouse gas absorption, climate change adaptation. Participating in the Global Declaration of Transition from Coal Power to Clean Energy, the Glasgow Declaration of Leaders on Forests and Land Use... demonstrates the acumen and vision of the era of Party and State leaders. These commitments have been highly appreciated by the international community because Vietnam's commitments are completely in line with the common trend of mankind to choose a development model that does not harm today and tomorrow's generations.

Not only had Vietnam had strong commitments at the Conference, but we had also prepared a roadmap for implementation in advance, such as the inclusion of content to respond to climate change, and commitments to contribute to the implementation of the Paris Agreement on the Law of Environmental Protection 2020, Decree on mitigation of greenhouse gas emissions and protection of the ozone layer along with documents and projects to be submitted to the Prime Minister for promulgation in 2021; develop regulations for the implementation of climate change mitigation and adaptation that meet transparency requirements. “This is an important legal basis for mobilizing the entire population to respond to climate change.”

The Prime Minister of Vietnam has proposed that responding to climate change and natural restoration must become the highest priority in all development decisions, and the highest ethical standard of all levels, industries, businesses, and people. This decision represents the vision of the leader of the Government on socio-economic development of the country in the coming period, the orientation of development investment activities in the coming period in order to achieve the goal of making Vietnam become a high-income developed country by 2045 as set out by the Resolution of the 13th National Congress of Deputies. The path to that goal must be a “green” path, in line with the general global development trend.

4. Conclusion

Today, climate change is affecting people's lives all over the world. Responding to climate change is a major concern of countries. From a very early age, Vietnam has actively

participated and is strongly committed to the international community in responding to climate change. In the journey with the international community to respond to global climate change, many events have marked Vietnam in the international arena. Especially at COP 21 and most recently, COP 26. The responsible contributions of Vietnam are highly appreciated by the international community, draw many opportunities for cooperation on low-emission growth and promoting the development of the circular economy, and reducing the possibilities of climate change./.

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GREEN PROACTIVENESS ORIENTATION AND GREEN PERFORMANCE: A LITERATURE REVIEW

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Abstract

Today, environmental pollution and environmental issues are a topic of interest to the world in general and Vietnam in particular, especially in the context of complicated epidemic developments in recent years. brought the world economy to a standstill. Therefore, green start-up is a solution that is considered to be very suitable for the world economy and our country today. This study will clarify the commercial and political legitimacy of the green economic model and the results of applying the green economic model to a developing country, Vietnam, in the context of covid 19. is still complicated.

Keywords: *Green proactiveness orientation; green performance*

1. Introduction

Green start-ups are increasingly recognized as the solution to environmental degradation, climate change and resource shortages - important challenges globally. Economic performance, environmental performance and social responsibility are all important factors to consider. For green startups, it is vulnerable to take into account both business performance and social responsibility. At the system level, there are limits. Whether these restrictions on legality benefit green business. Current research suggests this is not the case. The question of whether a country is in transition is particularly important for economies in transition. Green businesses that proactively face legitimacy constraints and institutional uncertainty can succeed. More research on green performance is needed. As a result, a theoretical model to determine the association has been developed. Green proactive orientation (GPO), green performance, legitimacy and transition issues. The subject of economics has been suggested. Based on information from new green businesses in Vietnam.

For governments, universities and businesses worldwide, balancing economic expansion with environmental conservation presents a significant challenge. Several incidents have occurred, including the Deepwater Horizon Oil Spill on April 20, 2010, Elk River Pollution, West Virginia 2014, Domestic Benzene Pollution in Lanzhou (China) In

2014,... especially in a developing country like Vietnam 2020 was a year of many fluctuations, the economy was heavily influenced by During the Covid-19 pandemic, however, the process of industrialization and urbanization is still on the rise, along with negative impacts on the environment, such as: declining natural resources, increased CO2 emissions. It is estimated that the total amount of greenhouse gas emissions in the four sectors: energy, agriculture and waste will be 466 million tons of CO2 equivalent in 2020 and increase to 760.5 million tons of CO2 equivalent in 2030 [4]. In addition, Vietnam is currently facing negative impacts of climate change and some challenges in ensuring energy, food and water security. Facing the above consequences of the brown economic model with the trend of green economic development in the world, in recent years, Vietnam has focused on shifting from the brown economic model to the green one.

Green start-up is defined as a company's business activity in green innovation for goods, services and market development in order to generate profits while paying attention to environmental protection [5,6]. . Green entrepreneurship theory emerged as a result of the growing fusion of the concepts of enterprise and social enterprise. Green entrepreneurship is not likely to burden enterprises due to its dual effect of being eco-oriented and market oriented, as it will bring abundant resources for their development., 8]. According to the definition of Miller and Friesen (1983) [9] on business orientation, green businesses need to have a green business orientation (GEO), including green innovation, green risk taking and green initiatives. Because green companies must be socially responsible, it is important that they do the same.

This study focuses on two topics as a result of this investigation. For startups, the "GEO - legitimacy - resources - business growth" causal model does not reflect the essence of legitimacy in green startups; A comparative exploration of the effects of different levels of legitimacy on the impact of GEOs and green activity seems more worthwhile, and such studies are rare. As a result, we investigated the link between green proactive orientation (GPO) and green performance, as well as the influence of regulation on legitimacy. More importantly, the establishment of stable and effective system standards for assessing legitimacy is necessary to integrate the theory of legitimacy with the theory of green entrepreneurship; this is not suitable for many countries in transition, including Vietnam. Because of significant institutional uncertainties.

2. Literature Review

2.1. Green Entrepreneurship and Green Entrepreneurial Orientation

Green enterprise (GE), understood as environmental, ecological or sustainable entrepreneurship, is the process of identifying, analyzing and exploiting the economic possibilities that result from market failures, as well as such as creating conditions for the long-term development of enterprises. similar companies. GE's primary mission is to identify the next market opportunity for green product development, while also committing to corporate social and environmental responsibility [5]. Due to GE's extended repayment period and social obligations, it is often required. Enterprises also have a role to play in policies that encourage, support and be generally accepted by society; It has a dual role in

both ecological and enterprise construction. Furthermore, businesses for GE must strive to meet the two goals of proactive environmental management and marketing, green participation and entrepreneurship.

2.2. Green Proactiveness Orientation and Green Performance

2.2.1 . Green Proactiveness Orientation

Green proactiveness orientation (GPO) is an essential characteristic of GEO that shows the willingness to take action on behalf of the environment. Enterprises have a propensity to be more proactive in adopting GE habits than their rivals [9]. Green proactiveness-oriented businesses are often industry leaders, according to research. industry trends, anticipating possibilities, and adopting proactive measures to deal with change. GPO stands for proactiveness and is a blend of initiative and behavior orientation. Rather than simply accepting, businesses can take action on the environment. It indicates a forward-thinking attitude. tendencies in entrepreneurial businesses, such as successfully foresee industry developments and avoiding low-green-potential product manufacturing, leading customer adoption of green products, and [5] Consumption trends, for example. As a result, implementing green activities ahead of competitors, such as developing innovative green goods, service models, and management practices.

2.2.2. Green Performance

Green performance is defined as a reduction in a company's negative environmental effect. while striking a balance between economic and environmental concerns. As a result, green performance assesses an organization's ability to balance commercial and environmental goals. Getting to the green zone Enterprise performance necessitates not just a reduction in pollution, waste, and energy consumption, but also a reduction in the number of employees. not just to increase consumer safety, but also to survive and grow. Green performance encompasses a variety of factors. Indicators of measurement, each indicating a variable, in accordance with a lower negative influence on the natural world. Reduced consumption of water, energy, and non-renewable resources are among these factors. hazardous inputs, solid waste, soil pollution, wastewater emissions, air emissions, and noise, to name a few odor/odor emissions, landscape destruction, and the possibility of serious accidents.

The association between proactiveness orientation and entrepreneurial performance has been the subject of several research. Proactiveness-oriented startups seek proactive advantages and a demand premium. Customers are left with a powerful and enduring image, strong brand awareness, and the high cost of customers switching to another company. Early entrants in the sector have a low-cost advantage by having a technological lead and downshifting the learning curve. Enterprises that are proactive can earn huge performance advantages. GPO, therefore, inherited the important features of proactiveness orientation, as seen by adopting GE action ahead of the competition. Choosing advance activities with a green orientation as the goal will provide you a green proactive edge and put you ahead of the pack in terms of green performance.

Hypothesis 1: Enterprises with higher levels of GPO will have more improved green performance.

2.3. Legitimacy

Some scholars have considered the question of legitimacy. Generalizing or assuming that the behaviors of an entity are appropriate, desirable or appropriate according to some system of norms, values, beliefs and definitions created by society, such as Suchman (1995) [10] did. Legal restrictions, such as those on sociopolitical legitimacy and perceived validity, apply to startups. Low social legitimacy leads to difficulty in registration, public rejection of product standards, financial difficulties, etc. Sociopolitical legitimacy refers to the degree of acceptance of a startup's behavior and products by key stakeholders, the public, and government officials; low social legitimacy leads to difficulty in registration, public rejection of product standards, etc. The degree of social acceptance and acceptance of startups, mostly controlled by society's knowledge of new companies and products, is known as perceived legitimacy.

The combination of legitimacy and opportunity is common in the startup world. To see the commercial potential of the possibilities; Experienced entrepreneurs appreciate commercial opportunities more than others. According to the authors, low commercial legitimacy is a major problem that makes it difficult to materialize. measure the value of an opportunity This is making seasoned businesses pay more attention to this issue. Because a higher degree of commercial legitimacy ensures stiffer competition,

The more innovative a company is, the better its chances of achieving a competitive advantage. For green behavior to be of practical importance, commercial legitimacy is particularly important. as supported by the win-win approach, but this approach has not been experimentally proven for various reasons leading to hypothesis 2, 3.

Hypothesis 2 (H2+): The positive association between GPO and green performance is higher in businesses that have a large number of employees. Firms with greater levels of political legitimacy have higher levels of political legitimacy than enterprises with lower levels of political legitimacy.

Hypothesis 3 (H3+): The positive association between GPO and green performance is higher in businesses that have a large number of employees. Enterprises with greater levels of commercial legitimacy have higher levels of commercial legitimacy than those with lower levels of commercial legitimacy.

2.4. Institutional Uncertainty in a Transitional Economy

The term "transitional economy" refers to the period of transition from a planned economy to a market economy. Many emerging countries, unlike the rich Western countries, have a combination of planned and market economies, government involvement and market processes, as well as traditional and existing institutions. grand. Modern modes of economic growth [66–68]. Entrepreneurship is crucial in times of economic transformation. have traits of ingenuity, such as juggling between trade and commerce, conservation of the environment, specialization and diversity, entrepreneurship and conservation the status quo In With economies in transition, companies in emerging countries, such as Vietnam, exhibit a distinctive character in their business practices. As a result, mature Transition economies are not based on Western notions. There is no question that a thorough investigation is needed. in transition economies will have a significant impact on GE's entrepreneurship and behavior.

As a result, the transitional economy has a significant influence on green entrepreneurial ventures. The emergence of a private economy boosts market competitiveness and vitality by breaking the restraints of a planned economy. In a competitive market, businesses are more likely to seek short-term performance goals rather than long-term ones, and business conduct is more likely to be related to company success than than environmental performance. When institutional uncertainty is high, regulatory constraints for businesses become less rigorous, and businesses will continue to seek for and exploit legislative loopholes and gaps. Institutional pressure on green businesses falls along with the need to obtain political legitimacy, especially when industry standards are unclear, resulting in poor green performance (H4). Formal and informal institutions, on the other hand, are studied in the study of institution theory.

Formal and informal institutions, on the other hand, show a mutual substitution impact in the process of regulating economic behavior in the study of institution theory. When formal institutions fail, informal norms and values take over. As a result, when institutional uncertainty is high, it becomes even more critical for businesses to obtain a competitive advantage. Public, supplier, and partner recognition. In this case, informal influences are a factor. Institutions are more important, as is the influence of commercial legitimacy on GPO.

When the benefits of going green become more apparent (H5). Hypotheses 4 and 5 follow as a result of this.

Hypothesis 4: As institutional uncertainty grows, the moderating influence of political legitimacy on the connection between GPO and green performance becomes more negative, resulting in a negative three-way interaction between GPO, political legitimacy, and institutional uncertainty.

Hypothesis 5 (H5+): As institutional uncertainty increases, the moderating effect of commercial legitimacy on the relationship between GPO and green performance becomes stronger, resulting in a three-way interaction between GPO, commercial legitimacy, and institutional uncertainty that is positively related to green performance.

2.5. Impact of covid 19 on the economy in green performance transformation

Since 2019, Vietnam has been affected by the covid 19 pandemic, causing the Vietnamese economy to stagnate. At that time, the brown economic model was being applied by Vietnam. However, due to the impact of epidemics and natural disasters, Vietnam's economy fluctuates and somewhat declines, especially environmental pollution is at a serious level. In order to promote the economy combined with environmental protection and attract foreign investment, Vietnam has promoted the transformation towards a green economy and has had certain successes: especially attracting FPI in 2021. reached 31.5 billion USD, up 9.2 percent compared to 2020.

Hypothesis 6: The impact of covid has severely affected the world economy, but for Vietnam, the focus on shifting to a green economy has brought certain successes during the covid 19 pandemic and strongly attracted FDI.

3. Method

3.1. The current situation and reasons for choosing Vietnam as a research base

Vietnam's economy has progressed and accomplished significant milestones during the last 30 years, with an average annual economic growth rate of 5.8% for the period 2016-2020. The economy is badly hit by the Covid-19 pandemic in 2020, however based on the aforementioned economic growth data, Vietnam remains in the group of countries with the greatest growth in the region and throughout the world. This is a positive indicator, but it should be noted that the higher the economic development, the greater the influence on the environment and society. In particular, the processes of industrialization and urbanization have had severe environmental consequences, such as the depletion of natural resources and the growth in CO2 emissions.

Total greenhouse gas emissions in the four sectors of energy, agriculture, and trash are expected to be 466 million tons of CO2 equivalent in 2020, rising to 760.5 million tons of CO2 equivalent in 2030 [4]. Furthermore, climate change is having a detrimental influence on Vietnam, as well as certain issues in guaranteeing energy, food, and water security. Prior to the above repercussions of the brown economic model colliding with the global trend of green economic growth, Vietnam has concentrated on changing from the brown to the green economy in recent years.

Vietnam is a country with potential and developing economy, so I chose Vietnam as the subject of research and survey for this topic.

3.2. Survey tool development

In order to prevent performance measurement bias, Murphy et al. (1996) recommends using suitable control variables in studies of entrepreneurial success. As a result, the control variables in this study were the size of the company, the period since it was founded, the industry, the size of the business, and the stage of development.

This research discovered the following variables based on the rich theoretical framework presented in the preceding section. in accordance with the specifications All of the items were evaluated using a five-point Likert scale. One implies that the statement did not correspond to the reality of the respondent's business. belongs to, and a five-star rating denoted a good match. In addition, the EO measures have been discussed. before, in a research project. Covin and Slevin (1989) developed a proactiveness measure for their investigation. use and orientation.

Variable	Items	Questions	Source
Political legitimacy	The enterprise was highly praised by government departments	Is your business highly rated by the government?	
	The enterprise was recognized by regulatory bodies.	Has your company's business activities been recognized by state management agencies?	
	The government frequently recommended us as a model enterprise	Is your business often referred to as a model business by the government?	

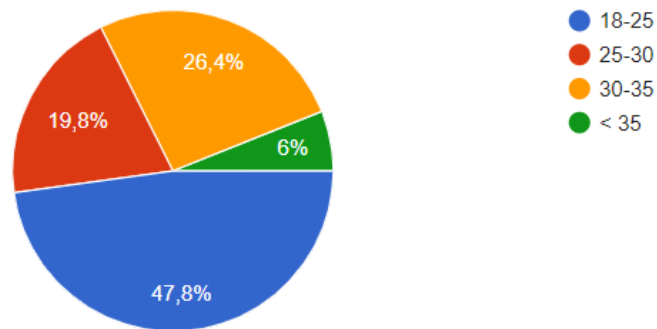
Variable	Items	Questions	Source
	The government regularly visited our enterprise.	Does the government regularly visit your business?	
Commercial legitimacy	The enterprise is widely recognized by customers.	.Is your product popular with customers?	
	The enterprise is widely recognized by suppliers.	Is your business widely recognized by suppliers?	
	The enterprise's products have been highly evaluated by peers	Are your products highly appreciated by other businesses?	
	The enterprise's products have been highly evaluated by customers	Does the government regularly visit your business?	
Institutional uncertainty	Key policies related to business operation are not comprehensive.	Policies mainly related to business activities are not comprehensive	
	Relevant industry standards are not clear.	Relevant industry standards are not clear	
	Relevant industry policies are fuzzy	Related industry policies are still vague	
	There are gaps in related institutions and policies.	There are gaps in relevant institutions and policies	
	Relevant policies lack specific guidance and operational advice for implementation	Related policies lack specific guidance and operational advice for implementation	
Reen activity	Compared to peers, we cause less air pollution.	Who feels the high affirmative meaning of the statements?	
	Compared to peers, we release less sewage.	.Who generates the most wastewater in your business?	
	Compared to peers, we show a high significance affirmative of the statements	Who feels the high affirmative meaning of the statements?	
	Compared to peers, our cost of handling poisonous, harmful and hazardous materials is lower.	Is your business's cost of handling harmful and dangerous substances lower than other companies in the same industry?	
	Compared to peers, our cost of energy consumption is lower.	How is your company's consumption cost compared to other companies in the same industry?	

Variable	Items	Questions	Source
	Compared to peers, we have a lower rate of environmental accidents	How does your environmental accident rate compare to your colleagues?	
Proactive orientation	We usually spearhead green initiatives to which peers followed or reacted.	How often do you launch green initiatives?	
	We tend to be the industry "leader", often launching new green products, new technologies or green management before peers	Do you want to be the "leader" in the industry and launch new technology products, or green management before your peers?	
	Corporate executives frequently look at future industry trends, understand green development opportunities and take early action to manage change.	Do directors at your company regularly review future industry trends, understand growth opportunities, and take action to manage change?	

3.3. Survey responses

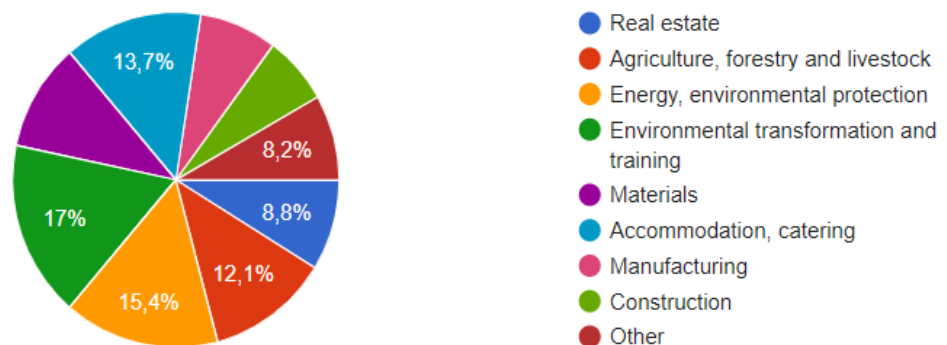
1.How old are you?

182 câu trả lời



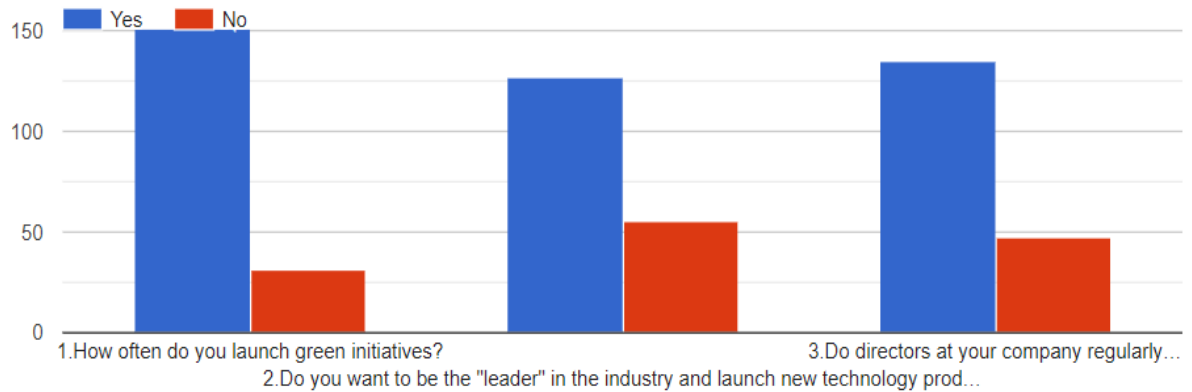
2. What field are you working in?

182 câu trả lời



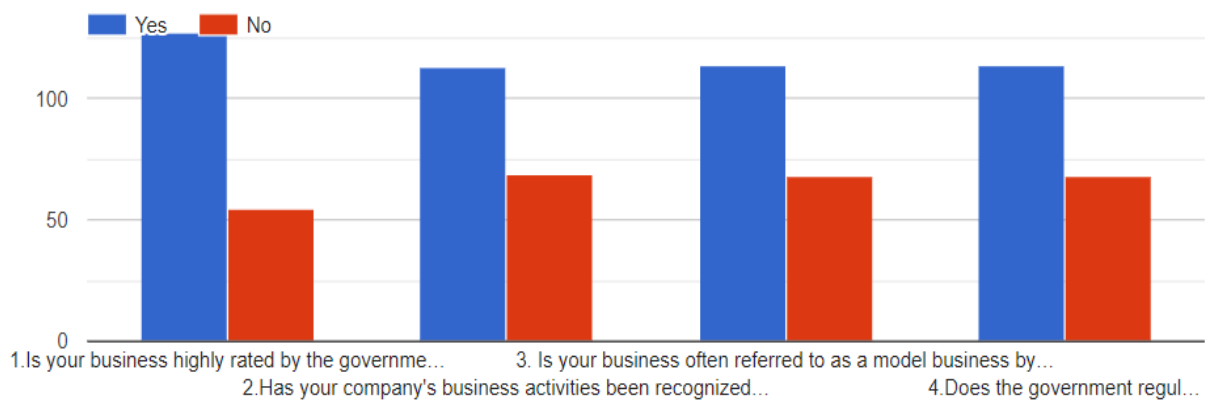
I. Proactive orientation

Sao chép



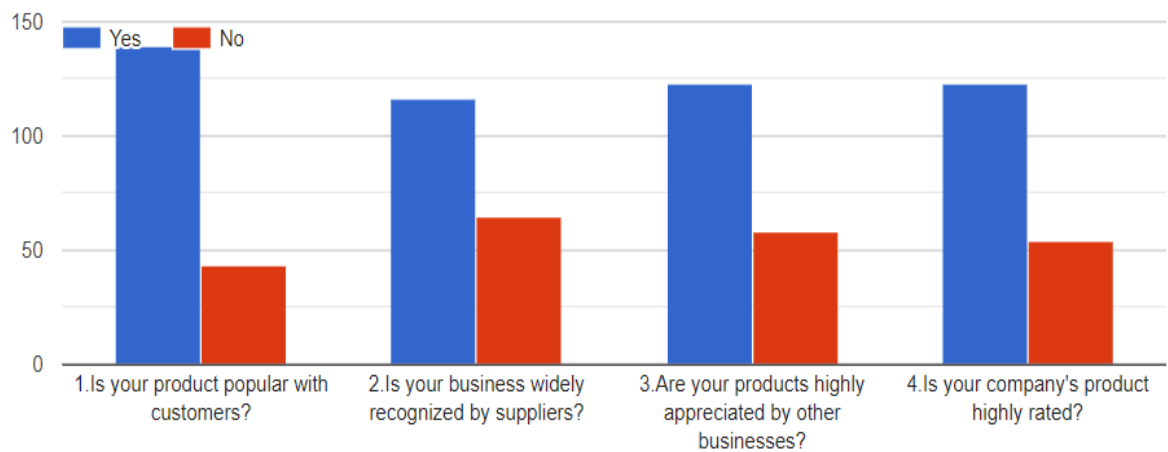
II. Political legitimacy

Sao chép



III. Commercial legitimacy

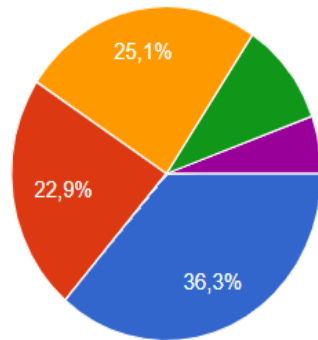
Sao chép



What are the limitations of your business?

Sao c

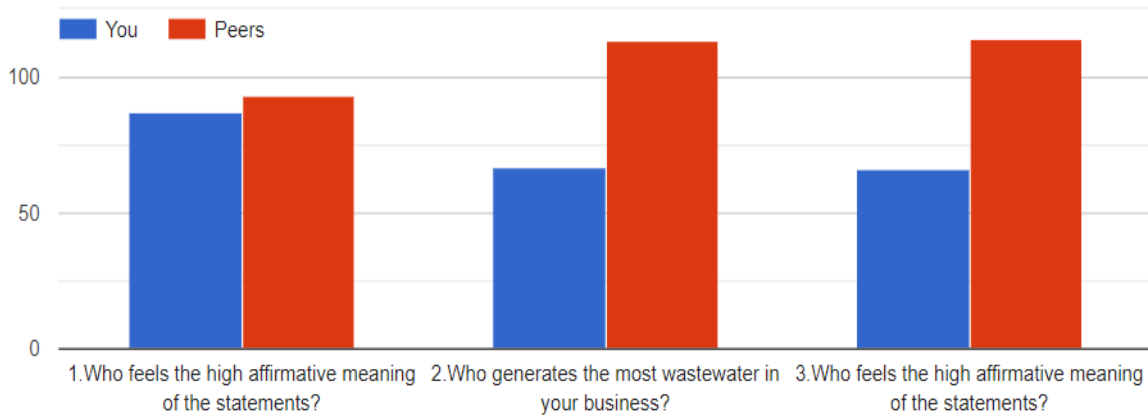
179 câu trả lời



- Policies mainly related to business activities are not comprehensive
- Relevant industry standards are not clear
- Related industry policies are still vague
- There are gaps in relevant institutions and policies
- Related policies lack specific guidance and operational advice for implementation

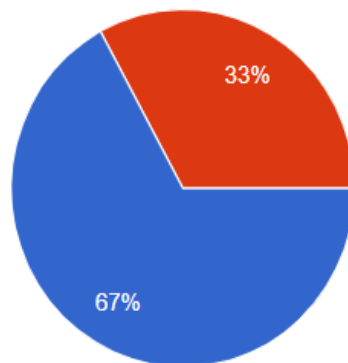
V.Reen activity

Sao chép



4. Is your business's cost of handling harmful and dangerous substances lower than other companies in the same industry?

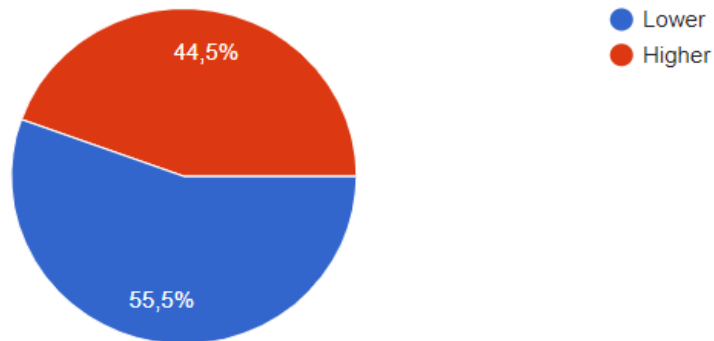
179 câu trả lời



- Yes
- No

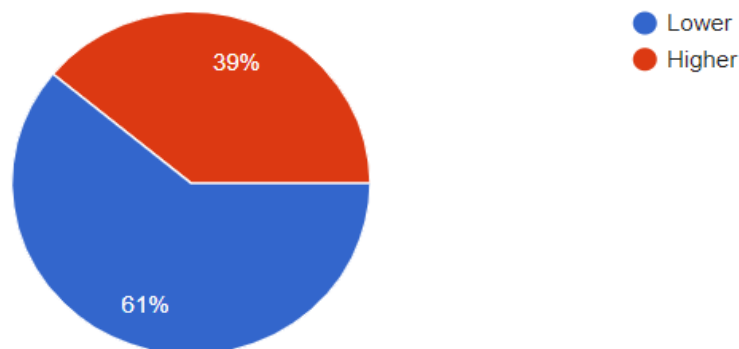
5.How is your company's consumption cost compared to other companies in the same industry?

182 câu trả lời



6.How does your environmental accident rate compare to your colleagues?

182 câu trả lời



4. Discussion and Conclusion

Green Economy is a concept that has become familiar to economies around the world. It is an economy that improves people's lives and social assets; at the same time, focusing on minimizing environmental hazards and resource scarcity (according to the United Nations Environment Program - 2010). Currently, the green economy is understood as a combination of three factors: economy - society - environment. Green economy has a sustainable nature, which means that it is activities (in the economy) that create profits or beneficial values, aimed at developing the life of the human social community (especially the cultural factors); at the same time, these activities are environmentally friendly (the key ingredient). These 3 factors are balanced to satisfy sustainability.

The green economy recognizes natural values and the role of investment in natural capital. Natural capital is natural resources such as forests, lakes, land, water, etc., which play an important role in human existence and development. Natural capital brings benefits to agriculture, soil fertility, value to crop production... especially the livelihood of poor households because their livelihood and security depend heavily on nature. course. Thus, the transition to a green economy not only recognizes and demonstrates the value of natural

capital, but also enables the investment and construction of natural capital towards a sustainable economy. Green economy contributes to poverty reduction. According to the experience of many developing countries, one of the greatest opportunities to accelerate the transition to a green economy is to invest in the provision and storage of clean water, sanitation services for the poor, and energy. renewable energy to be economically viable and as a means of poverty alleviation and overall quality of life improvement. Green economy encourages the use of renewable energy, low carbon technology and encourages more efficient use of resources and energy. As natural resources are increasingly depleted and biodiversity declines, and environmental pollution increases, the use of renewable energy will help reduce greenhouse gas emissions and risks of chemical fuel price fluctuations.

From the above arguments, the author proposes the following recommendations to raise awareness and implement green economy:

First, change the growth model from a broad-based growth model based on investment, capital increase and natural resource exploitation with low efficiency to a model of in-depth growth based on various factors. productivity is related to resource use, environmental protection and improvement of people's quality of life.

Second, to achieve a green economy, economic sectors must be green, economic sectors must be green. The green economy must be consistent in all areas of the economy, from production to consumption. It is necessary to restructure economic sectors in the direction of being environmentally friendly, focusing on transforming the internal structure in the direction of prioritizing low-emission and energy-saving industries.

Third, renovate production technology in the direction of being environmentally friendly, low carbon, prioritizing investment in the development of a number of spearhead green economic sectors such as organic industry, eco-tourism, etc.

Fourth, set technical criteria to create green products, products with national and international brands, meeting the requirements of trading partners.

Fifth, calculate the allocation of investment resources to sectors, thereby promoting the "natural capital" advantage of renewable resources.

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DIFFERENTIATING PRODUCTS TO EXPLOIT INTERNATIONAL MARKET OPPORTUNITIES FOR NATURAL FLAVORING INSECT REPELLENT PRODUCTS

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Abstract

Currently, products of natural origin, safe for users and environmentally friendly are increasingly popular and consumers are increasingly aware of the choice of products that are beneficial for family health. Enterprises also aim for sustainable development when cutting emissions through each stage of production. The trend of using natural flavoring products is also applied in insect repellent products because the features of some plants can both produce scents and have the effect of repelling insects. However, the use of this natural flavoring insect repellent still makes consumers wonder about its true use as well as there are many rampant products without a clear origin. Therefore, the study of natural flavoring insect repellent devices is also of interest to many researchers and pharmacists at home and abroad. Other studies have also found that many factors affect the choice of natural flavoring products but are inconsistent, have not focused on the product factor, and do not reflect the level of consumer awareness. Based on theory, this study analyzes and evaluates the effect of product differentiation on exploiting the opportunity for international market integration of natural flavoring insect repellent products by combining qualitative and quantitative methods. Thereby, the study clarifies the impact of product differentiation on consumer perceptions of products. Results achieved, Perceived Environment; Perceived Usefulness; Perceived Difference and Social Influence have a positive effect on consumers' purchasing intentions. In contrast, Perceived Risk has a negative effect on consumers' purchasing intentions of natural flavoring insect repellent products. Finally, the article proposes how to enter the market, position products, develop the strengths of products in the domestic and international markets.

Keywords: *International Business, Natural Products, Product Differentiation, Sustainable Development.*

1. Introduction

The trend of using flavoring products, natural scents is increasingly popular with the useful features and uses that it brings, both creating natural scents and having the effect of

repelling insects and helping to relax. Products carrying chemical, artificial flavorings are gradually being replaced because of their long-term harm.

The use of natural flavoring products has been quite popular in developed countries and there are initial advances in developing countries as personal income and consumer consciousness increase. However, currently, natural flavoring products have not made many improvements in product differentiation, including quality, style, price, shelf life, convenience, and no specific instructions for consumers to use properly.

For that reason, the authors implement the topic: "*Differentiating products to exploit international market opportunities for natural flavoring insect repellent products*" to determine how the factors of product differentiation impact the market exploitation opportunities of natural flavoring insect repellent products in the country and also international.

This article was structured into five parts: (1) Introduction; (2) Literature Review; (3) Research Methods; (4) Findings and (5) Discussion, Conclusion and Suggestions.

2. Literature Review

Product differentiation is a process of distinguishing one good and service from other products and services, making it more attractive to the product's target market. This involves distinguishing it from the product of the competitor as well as of the product itself in the company (Edward Chamberlin, 1993). Although a niche market can lead to changes in a product to improve velvet those changes are not different. The difference here is the uniqueness of the product which creates a sense of value. Any difference is valued by the buyer (the term Unique Selling Advantage refers to advertising to communicate the difference of the product).

Michael Porter (1980) stated that "Any product (tangible or intangible) is considered a unique product of a certain group of customers. Therefore, it depends on their perception of how different the product is." Miller (1986) proposed marketing and innovation as two differentiated strategies, supported by some scholars such as Lee and Miller (1999). Mintzberf (1988) proposes more specific but broader categories: quality, design, support, image, price, nice, and nondiscriminate products, supported by Kotha and Vadlamani (1995). IO Documents (Ethiraj & Zhu, 2008; Makadok, 2010, 2011) further analyzed the theory and explored the obvious difference between the widespread use of vertical and horizontal differences.

Several studies related to the effect of product differentiation on market exploitation. Research of Duong Anh Tung (2007) analyzes the competitive situation in the industry, assesses the strengths and weaknesses, causes of limitations, and proposes solutions to improve the competitiveness of the company's fruit and vegetable industry in the EU market, strategic findings, environmental awareness. Master Phan Thanh Xuan's (2011) study on the synthesis of liquid materials presented an overview of the literature on biofuels, catalyzed for the cracking process, an overview of waste cooking oil, and waste animal fat. Finding the usefulness of the product makes a difference.

Schmalensee, R. (1982). Product Differentiation Advantages of Pioneering Brands. *The American Economic Review*, 72(3), 349-365 presents and explores a relatively simple market model in which buyer rational behavior in the face of imperfect information about product quality can bring long-term advantages to pioneering brands.

Shaked, A., & Sutton, J. (1987). Product Differentiation and Industrial Structure. *The Journal of Industrial Economics*, 36(2), 131-146 points to "vertical product differentiation" that developed the idea that if the nature of technology and tastes in certain industries have a certain form, then that industry must necessarily be "focused"; and must remain so, no matter how big the economy becomes.

Krugman, P. (1980). Scale Economies, Product Differentiation, and the Pattern of Trade. *The American Economic Review*, 70(5), 950-959 argues that the widespread trade among developed countries as well as the popularity in this two-way exchange trade of differentiated products shows much in terms of theoretical standards.

Beath, J., & Katsoulacos, Y. (1991). *The economic theory of product differentiation*. Cambridge University Press said: "Few industries in the modern market economy do not produce differentiated products." This book systematically analyzes the widespread popularity of this important type of product and focuses on models in which product selection is endogenous.

Berry, S. (1994). Estimating Discrete-Choice Models of Product Differentiation. *The RAND Journal of Economics*, 25(2), 242-262. Retrieved February 5, 2021, Research paper looks at the problem of analyzing "supply and demand" on a cross-section of exclusive markets with differentiated products. The basic methodology is to assume that the need is described by a discrete selection model and the price is determined endogenously by valuation companies.

Anderson, S. P., & De Palma, A. (1992). The logit as a model of product differentiation. *Oxford Economic Papers*, 44(1), 51-67. In the paper, the authors evaluate two alternative models of international trade in differentiated products. A growing pattern of profitability in which varieties are linked to companies predicts the housing market effect.

Through the above studies, each study has a variety of factors and discovered that new factors are uneven and uniform. Moreover, studies show a direct link between factors on the product but there is no analysis of the interaction of each factor. Therefore, to have a deep and complete research model, overcoming limitations, the authors propose a complete research model based on cognitive biases. The team inherited the research model that preceded the appropriate variables in the course of the study: Perceived Environment (Kim and Choi, 2005); Perceived Usefulness (Davis, 1985, Chutter, M.Y., 2009); Perceived Difference (Michael Porter); Social Influence (Morton Deutsch and Harold Gerard, 1958); Perceived Risk (Bauer, R.A., 1960); Substitute Goods (Stephen J. Durako et al., 2016).

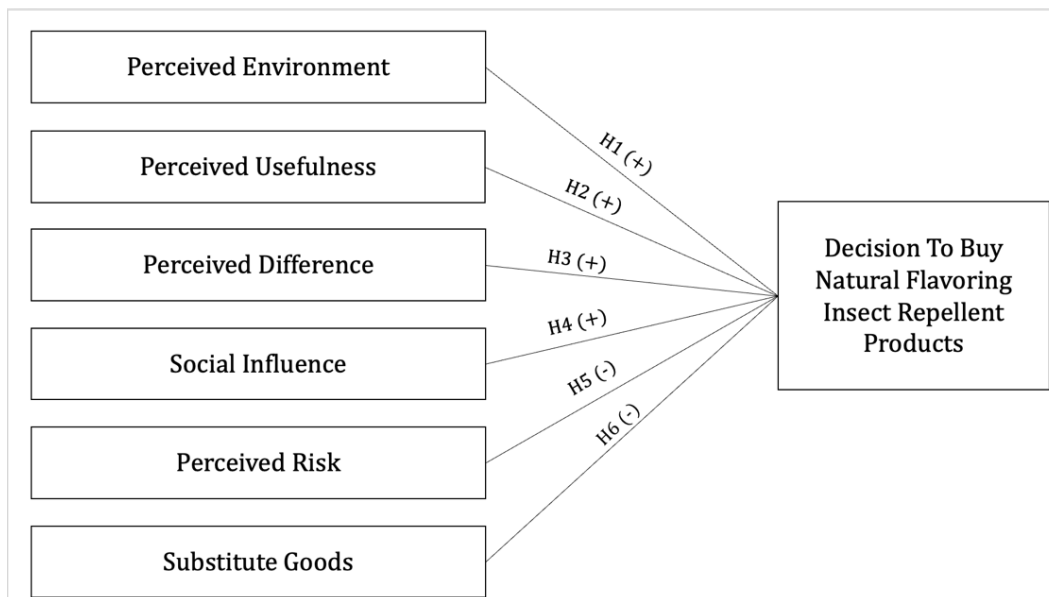


Figure 1. Proposed research model

Source: Aggregated author group

The research hypotheses are as follows:

Environmental concerns denote an individual's orientation toward the environment and their level of interest in environmental issues (Kim and Choi, 2005). In response to market demands, eco-products are designed to help save energy, reduce emissions, and subsequent waste disposal needs. Eco-products are also designed to ensure the recyclability, reuse and recovery that people care about. The proposed research hypothesis:

H1: Perceived Environment has a positive effect on the behavior of purchasing natural flavoring insect repellent products.

Perceived Usefulness (PU) is the level at which individuals believe that using a particular system will enhance their performance (Davis, 1985, quoted in Chuttur, M.Y., 2009, p.5). Perceived usefulness is a factor that motivates consumers to buy products that repel natural flavored insects. On that basis, the proposed research hypothesis:

H2: Perceived Usefulness has a positive effect on the behavior of purchasing natural flavoring insect repellent products.

According to Michael Porter's 5-force competitiveness model, buyer power is one of those five factors, which includes the company's product differentiation from competitors and price sensitivity. On that basis, the study proposal:

H3: Perceived Difference has a positive effect on the behavior of purchasing natural flavoring insect repellent products.

Morton Deutsch and Harold Gerard 1958 described two psychological needs that make people conform to the expectations of others. These include our need to be right (information society influence) and our need to be preferred by others (ordinary social influence). Standard influence is an influence to match the positive expectations of others. On that basis, the study proposal:

(H4): Social Influence has a positive effect on the behavior of purchasing natural flavoring insect repellent products.

Bauer, R.A. (1960) mentions that belief in risk perception as a major factor in consumer behavior can be a major factor influencing the transition from web browser to the rue shopper. Perceived risk is debated to be highly correlated with consumer perceptions of adverse and uncertain risks (Dowling & Staelin, 1994). From there, the study *proposes*:

(H5): Perceived Risk has a negative effect on the behavior of purchasing natural flavoring insect repellent products.

Stephen J. Durako et al. of Westat "Assessing the status of compliance with international law on the marketing of breast milk substitutes by companies that make breast milk substitutes" (2016) argue that breast milk substitutes have the same value of public benefits, elements of compliance with international law and marketing in the media help let this replacement commodity become superior. So, when the price of the substituted goods goes down, the demand for the goods we are analyzing will decrease and its demand line will shift to the left. From there, the study *proposes*:

(H6): Substitute Goods has a negative effect on the behavior of purchasing natural flavoring insect repellent products.

3. Method

In terms of qualitative research, the authors conducted face-to-face interviews with 10 individuals living and working in Hanoi, who have demand and experience in purchasing insect repellent products. The subjects of the interview were of different ages, different cultural levels. At the same time, consult with 5 experts at the forefront of product development research.

The results of the qualitative study showed that all six factors that influenced the purchase behavior of natural flavoring insect repellent products were accepted and no new factors were proposed. The factors included in the quantitative study are: (1) Perceived Environment (5 variables); (2) Perceived Usefulness (4 variables); (3) Perceived Difference (4 variables); (4) Social Influence (7 variables); (5) Perceived Risk (5 variables); (6) Substitute Goods (3 variables). A total of 28 observational variables of 6 factors influencing the decision to buy natural flavoring insect repellent products were included in quantitative research.

In terms of preliminary quantitative studies with a direct survey slip with a small sample (20 people). The majority of subjects accepted the survey slip but needed to adjust some words accordingly and design the question more rationally.

The author built the originally planned sample of 280 surveys. This number of observations both met the sample size requirements of Hair et al. (2014) with 145 observations and Green's study with 109 observations. The expected number of observation slips of the group is greater than the minimum sample size. The more valuable research is done.

Of the 243 consumers who responded to the survey, 62.8% were female and 37.2% were male. The survey age ranged from 18 to 60 years old, with the highest proportion of 18-25 years old (58.8%), the second was the group of customers aged 26-30 (22.6%),

followed by the group of 31-35 years old (11.5%), from 35-40 years old (5.4%) and the over-40 group accounting for only 1.7% of the overall study.

The data is processed using SPSS 20 software. Data from independent variables are analyzed through steps: Cronbach Alpha scale reliability testing, EFA discovery factor analysis, correlation analysis, and linear regression analysis.

4. Results

Factors influencing the behavior of purchasing natural flavoring insect repellent products.

Analysis of Cronbach's Alpha reliability factor showed that there were 5 scales used in the study with Cronbach's Alpha coefficient greater than 0.7 satisfying reliability and a total variable correlation coefficient greater than 0.4; The Replacement Goods scale has a Cronbach's Alpha reliability factor of $0.27 < 0.6$. As such, remove the Replacement Goods scale. So it can be determined that the scale ensures reliability and is suitable for use for further analysis.

Table 1. Cronbach's Alpha Reliability Test Results Table

Scale	Number of Variables	Cronbach's Alpha	Smallest Corrected Item-Total Correlation
Social Influence	7	0,866	0,587
Perceived Environment	5	0,917	0,692
Perceived Usefulness	4	0,824	0,442
Perceived Difference	4	0,768	0,533
Perceived Risk	5	0,828	0,443
Substitute Goods	3	0,270	-0,530
Purchasing Decision	4	0,796	0,553

Source: Aggregated author group

The scale consists of 25 observation variables, after testing the scale reliability using Cronbach's Alpha, which is included in the EFA factor analysis.

The EFA factor analysis showed that there were 5 factors extracted at the Eigenvalue value of 1,574 and the total variance of 66.063% indicating that the model was appropriate. The KMO coefficient = $0.803 > 0.5$ so the EFA factor is consistent with the study. In addition, the actor loading factor is > 0.5 , so the observation variables have good statistical significance and are important in the elements, have practical meaning. Sig. (Bartlett's Test) = $0.000 < 0.05$ shows that observed variables are correlated with each other overall.

Table 2. KMO and Bartlett Test Results for Independent Variables

	Result	Compare
KMO Measure of Sampling Adequacy	0,803	$0,5 < 0,803 < 1$
Sig.	0,000	$0,000 < 0,05$
Average Variance Extracted	66,063%	$66,063% > 50%$
Eigenvalue	1,574	$1,574 > 1$

Source: Aggregated author group

EFA factor analysis showed that the four variables all converged on one fact statistical significance and are important in the factor, all have practical significance. Sig. (Bartlett's Test) = 0.000 < 0.05 shows that the observed variables are correlated with each other overall.

Table 3. KMO and Bartlett Test Results Dependent Variables

	Result	Compare
KMO Measure of Sampling Adequacy	0,702	0,5 < 0,702 < 1
Sig.	0,000	0,000 < 0,05

Source: Aggregated author group

Based on the results of quantitative research, the authors decided to modify the research model.

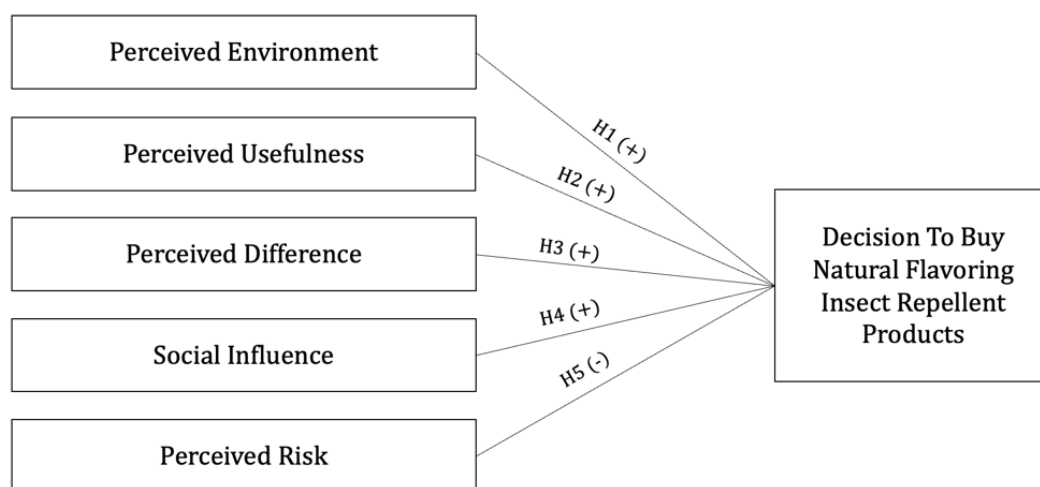


Figure 2. Modified research model

Source: Aggregated author group

The authors used the Pearson coefficient to analyze the correlation between quantitative variables. Pearson correlation coefficients between variables run from -0.133 to 0.471. That demonstrates the distinguishing value achieved, suggesting that the relationship between dependent variables (Procurement Decisions) and independent variables is statistically significant (Sig. <0.05). It can be seen that the dependent variable Purchasing Decision is positively correlated with the variables Social Influence, Perceived Environment, Perceived Usefulness, Perceived Difference and has a negative correlation with the variable Perceived Risk. So other statistics can be used to find a link between independent variables and dependent variables.

The linear regression equation with the dependent variable is Purchasing Decision (QD):

$$QD = 0.106MT + 0.271HI + 0.100KB + 0.233XH - 0.037RR$$

MT: Perceived Environment

HI: Perceived Usefulness

KB: Perceived Difference

XH: Social Influence

RR: Perceived Risk

QD: Purchasing Decision

The model consists of 5 independent variables XH, MT, HI, KB, RR, and one dependent variable QD (Purchasing Decision). Based on the standardized Beta coefficient, the authors found that the factor Perceived Usefulness had the strongest impact on the consumer's decision to buy natural flavored insect repellent products (Beta = 0.281). In contrast, the factor Perceived Difference has the weakest impact (Beta = 0.111), the factor Perceived Risk negatively impacts Purchasing Decision (Beta < 0). At the same time the Sig. value of the factors is less than 0.05, all hypotheses are accepted.

Table 4. Analysis of factors influencing purchasing decision

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0,863	0,391		2,205	0,028		
MT	0,106	0,051	0,119	2,065	0,040	0,897	1,114
HI	0,271	0,064	0,281	4,203	0,000	0,663	1,508
KB	0,100	0,055	0,111	1,826	0,000	0,801	1,248
XH	0,233	0,071	0,216	3,303	0,001	0,692	1,446
RR	-0,037	0,79	-0,026	-4,466	0,041	0,960	1,042

Source: Aggregated author group

The results of the study showed that 5 factors influenced consumers' decisions to buy natural flavored insect repellent products, of which Perceived Usefulness had the strongest impact.

5. Discussion and Conclusion

In accepted hypotheses, the factors influencing product differentiation on consumers' purchasing decisions vary to varying degrees with the strongest impact from the perception of usefulness. The article also removes the perception of alternatives that affect consumers' purchasing decisions. It can be seen that the conclusion also explains the views on the effect of product differentiation such as Michael Porter (1980) when it is suggested that the product is different from a particular group of customers and when there is enough awareness of that difference that in turn impacts buying behavior. Or as Lee and Miller view (1999), product differentiation is a marketing strategy, further confirming the perception of usefulness is in a favorable relationship with product shopping behavior. This study has conjured up implications for corporate governance under a differentiated strategy, forecasting market exploitation opportunities for products. From there, orienting and forecasting market demand for businesses to take advantage of opportunities, improve product quality and have appropriate customer outreach plans, constantly improve marketing to raise awareness for consumers about natural flavoring insect repellent products.

5.1. Orient and forecast opportunities to exploit the market from product differentiation

The trend of using green and environmentally friendly products is increasingly popular not only in Vietnam but also around the world especially after the Covid-19, pandemic. Keeping up with the trend for enterprises producing natural flavoring insect repellent equipment not only creates opportunities for rapid development, expanding market share but also enlists large investments from investors and the Government's support for businesses.

The results of the survey from Vietnam's No. 1 R&D Company – Nielsen, announced at the seminar "Brand strategy associated with green development": "Vietnamese consumers are willing to pay more for brands with a commitment to "green" and "clean". Specifically, up to 80% of consumers are concerned about the long-term harm of artificial ingredients and 79% are willing to pay more to buy natural ingredients that do not contain toxic substances that they do not want."

Therefore, to improve the efficiency of trade and production activities, enterprises need to learn how to build trust through commitments to social and environmental responsibility, putting consumer health at the heart of product development, linking product development with a commitment to sustainability. On the other hand, enterprises will build an image of the brand and comply with Vietnamese laws, especially environmental and labor laws.

5.2. Solutions to promote product differentiation

5.2.1. Technical Solution

Production techniques are the most important factor for product differentiation, the application of technology needs to be studied and applied more in the coming time.

The status of the product to repel insects carrying natural flavoring product is still in a manual shape, the shape is still large and raw, so it is necessary to apply automation technology, adjust the temperature automatically so that the fuel burning time takes place faster; replace some bulky parts on the machine by integrating two of the machine's functions; set the timer mode as well as improve the design so that the product is both compact, easy to carry, suitable for both in narrow places or offices. Promote R&D activities, research and improve products by developing features and characteristics for products.

5.2.2. Market Solutions

For the domestic market, expanding the market not only in urban areas but also in rural areas, construction sites, farms, households living especially in places where many fields and hills, provides local distribution convenient for transportation and installation.

For international market expansion, analyze international business opportunities, assess the level of readiness and ability to participate in international business. Analyze the status quo and opportunities based on the SWOT chart, analyzing the suitability of business opportunities with strategies, resources and competencies to differentiate products that facilitate international market integration.

The mixed export marketing strategy needs to be implemented by the resources of the business. Develop a sales strategy, types of gifts, or a combination of ancillary items to encourage purchases from customers.

5.2.3. Financial Solutions

For the product to be improved in terms of use, design, techniques, it is necessary to have investment capital for long-term development towards the goal of sustainable development for insect repellent equipment carrying natural flavorings. In the short term, the project should be called on investors who are paying attention to green, clean and natural energy products. The funds are funded, the technology equipment is supported to improve and differentiate products to exploit market opportunities.

Policies on accounting, administration and auditing of loans, revenues and expenditures should be carefully considered in terms of local and foreign currencies. The source of capital that determines the choice of accounting method and how to report to the funder all need details.

5.2.4. Human Resource Management Solutions

There are policies to attract high-quality human resources, ensure good skills, professional skills to produce and improve products, create differences in terms of features and uses for products.

Policies on human resource management and international human resource management should be taken care of, first training a team of skilled, conscious and passionate human resources to develop products bearing natural flavorings to gradually replace toxic chemicals. Policies to develop a network of production receiving units, suppliers, transport and distribution units. Reasonable calculations are needed to increase the competition.

Human resource management not only domestically but also in the international market is also a challenge that requires understanding the culture of each region, institutions, political, economic, cultural and social situation,... to send personnel to management or policies to bring personnel to the international market to develop products and branches.

5.3. Recommendations

For investors, it is necessary to pay more attention to products bearing natural flavorings, ensuring the safety of consumers' families. Investors provide certain sources of capital with returns as a percentage of the company. At the same time, supporting both relationships, production, technology, advertising and brand identity, brand development, supporting procedural and legal issues.

For the Government, set out a legal framework for enterprises doing business across the country and for the import and export of enterprises oriented to international market integration. The government has policies to help protect businesses towards "green consumption" in the country, encouraging consumers to use for health benefits. Establish "specialized" government units to promote export activities. This activity is especially useful for small and medium-sized enterprises with limited financial resources in finding contracts with customers in other countries.

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DETERMINANTS OF ENERGY CONSERVATION INTENTION IN VIETNAMESE HOUSEHOLDS BASED ON THE THEORY OF PLANNED BEHAVIOR AND THE KNOWLEDGE - ATTITUDE - BEHAVIOR MODEL

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Abstract

Vietnam is facing the risk of energy crisis in the future due to the mismatch between energy demand and energy supply as well as the heavy dependence on imported source put the national energy security in question. The need to understand factors that have the strongest influence on the daily energy-saving behaviors is increasing its importance. The objective of this paper is to provide an overview of energy conservation behaviors in Vietnam, then point out problems which require immediate attention, and later identify determinants of energy conservation intention at household level by integrating the Theory of Planned Behavior and the Knowledge – Attitude – Behavior model.

Keywords: *Energy behaviors, energy conservation, energy efficiency, energy saving, Vietnamese households.*

1. Introduction

Like many other developing countries in Southeast Asia, Vietnam is going through the high economic growth with annual growth rate of 6-7% (Huy and Nguyen, 2010). Vietnam was an economy star during 2020 and 2021 because it was one of the only economies to record two consecutive years of growth since the start of the Covid-19 pandemic. The rapid economic development, coupled with the high urbanization process, industrialization and population growth has raised the energy demand for industries, transportation, and domestic activities (Nguyen, 2015). Vietnam is facing two key energy-related issues. First, domestic demand for energy is exceeding the domestic supply. Vietnam will lose its domestic balance, which is a threat to the national energy security (Nguyen, 2015). National electricity demand will grow at an average rate of 10%/year from 2016-2020 and 8%/year from 2021-2030 (Shigeru and Han, 2019). Vietnam has potential energy resources, but this resource is increasingly depleted, so since 2015, Vietnam has had to import electricity from other countries. According to forecasts, along with economic growth, in 2025, nearly 49% of electricity demand in Vietnam will be met through imports (Phan Anh et al., 2020). Dependence on imported electricity leads to an increase in electricity costs as well as a threat to national energy security. Large electricity consumption also leads to the risk that Vietnam will not be able to fulfill its commitments to reduce greenhouse gas emissions and climate change under international agreements (Nguyen, 2015).

The second problem that Vietnam's energy industry is facing is low energy efficiency. Energy efficiency investment and energy saving behaviors, or sometimes termed as energy curtailment behaviors are two types of energy behaviors. The distinction is made based on whether the effort requires monetary investment. Energy saving behaviors involves repetitive efforts but no monetary investment. Daily energy behavior is measured by better energy behavior, for example, put a lid on saucepan while boiling and curtailment of comfort behavior, for instance, wearing a jumper instead of turning up the heater (Yue et al., 2013; Trotta, 2018; Boek et al., 2019). Thus, daily energy behavior is habitual and has automatic nature. However, energy curtailment behaviors require a change in lifestyle. Energy efficiency is divided into two forms, commonly understood as the purchase of energy-saving appliances, such as LED lights and energy efficient retrofits measure investment which requires more investment in money and time, for instance, installing an insulation system for a building (Yue et al., 2013; Trotta, 2018; Boek et al., 2019). In Vietnam, the energy efficiency is low due to the old, outdated equipment, which consumes power has not been replaced and the community has low level of knowledge and awareness of saving electricity in daily life (Nguyen, 2015). Based on the Vietnam Energy Overview Report 2019 of the Ministry of Industry and Trade, an investment in energy efficiency is a measure to save electricity costs in the long run (Nguyen, 2021). However, Urban and Scasny (2016) unveiled rebound effect which may occurs when the money saved by reducing energy consumption is spent on energy-intensive appliances, hence increasing overall energy use. Besides, rebound effect also refers to a situation in which people increase energy consumption after buying energy-saving technology (Urban and Scasny, 2016; Gao et al., 2017)

Manufacture, household activities and transportation are among the sectors that consume the most electricity. In 1990, the energy consumption of Vietnamese households accounted for 63% of the total energy consumption because the majority of households used biomass fuel for cooking. This share will decrease to 23.2% in 2017 and 20.6% in 2050 because under the impact of economic development, modern fuels with higher energy efficiency have replaced biomass energies (Nguyen, 2015; Nguyen, 2021). Awareness of the risk of electricity shortage in the future, Vietnam policy makers have taken numerous measures to reduce electricity consumption. The most prominent legal interventions so far are the Law on Economical and Efficient Use of Energy, launched in 2011 and the National Target Program on Economical and Efficient Use of Energy for the period of 2019-2030. The Law on Economical and Efficient Use of Energy provides a solid legal basis for the implementation of efficient energy production activities while the goal of the National Target Program aims to improve energy efficiency of organizations, communities and individuals (moj.gov.vn, 2010)

The mismatch between energy demand and energy supply in Vietnam has evidenced the need to examine the intention to save energy in households as households are consuming energy heavily in daily activities and exploring factors underlying their energy saving intention can help provide significant guidelines and insights about the households for policy makers to design appropriate campaigns and interventions to encourage energy conservation

practices. Empirical studies related to energy conservation behaviors in Vietnam households are limited. Research has flourished in recent years assessing the implementation and influence of policies that promote energy conservation behaviors and energy efficiency (Nguyen, 2015; Nguyen, 2019; Phan et al., 2020) but the research stream on energy conservation behaviors in households remained unexplored. Nguyen et al. (2020) studied external factors affecting energy-saving behavior in direct approaches in Hanoi City and the role of socio-demographic factors but this research focused on situation factors only, leaving psychological factors being overlooked. Nguyen et al. (2016, 2017) focused on consumers' purchase behavior of energy efficient household appliances which is only one form of energy saving behaviors.

This research delves into the question concerning the role of attitude, perceived behavioral control, subjective norm, personal moral norm, descriptive norm and knowledge in the context of energy-conservation behaviors. This study will focus on both forms of energy conservation behaviors (energy curtailment behavior and purchase of energy efficiency appliances).

2. Method

This section describes the methodology of the study which highlights the development and approach of research models and hypotheses.

2.1. Research model and hypothesis development

The Theory of Planned Behavior and Knowledge – Attitude – Behavior Model

Decade's worth of research has employed rational choice-based theory to examine energy consumption behaviours. Researchers followed rational choice-based theory view energy conservation as outcome of a rational process in which consumers will evaluate benefits and costs associated with energy conservations. Major rational choice-based models in the field of energy consumption behaviours are the Theory of Planned Behaviour, Knowledge – Attitude – Behaviour model and Technology Acceptance Model. Theory of Planned Behaviour is a prominent theory put forward by Ajzen (1991). It was the descendant of a similar model known as the Theory of Reasoned Action (Fishbein and Ajzen, 1975). Within the TPB, intentions are determined by three variables, namely attitude, subjective norm and perceived behavioural control (Ajzen, 1991).

Attitude could be defined as an individual's positive or negative feeling towards a particular behaviour (Fishbein and Ajzen, 1991). Attitude reflects the positive or negative evaluation of an individual's perception of energy conservation behaviours.

Subjective norm refers to an individual's perception of social pressure from important people over whether to perform a particular behavior (Fishbein and Ajzen, 1991). Subjective norm is related to external comments and opinions (Kaushik and Rahman, 2015).

Perceived behavioral control is conceptualized as the convenience or difficulty that the individual perceives when doing something. It also means whether a person has enough resources, time and opportunity to perform an action (Chen, 2014).

Existing literature highlighted the significant relationship between attitude, subjective norms, perceived behavioral control and behavioral intention concerning energy saving behaviors (Liu et al., 2020; Gao and Wang, 2017; Zhao et al., 2019). Therefore, the following hypotheses are formulated:

H₁: Attitude is positively correlated with intention to save energy of households in Vietnam

H₂: Subjective norm is positively correlated with intention to save energy of households in Vietnam

H₃: Perceived behavioral control is positively correlated with intention to save energy of households in Vietnam

Knowledge – Attitude – Behaviour model has been extensively used in health and environmental education, which posited that behaviour change, is affected by knowledge and attitude (Schneider and Cheslock, 2003). Knowledge, according to Merriam-Webster online dictionary (2011) refers to “the fact or condition of knowing something with familiarity gained through experience or “the fact or condition of being aware of something” or “the range of one’s information or understanding” or “the sum of what is known: the body of truth, information, and principles acquired by humankind. Knowledge could be measure by self – report data which is criticized for measuring people’s confidence in their knowledge, not how they actually know about the subject. Another way to measure knowledge is through multiple choices or other similar forced choice item formats. However, knowledge does not always translate into actual behaviour (Kyu and Van der putten, 2005). The past literature suggested that exclusive dependence on knowledge change is likely to have little behavioural impact (Schneider and Cheslock, 2003). Extant literature found people with greater environmental knowledge was more likely to demonstrate energy saving attitudes (Pothitou et al., 2016). Hence, the hypothesis below is proposed:

H₄: Environmental knowledge is positively correlated with energy conservation attitude of households in Vietnam

Although being widely cited by previous scholars, these models assumed consumers go through rational choice, weighting cost and benefits before making decision, thus the impact of unplanned, irrational factors are largely overlooked. Another shortcoming of TPB is this model treat social norm as subjective norm. Social norm in fact is made up of subjective and descriptive norm. Exclusion of descriptive norm thus reduces the explaining power of social norm. Two new variables, namely personal moral norm and descriptive norm are added to the integrated model between TPB and KAB to better explain energy conservation intention in Vietnam.

Personal norm

Personal norm is originated from an individual’s own responsibility or obligation (Klockner and Blobaum, 2010; Gao et al., 2017; Zhao et al., 2019). The positive correlation between personal norm and energy-saving intention has been evidenced by Gao et al. (2017) and Du and Pan (2021). Thus, the following hypothesis is postulated:

H₅: Personal norm is positively correlated with intention to save energy of households in Vietnam

Descriptive norm

Descriptive norm depicts the perception of which behaviors are typically performed within a given context (Cialdini et al., 1990). Individuals are more likely to allocate themselves into a specific group and imitate the behaviors that others have done in that group to avoid being isolated by others (Gao et al., 2017).

H₆: Descriptive norm is positively correlated with intention to save energy of households in Vietnam

2.2. Research approach

Sampling and data collection

Sample consists of households with an interest in energy-saving behaviors. Convenience sampling is used to select research participants in 2 big cities: Hanoi and Hochiminh City. Selection of these cities is appropriate because consumers and households here are usually aware of environmental and energy-saving issues. They also have stronger financial resources to afford energy-efficient appliances.

As COVID-19 outbreak has just been under controlled and the society reverts back to normality recently, both online and direct questionnaire survey will be carried out. In case the pandemic get worse, all surveys will be done in online setting. An online survey will be created using Google Form or Survey Monkey. This survey link will be uploaded to social media or emailed to representatives of households. Personal information of research participants is kept confidential and participants have the right to withdraw from the study anytime. Research participants are encouraged to fill out the survey at the research setting with the support of research investigators. Besides, they can choose to fill in the survey by themselves and research investigators will contact them later to collect the complete survey form.

Measurements

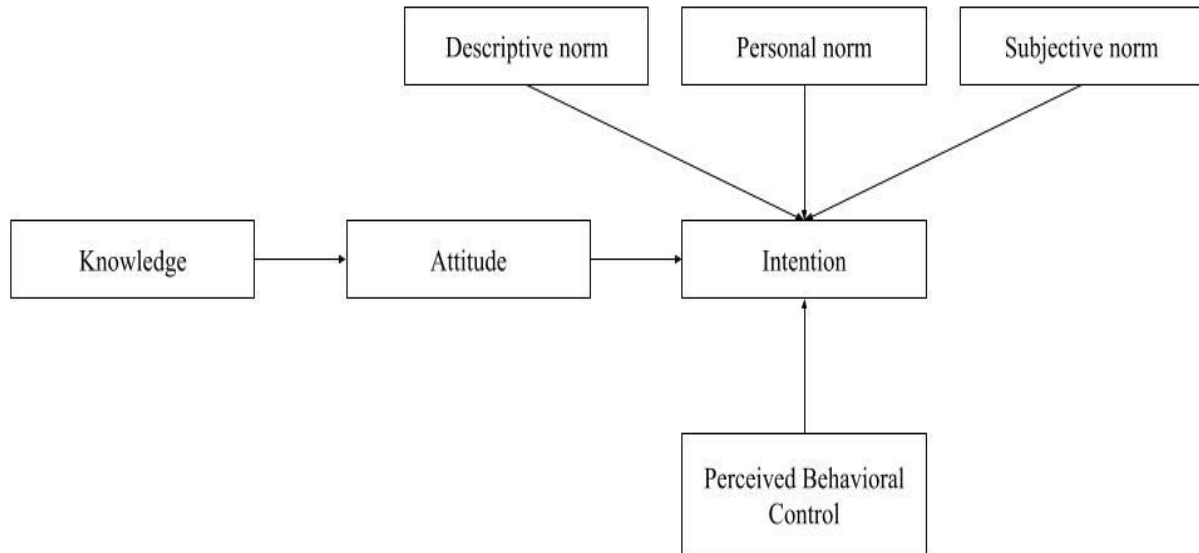
Each variable of this study's proposed conceptual framework was operationalized using multiple items. The items were developed using inputs from existing validated scales in the literature. For attitude, 3 items were adopted from Chang (1998) and Armitage and Corner (1999). For environmental knowledge, 3 items were operationalized from Mostafa (2009). For subjective norm, 4 items were taken from Wang (2014). A total of 3 items from environmental knowledge was taken from Wang et al. (2014) to measure behavioral intention. Perceived behavioral control was operationalized using items from Wu and Chen (2014). Items to measure personal norm were taken from Klockner and Blobaum (2010). Descriptive norm was measured using items from Tang et al. (2019). The influence of social norms among neighbours are relevant to energy conservation behaviours (Alcott, 2011; Hage et al., 2009; Nolan et al., 2008) and are addressed in this study. All the items were measured using a 7 – point Likert scale, which ranged from 1 for “Strongly disagree” to 7 for “Strong agree”. Regression analysis would be employed for data analysis.

Variables and their measurement items are summarized in the table below:

Variables	Items	Sources
Attitude	Energy saving is a smart choice Energy saving brings many benefits Energy saving is a good thing to do	Chang (1998) Armitage and Corner (1999)
Environmental knowledge	I can tell if appliances I bought are good for the environment I know more about recycling than other ordinary people I thoroughly know about environmental issues	Mostafa (2009)
Subjective norm	Most of people who are important to me think that I should save energy Most of my acquaintances expect me to save energy Most of the people who are important to me would support me saving energy The people I listen to could influence me to save energy	Wang (2014) Lopez – Mosquera and Sanchez (2012)
Behavioral intention	I am willing to participate in “Earth Hour”, the global lights-off event, for 1hour I would like to be a volunteer of energy conservation and emission reduction publicity in the community I will pay attention to turning off the power when the appliance is not in use, instead of letting it stand by	Wang et al. (2014)
Perceived behavioral control	I have enough ability to save energy I believe I can save energy if I want to Whether or not to save energy in life depends entirely on me	Wu and Chen (2014)
Personal norm	Due to values important to me, I feel obliged to use energy as little as possible Due to my value/principles, I feel personally obliged to save energy Saving energy is solidly anchored in my value system	Klockner and Blobaum (2010)
Descriptive norm	People in my neighborhood have taken actions to save energy A number of people in my neighbour I know have participated in energy saving behaviors Highly ranked people in my neighbourhood have participated in energy-saving behaviors	Tang et al. (2019)

3. Results

Based on the rationale of these above hypotheses, a proposed model can be established as the following to test all mentioned hypotheses:



The following hypotheses are examined:

H_1 : Attitude is positively correlated with intention to save energy of households in Vietnam

H_2 : Subjective norm is positively correlated with intention to save energy of households in Vietnam

H_3 : Perceived behavioral control is positively correlated with intention to save energy of households in Vietnam

H_4 : Environmental knowledge is positively correlated with attitude to save energy of households in Vietnam

H_5 : Personal norm is positively correlated with intention to save energy of households in Vietnam

H_6 : Descriptive norm is positively correlated with intention to save energy of households in Vietnam

4. Discussion and Conclusion

4.1. Discussion

This study has not conducted an empirical research yet, so proposed hypotheses are not confirmed. Therefore, an empirical research as a follow up should be undertaken soon. Once the research is conducted, it will contribute to the current literature of energy conservation behaviors by two ways. First, it unveils the relationship between environmental knowledge, attitude, subjective norm, personal norm, descriptive norm, perceived behavioral control and intention to save energy. Second, there has been a lack of studies about energy conservation behaviors in Vietnam, so this study will be a significant contribution.

Policy implications

This study also has a practical implication because it will provide insight into consumers' motivation to conserve energy and give recommendations to policy makers on which public campaigns can be done to promote energy conservation in household level. At the moment, most of energy intervention policies could be classified into two groups, namely antecedent and consequence interventions (Abrahamse et al., 2005). Antecedent interventions influence one or more determinants prior to the performance of behaviour. Four main types of antecedent interventions are commitment, goal – setting, information (mass media campaign, energy audit) and modelling. Consequence interventions based on the assumption that pro-environmental behaviours will become more attractive when positive consequences are attached to. Two types of consequence interventions are feedbacks and rewards.

Limitations

Due to actual research has yet to be undertaken, proposed hypotheses are not confirmed yet.

4.2. Conclusion

To sum up, the objective of this research is to study energy conservation behaviours in household level by integrating the theory of planned behaviour with the knowledge – attitude – behaviour model.

This study will contribute to the current literature in two ways. First, to the author's best knowledge, this is the first research to study energy conservation behaviours in households by combining the theory of planned behaviour and the knowledge – attitude – behaviour model. Second, it complements current body of knowledge of energy conservation behaviours by providing an insight into Vietnam, an emerging economy which is facing serious energy issues.

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LOAD ESTIMATION OF SOME HEAVY METALS (CU, FE, MN, ZN, PB) AT CAI RIVER MOUTH (NHA TRANG, KHANH HOA) USING LOADEST MODEL

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Abstract

Heavy metal contamination in the aquatic ecosystem is currently a major worldwide concern because of its high concentrations in water, stability, and toxicity. Rivers are considered the main pathway of heavy metals transportation to the oceans. The increase of heavy metals concentration in seawater and sediment through riverine inputs have certain effects on aquatic ecosystems and depends on their loads as well as the biogeochemical processes at the river mouths. Climatic studies have predicted the impact of climate change on the hydrology of worldwide rivers which consequently affects on riverine heavy metals transport to the oceans. This paper presents the results of our study on the flux of some heavy metals (Cu, Fe, Mn, Zn Pb) in dissolved and suspended form by Cai river (Nha Trang, Khanh Hoa) in the dry and rainy season of 2021 by using LOADEST model. The data showed that there was an increase in total concentrations of studied heavy metals in the rainy season due to the rise of the contribution of suspended concentration. Of all the heavy metals, Fe was a concern as both its concentration and load were the highest and there was the contamination of Fe during this period.

Keywords: *Cai river mouth, heavy metals, load, LOADEST*

1. Introduction

Coastal areas are crucial transition zones linking terrestrial with the oceanic system, therefore they reveal sensitive responses to anthropogenic impacts on ecosystem functioning and human health (Audry et al., 2004; Bauer et al., 2013). Since the Industrial Revolution, heavy metal pollution has been acknowledged to be a major worldwide environmental crisis in past decades due to their abundance, toxicity, and persistence (Schwarzenbach, 2006). Once released, they are present in the environment including air, water, soil, and sediment

(Huang et al., 2018; Chowdhury et al., 2016; Birch, 2016; Wu et al., 2016) but most are eventually deposited into marine sediment via riverine runoff or atmospheric precipitation (Pan and Wang, 2012; Yin et al., 2016; Wu et al., 2018)

Rivers represent the most complex aquatic systems in terms of transport and interactions of heavy metals with geochemical and biological processes but most importantly delivering the heavy metals into the sea mainly through estuaries. Annually, the elemental flux of some heavy metals such as Al, As, Cu, Cd, Fe, Pb transported by riverine suspended matter from the continents to the oceans is 1308000 tons of Al, 544 tons of As, 23 tons of Cd, 1140 tons of Cu, 871500 tons of Fe, 916 tons of Pb and 1200 ton of Al, 23 tons of As, 55 tons of Cu, 3 tons of Cd, 2470 tons of Fe, 3 ton Pb is delivered in a dissolved form (Viers, 2009). However, such transportation has been influenced and changed considerably by rapid urbanization and industrialization like land-use changes, dam construction, and water withdrawal... but most important is the effect of climate change which alters the hydrology of worldwide rivers (IPCC, 2013). Particularly, because of atmospheric warming, it is likely that river discharge will increase for monsoon-influenced rivers such as Mekong, Yellow River, Indus, Ganges, Yangtze, Brahmaputra... As a result of elevated rainfall and snowmelt, the discharge of rivers (Mackenzie, Lena) flow into the Arctic ocean will also increase. Meanwhile, rivers like Niger, Murray, and Danube tend to have a decrease in discharge due to a shortage of precipitation (Sperna Weiland, van Beek, Kwadijk and Bierkens, 2012). Moreover, heavy precipitation events will become more frequent and intense over many areas in the 21st century (Seneviratne et al., 2012) which may affect the transport rates and pathways of heavy metals (Middelkoop 2008). For example, intensification of precipitation may result in larger proportions of quick flow, which could accelerate the leaching of heavy metals to surface waters. However, despite the numerous publications dealing with the fate of metals in the estuaries and the contaminations of adjacent coastal waters, the metal fluxes discharged by rivers remain uncertain as they rely on a limited number of data. Therefore, more attention should be paid to loads of heavy metals rivers in response to climate change.

The interest in studying heavy metal loads started quite early in the world. One of the first calculations and assessments was given by Martin và Meybeck (1979) for most of the rivers worldwide. According to these authors, Br, I, S, Cl, Ca, Na, Sr, Li, N, Sb, As, Mg, B, Mo, F, Cu, Zn, Ba, and K are mainly transported in the dissolved form, whereas for P, Ni, Si, Rb, U, Co, Mn, Cr, Th, Pb, V, and Cs, more than 90% of the total load is carried by river particulates. Fe, Al, and the rare earths are almost exclusively carried as particulates. Over the past 40 years, the data has been continuously updated (Martin and Whitfield, 1983; Poulton and Raiswell 2000; Carey et al., 2002; Gaillardet et al., 2003; Viers et al., 2009...). Recently, more research focus on the impacts of climate change on the transport of heavy metals by rivers. In particular, many studies were conducted to examine heavy metal loads in different hydrological conditions: summer flood, spring flood, baseflow... (Miller et al., 2003; Pokrovsky 2006, 2010; Bagard et al., 2011...)

For Khanh Hoa province, Cai river is the largest river in the province (total flow is about 2.078 billion m³/year) and is the main source of supply for irrigation and domestic water in the

province. Heavy metal loads from the Cai River have an important effect on water quality and sediments in Nha Trang Bay, home to many well-known ecosystems and a major source of food. Some previous studies showed that, annually, Cai estuary transports to the sea about 42095 tons of suspended matter, 965 tons of Fe, 5 tons of Cu, 4 tons of Pb, 51 tons of Zn, 9 tons of As (Nguyen Huu Huan, 2010). However, this data is quite old and in the context of climate change and economic development demands and thus needs to be updated. This paper presents new data on loads of heavy metals (Cu, Fe, Mn, Pb, and Zn) transported through Cai river mouth, to accessing the impact of these metals on the environment of Nha Trang bay.

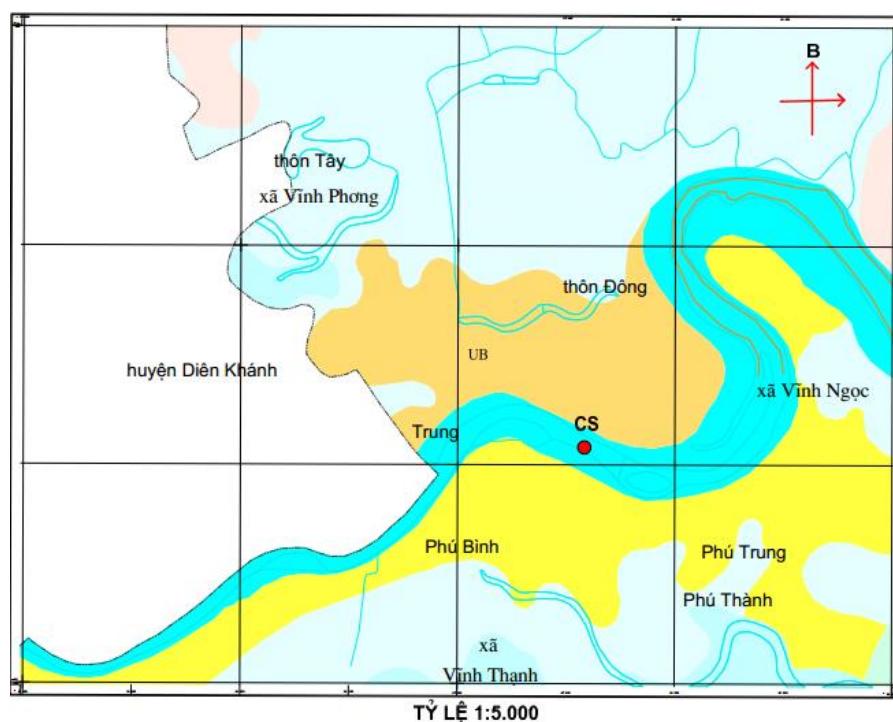
2. Method

2.1 Sample collection and sample analysis

Sample sampling and analysis were undertaken by authors followed the protocols described in Standard Methods for the Examination of Water and Wastewater (APHA, 2005)

Samples were collected bimonthly from January to December 2021 at Cai river mouth (Figure 1). Vertically integrated samples for analysis of dissolved metals were collected at the center of the flow and were contained in PE bottles previously washed in 10% HNO₃ and then with mili-Q water. pH was measured in situ and later the samples were filtered through 0.45 μm pore teflon filters. The samples were acidified with HNO₃ and all of the samples remained refrigerated until analysis.

Concentrations of dissolved heavy metals were analyzed by direct injection, inductively coupled plasma spectroscopy (ICP-MS). For particulate heavy metals analysis, suspended sediment was separated from whole water by filtering, the sediment was then dried and digested with the acid mixture HNO₃:HCl (1:3). Acid digestates were then analyzed by ICP-MS.



CS (109.147033°; 12.270806°)

Figure 6. Sampling station

2.2. Load estimation method

The flux calculation requires two key elements: the concentration of the element of interest, and the discharge of the river. One common method of calculating monthly contaminant load is to average the monthly analytical results and multiply it by the monthly discharge. This method, however, can produce large errors in periods where there has been flow rate variation, for example, if the same analysis value obtained during low water is applied in storm periods the contaminant load is overestimated, because in storms the volume of water is supposedly much greater. Another method of contaminant load estimation is to establish relationships between flow and the concentration of the elements, nevertheless, these correlations are not consistent over the entire year and are not always simple to establish as they rely on high-resolution campaigns which are very costly. A much more complicated and expensive method is modeling which provides precise results. Some worldwide widely applied models for water assessment can be named: AGPNS (Agriculture Non-Point Source Pollution Model), STEPL (Spreadsheet Tool for Estimating Pollutant Load), HSPF (Hydrological Simulation Program - FORTRAN), SWAT (The Soil and Water Assessment Tool).

In this study, we used LOADEST (Load estimator) which is a FORTRAN program and was developed by the United States Geological Survey (USGS) for estimating pollutant loads through regression models using flow and water quality concentration data (Runkel et al., 2004). Although LOADEST requires significant effort to prepare model inputs, it is an efficient software for loads calculation and is used in many studies (Oh & Sankarasubramanian, 2012; Brigham et al., 2009; Dornblaser & Striegl, 2009) and provides precise results (Park & Engel, 2014).

3. Results

3.1. Heavy metal concentrations

In this section, first, the regime of the hydrological regime of Cai river in 2021 was examined. With the obtained data, the average flow rate calculated for the year 2021 is approximately 91.9 m³/s. Figure 2 demonstrated that the flooding period of Cai river started on September 4th and lasted until the end of the year. This is important to accurately estimate the heavy metal fluxes later.

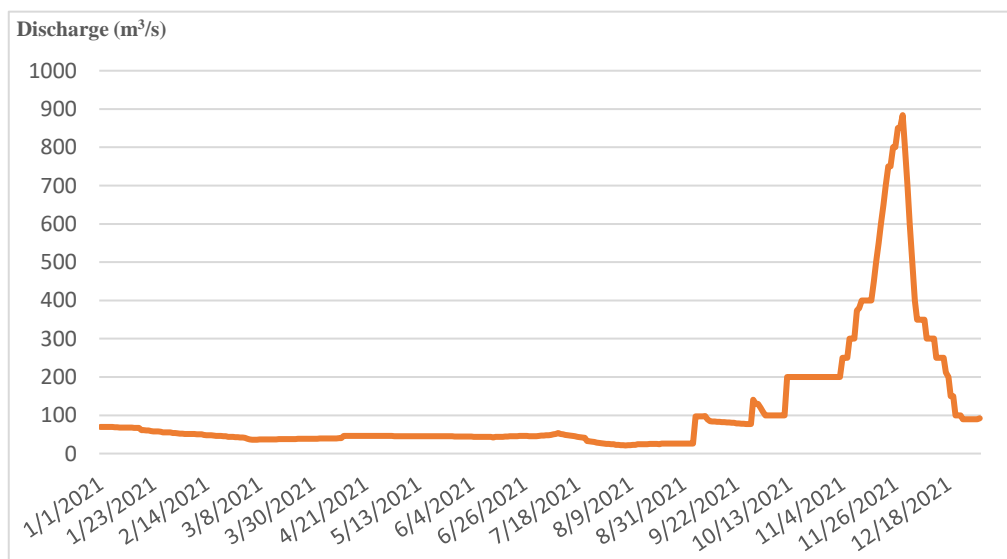


Figure 7. Hydrological regime of Cai river in 2021

Throughout the year 2021, there were a total of 40 water samples collected. Analytical results of the studied metals are presented in table 1. In agreement with previous studies (Nguyen Hong Thu et al., 2010, Nguyen Huu Huan, 2010, Pham Hong Ngoc et al., 2022) the total concentrations of those metals showed a clear seasonal variation. In the dry season, the average value of pH was 7.52, content of Cu 3.9 ($\mu\text{g/l}$), Fe 288 ($\mu\text{g/l}$), Mn 37 ($\mu\text{g/l}$), Pb 3.8 ($\mu\text{g/l}$), Zn 25.4 ($\mu\text{g/l}$). In the rainy season, there was an increase in these values due to the increase of the heavy metal concentrations in both dissolved and suspended forms (main supplement), particularly: Cu 4.5 Fe 304 Mn 51 ($\mu\text{g/l}$), Pb 4.0 ($\mu\text{g/l}$) Zn 29.3 ($\mu\text{g/l}$). The reason is that in the dry season the discharge of Cai river is primarily from base flows (domestic wastewater is mostly absorbed into the ground) meanwhile during the rainy period, higher terrestrial runoff carrying waste increases the number of suspended matters in the river water, thus increases the concentrations of heavy metals. However, in the studied period, the water quality of Cai river remained good, all the recorded values were lower than the criteria given in the National technical regulation on surface water (QCVN 08:2015/BTNMT) except for the case of Fe.

Table 5. Total concentration of the heavy metals

Metals ($\mu\text{g/l}$)	Dry season				Rainy season				Criteria
	n	Min	Max	Average	n	Min	Max	Average	
Cu	20	3.5	4.2	3.9	20	4.3	4.8	4.5	100
Fe	20	100	579	288	20	104	992	304	500
Mn	20	19	63	37	20	39	75	51	100
Pb	20	3	4.7	3.8	20	3.5	4.3	4.0	20
Zn	20	19.7	33.9	25.4	20	23	34.3	29.3	500

3.2. Heavy metal loads estimation

Table 3 presents loads of Cu, Fe, Mn, Pb, and Zn of Cai river estimated by LOADEST. The loads were separated into components that are contributed in the rainy and dry season as well as the dissolved and particulate fluxes of each metal. The data showed that these metals were transported mainly in the suspended form and their loads during the rainy season made a higher proportion of total loads which implied that the contribution of heavy metals released from human activities in the dry season was negligible. Load of Fe was the highest with 273 tons in the dry season and 508 tons in the rainy season. According to some previous studies, a part of these heavy metals is accumulated in the sediment at the river mouth, the rest is transported into Nha Trang Bay (Le Thi Vinh, 2007; Nguyen Hong Thu et al., 2010) and thus causing some effects on the water quality of the bay seawater. For example, the contamination of Fe was usually observed in the coastal area (Le Thi Vinh et al., 2007; Le Thi Vinh, 2013).

Table 6. Heavy metal loads

Metal	Cu (ton)	Fe (ton)	Mn (ton)	Pb (ton)	Zn (ton)
Dissolved					
Dry season	2	95	14	2	8
Rainy season	3.5	114	23	5.5	20
Suspended					
Dry season	2	178	10	2	32
Rainy season	13	394	22	8	115

Table 7. Loads of the heavy metals of Cai river in other studies

Metal	Dry season			Rainy season		
	1995 ⁽¹⁾	2010 ⁽²⁾	2021	1995 ⁽¹⁾	2010 ⁽²⁾	2021
Cu (ton)	10	2	4	11	3	17
Fe (ton)	600	278	270	1546	687	508
Mn (ton)	75	-	34	84	-	45
Pb (ton)	1	1	4	2	3	10
Zn (ton)	21	26	60	51	25	153

(1): *Pham Van Thom, 1995*; (2): *Nguyen Huu Huan, 2010*

4. Discussion and Conclusion

The metals Fe and Mn are abundant in the earth's crust and relatively insoluble under the oxidizing condition in surface water. Total loads of Fe and Mn were strongly dominated by the particulate forms and consequently mobilized in the high water period. Zn concentration was higher than the values measured in previous research (Nguyen Hong Thu et al., 2010; Pham Hong Ngoc et al., 2022), one possible explanation would be an unidentified point source of this metal that continuously loading Zn into the river water. The distribution of the load of Pb was quite similar to that of Fe because of its solubility under some oxidizing conditions it absorbs strongly to solid phases and thus partitions particularly well with Fe oxyhydroxides and clay phases.

As mentioned above, the studies on contaminant loads from Cai river remain scarce. Presented in Table 4 for comparison are fluxes calculated in 1995 and 2010 by other publications. The data showed that for the case of some heavy metals that usually have high concentrations in the river water such as Fe, Mn, and Zn, the result of this study differs to some extent from the results of previous studies. This could be explained by the dissimilar load calculation methods. The use of average seasonal contaminant analytical results and multiplying it by the seasonal discharge (Pham Van Thom, 1995; Nguyen Huu Huan, 2010) can produce a large error, especially with few samples and the hydrological regime is not well defined. For example, at the start of the rainy season, the first rains produce the dissolution of products accumulated during the summer and thus the heavy metal

concentrations tend to increase, whereas, later during the rainy season, they fall below those measured at the beginning due to strong dilution. In this case, if the load is calculated using a monthly or seasonally average value, the load is overestimated. Figure 3 is an example of the relationship between Cu and flow for the year 2021. As can be seen in this river, the concentration of Cu gradually decreased as the volume of river water increased.

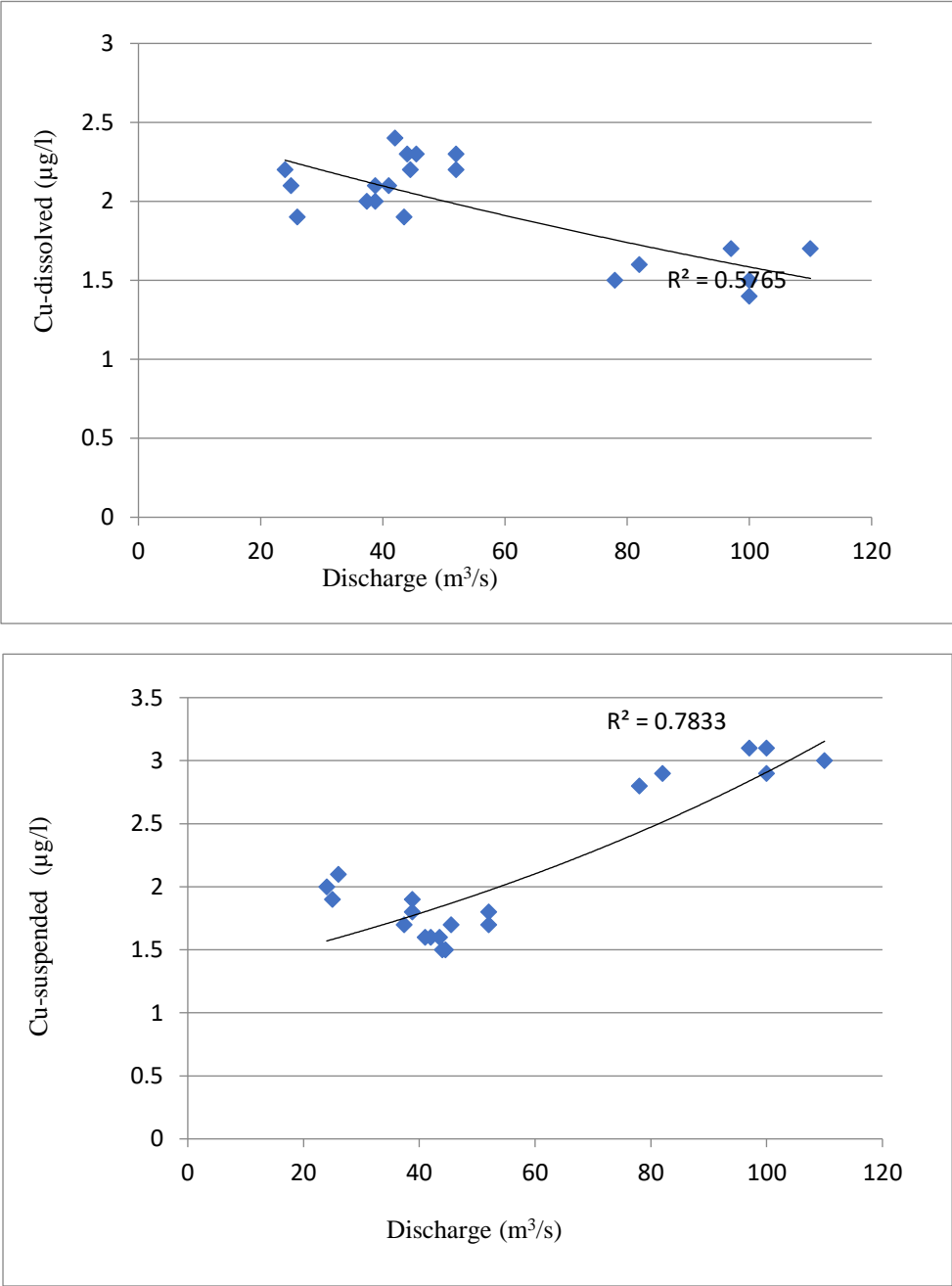


Figure 8. Relationship between Cu concentration and flow

In this study, we used a high-frequency sampling, twice a month, and daily discharge as inputs for LOADEST. Based on the data, the daily elemental concentration for each daily discharge is calculated and from this, the daily heavy metal load transported is calculated. The sum of these daily contributions will therefore give the more precise seasonal or yearly contribution for each element.

In summary, this research provided further evidence that the change in river discharge can influence the transport of riverine heavy metals transport. The total loads of Fe, Cu, Mn, Pb, and Zn were higher during the rainy period due to the increase in their concentrations, particularly in suspended form. Of all the studied heavy metals, the load contribution of Fe was the highest and there was also the contamination of this element. Besides, the flux estimation by LOADEST in this model suggests that the model could be considered an efficient tool for developing contaminant monitoring and forecast, especially if the basin is influenced by climate change.

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INTERNATIONAL LAW ON FIGHTING CLIMATE CHANGE AND EXPERIENCE FOR VIETNAM

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Abstract

The law against climate change is not an independent discipline but an institution of international environmental law. The provisions of international law have been adjusted in a comprehensive way to issues related to combating climate change. The article presents the essential issues of international law on fighting climate change from the formation process to the provisions of international law on climate change. In addition, the article also discusses how various countries throughout the world, such as Thailand, China, and Japan, have used international law on fighting climate change, as well as lessons gained for Vietnam.

Keywords: *Law, climate change, International.*

1. Introduction

Climate change is the greatest threat to human civilization that has ever existed. Flooding, droughts, rising border waters, and rising global temperatures are all possibilities. These are all extreme signs of climate change, the “rage” with which nature is reacting to humans, the primary cause of global warming. To learn the most important knowledge about climate change, the authors present the fundamental issues of climate change and the profound impacts of climate change on social life, thereby seeing the urgent need of developing and perfecting climate change legislation both Internationally and nationally.

2. Method

The article uses dialectical materialism research methods, such as data gathering methods, synthesis methods, statistics, comparison, and analysis... The author will be able to consider many aspects of the problem and synthesis them to have a comprehensive and objectively honest assessment of climate change under international law and Vietnamese law by combining these methodologies in the content. Use analytical methods to understand climate change concepts; comparative methods to compare climate change regulations in legal documents; statistical methods to collect environmentally relevant data, relying on the aggregation method to gather information and make an objective assessment of the provisions of the law on combating climate change, for example.

3. Results

3.1. Fundamental concerns of international law about climate change mitigation

3.1.1. The process of shaping international law on combating climate change

First, in June 1972, the United Nations Conference on the Human Environment was convened in Stockholm, Sweden. The conference highlighted the worldwide environment's degradation, which necessitates steps to safeguard and repair it; it shows humanity's awareness of the global environment. The Stockholm Declaration consists of seven articles and twenty-six principles that serve as the foundation for global environmental preservation and improvement policies. Participants also agreed to establish the United Nations Environment Programme (UNEP), whose major mission will be to coordinate environmental protection operations, monitor the state of the environment, and codify international environmental legislation. The research approach reveals that climate change issues have received insufficient attention. The conference primarily addressed topics such as chemical pollution, nuclear testing, and whaling⁹¹.

Second, The United Nations Conference on Environment and Development (UNCED), also known as the “*Earth Summit*”, was held in Rio de Janeiro, Brazil, from 3-14 June 1992, to investigate issues concerning sustainable economic development and the environment. The Rio Declaration of 1992 was adopted here, encompassing 27 principles⁹², the core of which is that the emphasis on economy and social growth is highly dependent on the conservation of natural resources with effective measures to prevent environmental deterioration. Following that, on May 9, 1992, the United Nations Framework Convention on Climate Change (UNFCCC) was established, creating a legal framework for collaboration while also affirming a qualitative shift in the international community's perspective of the necessity of countering climate change actions⁹³.

Third, the United Nations Climate Change Conference (COP) is an annual conference held within the framework of the United Nations Framework Convention on Climate Change (UNFCCC) that serves as the official gathering place for UNFCCC parties to examine the climate change mitigation process. The Kyoto Protocol on Climate Change was adopted in December 1997 in Kyoto (Japan), detailing its duties to reduce greenhouse gas emissions to implement the UNFCCC convention⁹⁴. The Kyoto Protocol's commitments, however, had no prospect of being met in the 20th century because the United States, Australia, Lichtenstein, and Monaco did not sign-on. The Kyoto Protocol entered into force

⁹¹ *Conferences: Environment and Sustainable Development*, retrieved April 10, 2022, from <http://www.un.org/en/conferences/environment>.

⁹² The Rio Declaration of 1992 lays out a set of principles for an approach such as:

- “*Prevention is vital*” to require projects to carry out an environmental impact assessment.

- “*Discriminatory shared responsibility*” for developed countries, with responsibilities unique to putting strain on the global environment and resources depending on the country.

- “*Polluter pays*” means that individuals and businesses who use resources and pollute the environment must bear financial responsibility in order to reduce the likelihood of triggering environmental incidents.

⁹³ Global Sustainable development report, (2019), *The future is now: Science for Achieving Sustainable Development*, p.31.

⁹⁴ *National Targeted Gender and Climate Change Training Manual: Policy, Strategy and Program Development*, 978-92-9257-534-2 (e-ISBN), ADB, 2015, p.34.

on February 16, 2005, after being ratified by the Russian Federation. Then, in the hope of drafting a new international treaty to replace the Kyoto Protocol, which expires in 2020, a series of UNFCCC parties met. COP21 was held in Paris (France) from November 30 to December 12, 2015, as part of the Paris Agreement⁹⁵, which manages strategies to minimize climate change beginning in 2020⁹⁶.

Fourth, The 2002 World Summit on Sustainable Development in Johannesburg adopted a Political Declaration and Implementation Plan which included provisions covering a set of activities and measures to be taken to achieve development that takes into account respect for the environment. In doing so, this Summit, which saw the participation of more than a hundred heads of state and government and tens of thousands of government representatives and non-governmental organizations, resulted, after several days of deliberations, decisions that related to water, energy, health, agriculture, biological diversity and other areas of concern⁹⁷.

Fifth, The Climate Summit, hosted by US President Joe Biden, took place online on April 22 and 23, 2021, with more than 40 leaders from around the world in attendance. The event is being held in the context of the COVID-19 pandemic, which has slowed the fight against global climate change. It is an opportunity to ensure that the 26th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 26) in the United Kingdom in November 2021 has clear results, with specific action plans for 2030. The United States reaffirmed its commitment to the 2015 Paris Agreement on Climate Change and declared a new aim of decreasing emissions by 50-52 percent by 2030 compared to 2005 levels⁹⁸.

In summary, international law on climate change is an institution of international environmental law that includes a system of principles and norms of international law that govern the relationships that arise between the themes of international law in the process of cooperation in the field of climate change combat⁹⁹.

3.1.2. Provisions of international law on climate change

First, on May 9, 1992, the United Nations Framework Convention on Climate Change (UNFCCC) was adopted in Rio de Janeiro, Brazil. This Convention includes the following major provisions: (1) Some fundamental principles for cooperation¹⁰⁰; (2) Parties'

⁹⁵ The Agreement has passed the adoption threshold, with more than 55 countries ratifying it, representing at least 55 percent of global greenhouse gas emissions.

⁹⁶ An Chau (2021), *Things to know about COP26 climate change conference*, retrieved April 12, 2022, from <https://moit.gov.vn/bao-ve-moi-truong/nhung-dieu-can-biet-ve-hoi-nghi-bien-doi-khi-hau-cop26.html>.

⁹⁷ Johannesburg, South Africa (2021), *World Summit on Sustainable Development (WSSD), Johannesburg Summit*, retrieved April 12, 2022, from <https://sustainabledevelopment.un.org/milestones/wssd>.

⁹⁸ Hoang Thao (2021), *Climate Summit: Technology helps fight global warming*, retrieved April 12, 2022, from <https://nhandan.vn/moi-truong/hoi-nghi-thuong-dinh-ve-khi-hau-cong-listen-giup-chong-lai-su-nong-len-toan-cau-643214/>.

⁹⁹ Lakshman D Guruswamy (2017), *International Environmental Law in a Nutshell*, retrieved April 13, 2022, from <https://unimelb.libguides.com/internationallaw/environmental>.

¹⁰⁰ Includes the following principles: Parties must engage in the equitable protection of the climate system for the common welfare of humanity, commensurate with shared but differentiated duties; Principles of special consideration for developing countries; Principles of sustainable development...

commitments to combat climate change; (3) Several initiatives targeted at addressing climate change; and (4) Dispute resolution measures emerge. All States Parties to the Convention agree that human activity has increased the concentration of greenhouse gases in the atmosphere, resulting in warming of the Earth's surface and atmosphere, as well as negative effects on natural and human ecosystems. Historically and presently, wealthy countries account for the vast majority of global greenhouse gas emissions. As a result, climate change is global and necessitates the broadest possible collaboration of all countries, with developing countries given priority to achieve sustainable economic growth and the most inclusive parties to achieve economic progress.

Second, the Kyoto Protocol on Reducing Greenhouse Gas Emissions (KP) was signed in Kyoto, Japan, in December 1997 and went into force in January 2005. The Protocol includes (1) Common policies and measures aimed at promoting sustainable development; (2) Emission reduction targets for developed countries and countries with convertible economies; (3) The principle of binding between the Group of Developed Countries-Annex and the Group of Developing Countries-Non-Annex; (4) List of controlled substances¹⁰¹ and (5) Mechanism for implementation of commitments¹⁰². Countries that have signed the Kyoto Protocol are subject to supervision and regulation by the UN principles on emission reductions, and participating states must commit to achieving the goals through the three key mechanisms outlined in the Marrakesh Accord: (1) The emissions market mechanism, also known as emissions trading; (2) The clean development mechanism; and (3) The co-implementation mechanism. This Decree is one of the principles that gave rise to the concept of “*climate diplomacy*”, which occurs when complicated climatic processes and their implications have a substantial impact on international relations¹⁰³.

Third, the Paris Agreement was adopted on 12 December 2015 with the following main contents: (1) Reaching the largest emissions level as soon as possible and lowering the level of emissions in the second half of this century; (2) Keeping global temperatures from rising more than 2 degrees Celsius and attempting to limit the increase to 1.5 degrees Celsius; (3) Evaluating the implementation process every 5 years; and (4) Giving another specific number of financial contributions by 2025¹⁰⁴. The Agreement emphasizes that to accomplish this goal, the world must reduce greenhouse gas emissions as soon as practicable. The particular aim is that by the middle of this century (sometime after 2050), the globe must achieve a balance between human activity emissions and the earth's absorption capacity, as well as “*emission collection*” technologies. The accord also states that after 2018, governments would reassess their established targets every five years beginning in 2023. Furthermore, the agreement states that wealthy countries have a legally binding commitment

¹⁰¹ Includes: Carbon Dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O), Hydrofluorocarbon (HFCs), Perfluorocarbon (PFCs) and Sulfur Hexafluoride (SF₆).

¹⁰² These include: Joint Implementation (JI), Emissions Trading (ET) and Clean Development Mechanism (CDM).

¹⁰³ Thanh Tam (2020), *Challenges with the climate agreement*, retrieved April 13, 2022, from <https://nhandan.vn/baothoinay-hosotulieu/thach-thuc-voi-thoa-thuan-khi-hau-579769/>.

¹⁰⁴ Japan International Cooperation Agency (JICA), (12/2015), *Historical Agreement on Climate Change and Political Commitment of the Vietnamese Government*, JICA Vietnam Office Bulletin, No. 4, p.2.

to offer financial resources to underdeveloped countries for climate change mitigation. As a result, member countries should strike a commitment by 2025 to pay at least \$100 billion per year to developing countries to adapt to climate change¹⁰⁵.

Fourth, the Glasgow Agreement: On November 13, 2021, the 26th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP26) finished in Glasgow with a new climate agreement known as the “*Glasgow Agreement*”, which made new promises. For the first time, a COP agreement has identified fossil fuels as the primary cause of global warming. The deal specifies tangible steps, such as halving carbon emissions by 2030, lowering methane emissions, and developing a new set of regulations that keep countries accountable, despite even though no sanctions for noncompliance. Finance is also an important issue at COP26, with the most contentious being poor countries' demand that rich countries “*compensate*” for losses incurred by extreme weather events, thereby assisting countries in responding to the serious implications of climate change. Many countries, like India and Indonesia, have stated that they are willing to limit their use of coal in exchange for financial assistance. One of the breakthrough points of the Glasgow Agreement compared to the 2015 Paris Agreement is that this agreement allows countries to buy carbon credits from other countries, opening up the potential to generate trillions of dollars in funds to protect forests, develop clean energy, and projects to combat climate change¹⁰⁶.

Fifth, *New-generation free trade agreements* (FTAs), such as the European Union (EVFTA) and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP). Within the framework of the CPTPP, the 11 members are committed to effectively implementing environmental laws and not degrading the legal system of environmental countries to encourage trade and investment. Specifically, Chapter 20 of the CPTPP sets out regulations on promoting trade, protecting the environment and effectively enforcing environmental laws, as well as strengthening the capacity of the parties to solve environmental issues related to trade, including through cooperation¹⁰⁷. CPTPP specifically calls for strengthening cooperation among member states to protect and preserve the environment, as well as sustainable management of natural resources, which contributes to sustainable development; focusing on several common environmental challenges that threaten human health and biodiversity in the Asia-Pacific region; calling for government cooperation to address environmental threats and crimes, and assisting countries with low per capita incomes. The most significant disadvantage of environmental issues is that the CPTPP has yet to define precise procedures for implementing these standards and does not address climate change, which is an environmental and human rights burden for CPTPP member nations¹⁰⁸.

¹⁰⁵ Khanh Linh (2016), *Paris Agreement with the fight against climate change*, retrieved April 14, 2022, from <https://dangcongsan.vn/tieu-diem/thoa-thuan-paris-voi-cuoc-dau-tranh-chong-bien-doi-khi-hau-414887.html>.

¹⁰⁶ Tran Phuong (2021), *COP26 reached an agreement to reduce coal use*, retrieved April 14, 2022, from <https://tuoitre.vn/cop26-dat-thoa-thuan-giam-su-dung-than-20211115074058706.htm>.

¹⁰⁷ Article 20.2 of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)

¹⁰⁸ Nguyen Thi Thanh Hai (2018), *The Comprehensive and Progressive Agreement for Trans-Pacific Partnership and its Impact on Human Rights in Vietnam*, retrieved April 15, 2022, from

Furthermore, the EVFTA agreement contains 17 articles in the trade and sustainable development chapter, with the main contents including biodiversity, climate change, forest resource management, forest product trade, sustainable management of marine biological resources and aquaculture products, labor, and transparency. On climate change, the Parties agree to implement and collaborate to achieve the climate change objectives outlined in several international environmental treaties, including the 1992 United Nations Framework Convention on Climate Change, the Kyoto Protocol to the UNFCCC Convention, and the Paris Agreement. The Parties will work together in key areas such as (i) Developing, implementing, and operating carbon pricing mechanisms; (ii) Promoting domestic and international carbon markets through mechanisms such as emissions trading programs and reducing emissions from deforestation and forest degradation; and (iii) Enhancing energy savings, low-emission technologies, and renewable energy¹⁰⁹.

3.2. Practical application of international law on fighting climate change in several countries around the world and experience for Vietnam

In Thailand, the country assigned the Department of Industry (DIW), the focal agency to implement the protocol to develop an implementation plan including legal measures and plans to cut ozone-depleting substances (ODS), specifically introducing: new regulations on vehicle safety currently including air conditioning inspection; inspection and emergency import quota of CFCs and ban the use of CFCs for production areas. Following that is the establishment of the National Ozone Office (NOU), which will be in charge of executing the Montreal Protocol's ODS reduction. NOU employs both legal and financial methods to limit ODS imports and to assist firms in transitioning to ods-free equipment. Furthermore, in response to climate change, Thailand achieved six additional significant national successes¹¹⁰. Thailand's First Assessment Report on Climate Change (TARC) was issued in 2011 by the Thai Research Foundation to examine the level of climate science in Thailand. The report used the style and structure of the Intergovernmental Panel on Climate Change (IPCC), the UNFCCC's intergovernmental body for the synthesis of global climate knowledge. Thailand has reacted to the UNFCCC's appeal through a collaboration between the Office of Natural Resources and Environment Planning and Policy (ONEP) and the German development agency - Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). Thus, the Thailand Climate Change Master Plan 2015–2050 was officially launched to create a low-carbon society by reducing greenhouse gas emissions to 20-25 percent below “*business as usual*” by 2030, as well as developing

<https://www.tapchiconsan.org.vn/web/guest/the-gioi-van-de-su-kien/-/2018/493331/hiep-dinh-doi-tac-toan-dien-va-tien-bo-xuyen-thai-binh-duong-va-tac-dong-cua-no-den-quyen-con-nguoi-o-viet-nam.aspx>.

¹⁰⁹ K.D (2019), *Promoting the signing and implementation of FTAs*, retrieved April 15, 2022, from <https://dangcongsan.vn/thoi-su/thuc-day-ky-ket-va-thuc-thi-cac-hiep-dinh-fta-590988.html>.

¹¹⁰ Strategy 1: Using a variety of policies, build resilience to climate change and reduce vulnerability. Strategy 2: Encourage actions that reduce greenhouse gas emissions while promoting sustainable development. Strategy 3: Encourage adaptation and mitigation research and development by gathering and disseminating climate change knowledge. Strategy 4: Increase community awareness and participation. Strategy 5: Increase the capability of authorities and personnel. Support international cooperation in order to realize the joint goals of climate change mitigation and sustainable development.

action plans to address climate risks, maintain competitiveness in economic growth, agricultural production, and sustainable development¹¹¹.

In China, the National Program was devised in 1992 and approved by the State Council in 1993, outlining the project¹¹² and industrial approach¹¹³ to reducing Ozone Depleting Substances (ODS). In 2000, China amended the Law on Air Pollution Prevention and Control to restrict the production, import, export, and consumption of ODS¹¹⁴. Furthermore, the 2006 outline of the medium and long-term scientific and technology development plan emphasized the energy and environment sectors in the process of science and technology development, as well as expanded development and training, increasing financial support for scientific research activities and technology transfer connected to climate change response specialists and research institutes. By June 2007, the National Climate Change Program had been charged with significant duties such as reducing greenhouse gas emissions, building capacity to adapt to climate change, and promoting climate-related research, among other things. On November 22, 2011, the Chinese government issued a White Paper on reacting to global climate change, emphasizing several significant political solutions to mitigate the effects of climate change. induced by climate change; adaptation to climate change; and outstanding outcomes throughout the 11th 5-year plan implementation period (2006-2010)¹¹⁵. The Ministry of Ecology and Environment was founded in 2018, working closely with the Ministry of Foreign Affairs on climate problems. Declare at the 2020 “*Climate Ambition*” conference that by 2030, China's CO2 emissions intensity per unit of GDP will be decreased by more than 65 percent compared to 2005, and that non-fossil energy will account for around 25 percent of primary energy consumption. From the establishment of ecological civilization in the “*13th Five-Year Plan*” to the distinct planning of energy and electricity to respond to climate change in the “*14th Five-Year Plan*”, it is clear that the Chinese Government has identified climate change response as a strategic activity¹¹⁶.

In Japan, the previous draft revised climate change adaptation plan was drafted in 2015, to create a social society that can keep up with global climatic changes. The Japanese leader stated that Tokyo officials' objective of becoming carbon-neutral by 2050 is an important goal, adding that this will also assist increase economic growth. Through an assistance package of 2 trillion yen (\$19 billion), Japan assists companies in developing “*green technology*” such as carbon capture and recycling, hydrogen fuel production, and

¹¹¹ Chaya Vaddhanaphuti (2019), *Climate change in Thailand: on the politics of knowledge and governance*, retrieved April 15, 2022, from <https://kyotoreview.org/issue-30/climate-change-in-thailand-on-politics-of-knowledge-and-governance-en/>.

¹¹² The project approach includes projects carried out by individual businesses.

¹¹³ The sectoral approach will follow the sector-wide policy framework and downsizing strategy.

¹¹⁴ Institute of Meteorology, Hydrology and Environment, (2009), *Research and evaluate the application of international treaties on natural resources and environment in international economic integration of Vietnam*, Hanoi.

¹¹⁵ *China publishes a White Paper on solutions to respond to climate change*, retrieved April 16, 2022, from <https://dangcongsan.vn/the-gioi/nhung-van-de-toan-cau/trung-quoc-cong-bo-sach-trang-ve-giai-phap-ung-pho-voi-bien-doi-khi-hau-100288.html>.

¹¹⁶ Nguyen Thu Phuong (2021), *Fighting climate change: Joining hands before it's too late*, Communist Journal.

next-generation batteries, and is committed to minimizing plastic waste in the ocean¹¹⁷. The Japanese government also established the Committee to Combat Climate Change, to which the Environment Minister has been assigned, to try to include the goal of reducing net carbon emissions to zero in a bill that emphasizes the government's priority on environmental issues and combating climate change. The paper also addresses the implementation of climate change measures established in the 2015 Paris Climate Agreement¹¹⁸. The Southeast Asia Research-based Network on Climate Change Adaptation Science (SARNCCAR) was founded at the end of 2018 by a network of researchers from four countries: Japan, Vietnam, and Thailand. Lan and the Philippines with a diverse range of expertise areas to encourage diverse voices, participate in research and community-based research, and create a shared narrative for the aim of climate change adaptation¹¹⁹.

In the United Kingdom, the British Government passed the Climate Change Act in 2008 as the foundation for regulating the implementation of climate-change-response initiatives. In policies and legal papers, the British government is also continually striving to identify efficient and cost-effective solutions to climate change. Using the MAG solution method, incorporate mitigation, adaptation, and geoengineering into a single integrated strategy to address the UK's national and international climate change challenges¹²⁰. This method allows the UK government to meet its aim of reducing GHG emissions by 80% by 2050 while transitioning to a low-carbon economy robust to the effects of climate change. If mitigation strategies provide beneficial effects, the use of geosynthetic technology will decline over time. CO₂ removal technology, on the other hand, can be maintained for longer than necessary to lower the historical amount of CO₂ already in the atmosphere¹²¹.

In the Federal Republic of Germany, the German government has revised the Regulatory Framework on Climate Change to reduce overlap in legal documents, facilitate decision-making, and analyze issues with relation to climate change. Furthermore, with the implementation of an emission charge system in the industry and active engagement in the Economic System, the German government has expanded the integration of market issues

¹¹⁷ Hong Nhung (2018), *Efforts to respond to climate change of countries around the world*, retrieved April 16, 2022, from <http://tapchimatran.vn/the-gioi/no-luc-ung-pho-voi-bien-doi-khi-hau-of-the-goc-gia-tren-the-gioi-14477.html>.

¹¹⁸ The Japanese Ministry of Environment focuses on the following contents: Mitigation and adaptation to climate change; Marine waste and garbage management; Environmentally sustainable cities; Pollution water; Air pollution; Environmental Protection for Chemical Activities; Environmental technology; Monitoring, reporting and verification (MRV) systems; Low carbon technology; Conservation of biodiversity; Other areas of environmental protection and improvement can be confirmed by both parties.

¹¹⁹ Kazuo Matsushita (2020), *Japan's Response to the Issue of Climate Change: An Innovative Transition Towards a Zero-Carbon and Resilient Society*, retrieved April 17, 2022, from <https://spfusa.org/research/japans-response-to-the-issue-of-climate-change/>.

¹²⁰ Specifically:

- Mitigation: Focus on reducing GHG emissions in all areas of society, such as energy production, transportation and the built environment;
- Adaptation: Ensure adaptation and protect critical assets such as power plants, transportation networks, residential areas against floods, rising temperatures and NBDs;
- Geoengineering: Using technology to slow the rise of global temperatures by removing CO₂ directly from the atmosphere or reflecting solar radiation back into space.

¹²¹ XIV National Assembly Committee on Science, Technology and Environment, (2017), *Responding to climate change in Vietnam (monograph)*, Publishing House Youth, Hanoi, p.159.

into climate change measures. The emissions trade in Europe. At the same time, the government of this country is committed to supporting and investing in the energy industry, environmental actions such as rising energy costs and collecting pollution fines and strengthening environmental rules to promote environmental protection. Green products and technologies are in high demand¹²².

4. Discussion and Conclusion

Some lessons learned for Vietnam

First, increase agency coordination in promulgating, executing, monitoring, investigating, and resolving trade and environmental concerns to construct a national multi-sectoral organization. The establishment of the National Environment Committee to coordinate interdisciplinary efforts, and activities connected to Thailand's environment, is a positive experience that Vietnam should learn from. These bodies will be in charge of organizing actions connected to the treaty's subject matter, as well as having legal, political, and financial authority, as well as advising on planning and policy direction. Vietnam, on the other hand, has announced the National Plan for Climate Change Adaptation for the period 2021-2030, with a vision to 2050, with the common goal of minimizing susceptibility and hazards to the consequences of climate change. Climate change adaptation will be promoted by enhancing the resilience and adaptive ability of communities, economic sectors, and ecosystems, as well as by promoting the integration of climate change adaptation into the strategy and planning system. In addition, the Ministry of Natural Resources and Environment is working on a draft of the Draft National Climate Change Strategy for the period up to 2050. Going forward, carbon pricing and the development of a carbon market-Carbon must be considered and regulated in specific and comprehensive detail in the Decree guiding the implementation of the Law on Environmental Protection in 2020 and the Law on Climate Change (according to the schedule that will submit this Law project in 2025). The concerned ministries and branches must focus on researching and proposing the development and application of a set of forest environmental indicators and CO₂ indexes; to the promulgation of legal regulations for the establishment of a GHG inventory system, a GHG emission monitoring system, and an emission estimation system at the national, regional, sectoral, and sub-sectoral levels by international standards and requirements; and to the completion of the set of criteria for detection¹²³.

Second, create a National Strategy and Action Plan to help the country internalize international accords. The challenge of translating international treaties into national legislation must be solved to concretize the commitments of the treaty's acceding parties. Vietnam has been a Party to the United Nations Framework Convention on Climate Change (UNFCCC) since 1994, fully fulfilling its obligations as a Party to the UNFCCC, the Kyoto Protocol, and the Paris Agreement on Climate Change. In 2015, Vietnam submitted its

¹²² XIV National Assembly Committee on Science, Technology and Environment, (2017), *Responding to climate change in Vietnam (monograph)*, Publishing House Youth, Hanoi, p.159.

¹²³ Thao Le – Thanh Tra – Bong Mai (2021), *Vietnam makes efforts with the world to fight climate change*, retrieved April 17, 2022, from https://special.nhandan.vn/Vietnam_nolucchong_biendoikihau/index.html.

Intended Nationally Determined Contribution (INDC) to the UNFCCC, in addition to fulfilling its obligations as a developing country Party to the UNFCCC, and then submitted an update of the Nationally Determined Contribution in 2020¹²⁴. Experience in building country action plans demonstrates that: Strategies and plans to combat climate change must be prepared by a diverse team of specialists from across the country, in collaboration with several experts. Foreign countries have a thorough awareness of the country's natural conditions. The formation of Expert Groups or Executive Groups aids in the elimination of inappropriate viewpoints, the creation of a coherent direction throughout the writing and planning process, and the harmonization of the country's views with those of other countries and international organizations. It should be noted that the level of success in implementing the National Strategy and Action Plan is heavily dependent on the awareness and determination of the entire political system, particularly at the highest levels¹²⁵.

Third, to establish and build a local environmental management system that integrates resource management and environmental management. Most international treaties only take national, regional, and international approaches, but not local ones. As a result, by the general advice of the national focal agency for treaty implementation, each province should prepare strategies and action plans tailored to the unique needs and features of its locations, with precise targets and operational methods¹²⁶. Consider consolidating strong enough environmental management units in provinces and centrally-run cities, establishing environmental management departments in conjunction with resource management at the district level, and having specialized staff in charge of environment and natural resources at the commune level. By 2030, Vietnam will reduce total greenhouse gas emissions by 9 percent compared to the conventional development scenario, equivalent to 83.9 million tons of CO₂, and by up to 27 percent, equivalent to 250.8 million tons of CO₂ (equal to Vietnam's total national emissions in 2014), if international support is provided through bilateral cooperation, multilateralism, and business investment¹²⁷.

Fourth, promote international cooperation and information exchange. Always utilize integrated measures (administrative, economic, and political) to reduce greenhouse gas emissions, as well as “Greening” activities that can be found in enterprises and workplaces. International treaties always include systems that allow members to consult and collaborate¹²⁸. Developing countries, in particular, continue to have limited financial,

¹²⁴ Nguyen Duc Minh, (October 2017), *Developing policies, laws and implementing actions to respond to climate change in Vietnam*, Legislative research, No. 19 (347).

¹²⁵ Nguyen Hong Son - Nguyen Manh Hung - Luu The Anh - Nguyen Dinh Minh Anh (2018), *Adapting to climate change and protecting the environment in the spirit of the Resolution of the 13th Party Congress*, retrieved April 18, 2022, from https://tapchicongsan.org.vn/web/guest/media-story/-/asset_publisher/V8hhp4dK31Gf/content/thich-ung-voi-bien-doi-khi-hau-va-bao-ve-moi-truong-theo-tinh-than-nghi-quyet-dai-hoi-xiii-cua-dang.

¹²⁶ Luu The Anh (2020), *Vietnam's urgent environmental problems: Situation, trends, challenges and solutions*, retrieved April 18, 2022, from <https://tinhtetrunguoc.vn/web/guest/thong-tin-chuyen-de>.

¹²⁷ Thao Le – Thanh Tra – Bong Mai (2021), *Vietnam makes efforts with the world to fight climate change*, retrieved April 18, 2022, from https://special.nhandan.vn/Vietnam_nolucchong_biendoikhihau/index.html.

¹²⁸ Nguyen Hoang (2019), *Strengthening cooperation and effective response to climate change*, retrieved April 19, 2022, from <http://baochinhphu.vn/Hoat-dong-Bo-nganh/Tang-cuong-hop-tac-ung-pho-hieu-qua-voi-bien-doi-khi-hau/443793.vgp>.

experience, and human resources in environmental resource issues; however, the expansion of international cooperation will bring the opportunity to receive resources to support environmental protection in general and to internalize international environmental conventions in particular. Many countries, particularly those reliant on fossil fuels and unsustainable industries, have chosen “Green” recovery as the emphasis of economic stimulus packages. Green policy and green investment can also help to create additional jobs, which can enhance economic activity. It is possible to minimize air pollution while increasing government revenue through taxation. According to international experience, there are seven potential policies and activities that might both influence the number of economic multipliers and enhance the criteria for quantifying climate impact: (1) Prioritize investment in clean energy or provide conditional support to businesses that drastically reduce emissions, particularly in carbon-intensive industries; (2) Regulate the pricing of nonrenewable or polluting resources to encourage responsible behavior, including eliminating subsidies and/or imposing taxes (carbon taxes); (3) Use the financial system to finance, lend, and provide tax incentives for sustainable transportation and transportation, water treatment, waste management, the circular economy, and clean energy research by requiring banks to invest less in fossil fuels and more in efforts to mitigate climate change and improve capacity resistance; (4) Financial assistance for households to improve energy efficiency and install renewable energy equipment; (5) Take supportive measures to facilitate ecosystem restoration, viewing it as an essential green infrastructure (for example, intact mangroves that reduce storm surges), including carbon-rich habitats and climate-friendly agriculture; (6) Ensure the development of new infrastructure while taking natural disaster and climate risks into account, while ensuring that design standards can withstand the effects of natural disasters to avoid creating new risks; (7) Invest in adaptation measures through combined investments in green and gray protection strategies to reduce risks to people and property from natural and climate risks¹²⁹.

Fifth, there should be procedures and policies in place to significantly stimulate financial investment. Raising public awareness about climate change and implementing numerous financial investment channels are equally essential actions for the success of national action plans and strategies. Continue to improve the Environmental Protection Fund's operating mechanism; increase revenue for the Vietnam Environmental Protection Fund; expand international cooperation to mobilize external capital, particularly capital from international financial institutions such as the Global Environment Fund and environmental funds from some partner countries¹³⁰; gradually increase the budget for environmental protection in line with the growth rate of the economy, increase the effective use of resources in environmental protection; Develop a breakthrough mechanism to mobilize investment from society for environmental protection, natural resource management, handling and overcoming

¹²⁹ Nguyen Lam Tram Anh (2020), *Covid-19 and articles applied to environmental challenges, climate change in Vietnam*, retrieved April 19, 2022, from <https://tapchicongthuong.vn/bai-viet/covid-19-va-bai-hoc-ap-dung-cho-nhung-thach-thuc-ve-moi-truong-bien-doi-khi-hau-o-viet-nam-80912.htm>.

¹³⁰ N. Thom (2015), *Climate change: Practices and lessons for Vietnam*, retrieved April 19, 2022, from <https://lienhiephoi.soctrang.gov.vn/index.php/di-n-dan/331-bi-n-d-i-khi-h-u-th-c-tin-va-bai-h-c-cho-vi-t-nam>.

consequences of natural disasters and environmental incidents; develop financial mechanisms based on the principles of the market economy to promote adjustment, change of production activities, consumer behavior in an environmentally friendly direction¹³¹.

In the international legal system, climate change law is an institution of international environmental law rather than a separate discipline. The provisions of international law have been comprehensively adapted to issues concerning climate change mitigation. Although there are still many limitations, there is no denying that these principles and regulations serve as an important legal foundation for international cooperation against climate change, as well as reflect the international community's determination to combat the impact of climate change on sustainable development.

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ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) ECOSYSTEM TAKES ENVIRONMENTALLY SOUND TECHNOLOGIES (ESTS) AS THE FOCUS IN THE GOAL OF SUSTAINABLE DEVELOPMENT AND ENHANCES THE COMPETITIVENESS OF VIETNAMESE COMPANIES

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Abstract

The Covid-19 pandemic has caused a negative impact on many domestic and international businesses. This is also the time when many domestic and foreign researchers propose sustainable development solutions for businesses to overcome the difficulties of epidemics and climate change. It was during this time that the ESG (Environmental - Social - Governance) ecosystem was proposed by many researchers in developed economies as an advanced model for the sustainable development of businesses. However, for developing countries, including Vietnam, technological innovation associated with environmental protection is a major concern today. Therefore, in this study, the author proposes to encourage businesses to apply ESG ecosystem, but take environmentally friendly technology as a key factor in order to increase competitiveness of businesses and towards the goal of developing a sustainable business model.

Keywords: *Environmental, Social and Governance (ESG); Environmentally Sound Technologies (ESTs); Sustainable Development Goals (SDGs); Sustainable business.*

1. Introduction

Research hypothesis: Sustainable development trend of Vietnam in general and of enterprises in particular to cope with climate change and epidemics in the future.

Research assumption: Applying environmentally friendly technologies, developing ESG models in enterprises to increase benefits for the sustainable development of enterprises.

Research history: ESG trend strongly developed in European countries, USA, Australia, Japan, Korea... so the research focuses on this area. In Southeast Asia, Thailand and the Philippines have been mentioned in research in a number of universities. In Vietnam, in March 2022, the embassies of 4 Nordic countries including Denmark, Finland, Norway, and Sweden collaborated with the National Academy of Politics in Ho Chi Minh City to

organize the Workshop "ESG - Modeling business model for sustainable development". In addition, in-depth studies on ESG in Vietnam related to business development and environmentally friendly technology have not been recorded by the author. Therefore, this is an urgent and important study in approaching new ecosystems to support in the sustainable development strategy of the Government of Vietnam.

2. Method

The author uses the proposed Prescriptive Analysis and then uses cluster analysis to analyze data on a group of customers based on purchase behavior, business attachment and evaluation of customers. Enterprises then synthesize and analyze in order to give the assessment and expectations of consumers about the business. In addition, the author uses additional methods of document synthesis and survey.

+ Method of synthesis of documents: Based on documents of researchers related to the impact of the covid-19 pandemic on production and business activities of enterprises in the period 2018 to present in Vietnam. Based on the documents of a number of international researchers on sustainable development, environmentally friendly technologies and the Environment - Governance - Enterprise model.

+ Survey method: Conduct two survey questionnaires with subjects being Vietnamese consumers and young Vietnamese workers in the impact of Environmental - Social factors - Management focuses on environmentally friendly technology. focus on constructing survey questions.

Results and findings

By this research, the author proposes a new Environmental Ecosystem of Corporate Governance with environmentally friendly technology as the focus to build a sustainable Vietnamese business model with the aim of protecting the environment, taking responsibility for the environment. social responsibility, sustainable governance, increasing competitiveness in the international market.

3. Results

3.1. Concepts of Environmental – Social – Governance (ESG) and Environmentally Sound Technologies (ESTs)

ESG:

According to the OECD in 2021 that: “ESG offers an effective measurement of environmental impact, carbon emissions and green investments. As market participants show greater awareness and concern that climate risks may present implications for long-term value and financial stability, ESG products are increasingly being used to assess companies’ commitments and actions to transition to renewable energy and green products. To meet this demand, asset managers and ESG rating providers increasingly integrate a host of metrics that are captured in the environmental ‘E’ pillar of ESG ratings and investing”. [1]

According to Lee Gap Soo, 2021, “ESG is an abbreviation for environmental, social, and governance, and is a measure of 'corporate sustainability'. The ESG term first became known to the world in late 2004 when it appeared in Who Cares Wins Connecting Financial

Markets to a Changing World, a report by the United Nations Global Compact. The UN believes that a systematic response to ESG is essential for companies to grow sustainably in the future”.[2]



Source: Anevis

Source: Anevis

According to the author of the study, ESG is one of the forms of sustainable development that combines the three factors of Environmental Protection, Social Responsibility and Corporate Governance in which the Environment is the main factor.

ESTs

According to OECD: The concept of environmentally sound technology is relative and normative. The term implies that the selected technologies will accomplish goals rather than just facilitate an industrial, surveillance, commercial or domestic process, and will bring benefits and broader use value than just productivity (UNCTAD, 1997a).

According to the author: Environmentally sound technologies are technologies that save fuel, raw materials, minimize the risk of causing environmental pollution, and technologies that create environmentally friendly products or solve problems. solve environmental problems.

3.2. Actual situation of the impact of the Covid-19 epidemic on Vietnamese businesses

According to the survey "COVID-19 impacts on enterprises in Vietnam 2020, by ownership" in 2021 by author Nguyen Ngoc Minh said that: “In 2020, around 72.3 percent of surveyed domestic private firms in Vietnam stated that the impacts of the COVID-19 pandemic on their business were mostly negative. In comparison, around 74.5 percent of surveyed FDI enterprises rated the impact of the pandemic similarly.” [3]

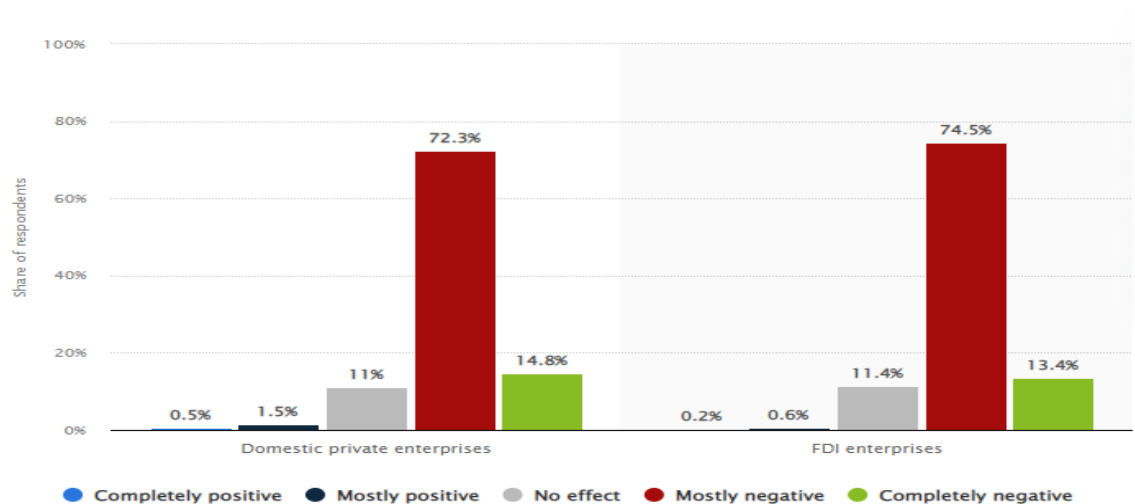


Figure 2. Survey of the impact of the Covid-19 epidemic on businesses

Source: Nguyen Ngoc Minh, 2021

Thus, according to the survey results published above, the number of unaffected domestic enterprises accounts for only 11% and the number of FDI enterprises that are considered unaffected is only 11.4%.

According to the General Statistics Office of Vietnam, the growth rates of GDP, exports and imports in the first quarter of 2020 were at the lowest levels in the past decade due to the impact of the epidemic.

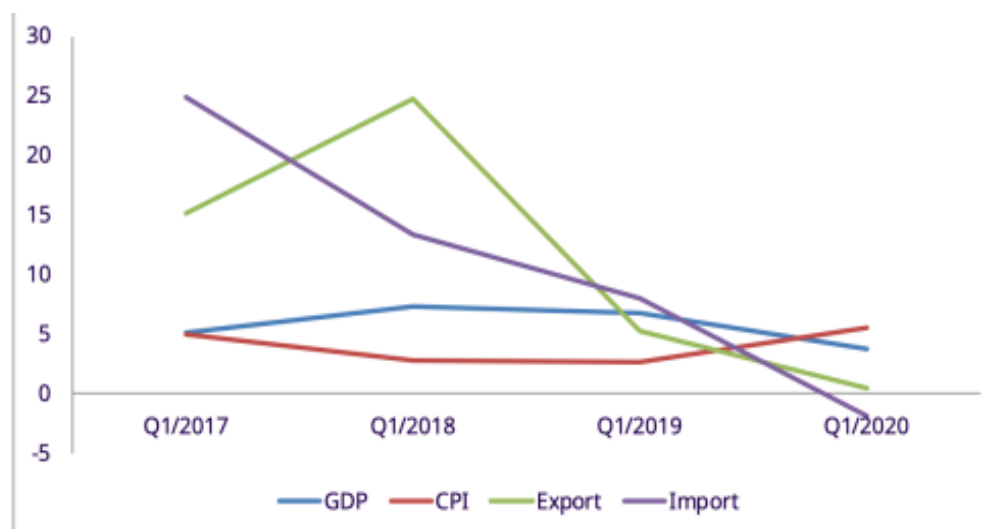


Figure 3. Key economic indicators in the first quarter of 2020 compared to the same period last year (%)

Source: General Statistics Office, April 2020

In the Rapid Assessment of Impacts of the COVID-19 pandemic on businesses and workers in a number of key economic sectors: ILO response, adjustment and resilience[4] outlined the significant impacts of the pandemic on workers in Vietnamese enterprises and solutions to reduce working hours, leave without pay or terminate labor contracts to deal with the epidemic of many businesses domestic.

Thus, it can be seen that the impact on businesses including domestic enterprises and FDI enterprises in Vietnam during the pandemic is very large. Therefore, economic recovery after covid-19 and sustainable development trends in enterprises are of great interest to many international research institutions.

3.3. What are the benefits of developing an ESTs line in the ESG model?

ESG issues have become a fiduciary responsibility as economies grapple with multiple and compounding risks such as climate change, social justice, and COVID-19. According to many researchers who promote the ESG ecological model, ESG is a sustainable transformation as a part of responsible capital allocation, risk management, of investors and global governments pursuing a low-carbon and just economy. ESG equips businesses with the ability to be flexible in current and future situations and target consumers in a trend of improving service quality and brand image.

As per GreenPrint's Business of Sustainability Index[5] report released in March 2021, 75% of Millennials are willing to pay more for an environmentally sustainable product in the US and 77% of the overall sample size are concerned about the environmental impact of products they buy.

At the Korea Institute of Tax and Financial Research, author Han Dong Sook in a new study on ESG published in December 2021 said that the more investors actively disclose to outsiders about ESG management signals through ESG assessment or sustainability report, the more investors perceive the correspondingly high value of the business[6].

In 2016, author Lim Jong Uk in a report on examining the influence of profit management with 975 enterprises announced to participate in the ESG model, resulting in E-S-G indicators of environmental responsibility index environment, the social responsibility index and the management responsibility investment index have a positive effect on the business. In 2021, Lee Jung and Lee Yoo Kyung conducted a survey on the impact of ESG management on the stock market when there is an external impact such as the Covid-19 epidemic based on 2011-2020 data of listed companies listed on KOSPI stock exchange. The results show that ESG business does not affect the crisis index.

So what benefits will ESG bring to businesses?

+ Firstly, it is a matter of attracting talent, targeting future consumers, creating conditions for technological innovation in the direction of environmental friendliness and enhancing product brands. This is the condition to create flexibility for many businesses to deal with difficulties. Moreover, the younger generation is tending to choose companies that are responsible for social issues and develop towards sustainability, a good working environment.

+ The second is to take advantage of the Government's preferential policies on business licenses, tax exemptions and reductions, incentives in bank loans. These are incentives for environmentally friendly businesses. For example in the Law on Environmental Protection 2020 Article 141. Incentives and support for environmental protection; Article 113 of the Government's Decree 08/2020 dated January 10, 2022 detailing incentives and support for investment capital.

+ The third is to reduce business costs, when businesses apply solutions to take advantage of renewable energy sources, sustainable business will save costs in the production process.

+ Fourth, compliance with relevant parties' regulations. When participating in the ESG community, businesses will be less dependent on supervisory companies, so the Board of Directors can operate more freely and dynamically to develop the business. Moreover, they are also less likely to face strikes or dissatisfaction from union members that affect the operations of manufacturing enterprises. Their brand will also be preferred and used more by consumers.

+ Fifth, enterprises can easily penetrate new markets for business investment, especially in export activities to new markets. Below, the author summarizes the analysis of the benefits of enterprises when participating in the ESG model.

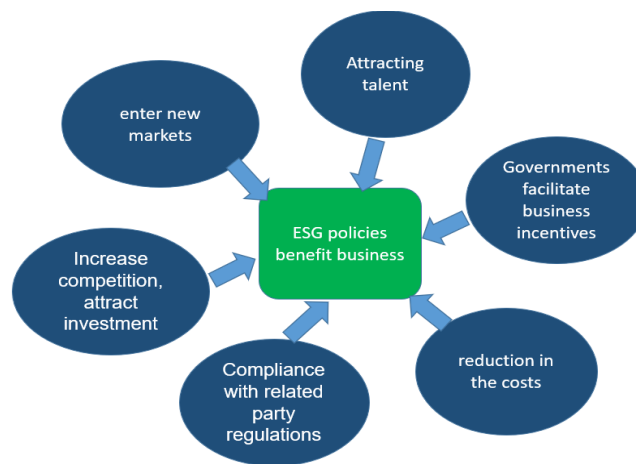


Figure 4. ESG development policy benefits businesses

The author conducted a short survey with Vietnamese consumers of all ages on the impact of Environmental, Social and Governance (ESG) indexes on Vietnamese consumers' buying behavior. Male. The results show that 48% are very interested and 28% are interested in deciding on products when reading information about environmental protection, application of environmentally friendly technology, carbon reduction rate, fuel saving, activities contributing to society are public. Thus, it can be seen that Vietnamese consumers are actually very interested in the social - environmental - governance responsibilities of domestic business enterprises. 76% consider that an important number for business enterprises to continue their orientation in sustainable development.

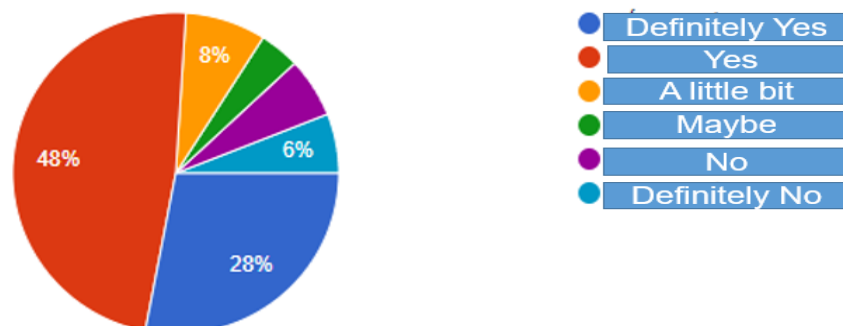


Figure 5. Survey results on the impact of the Environmental - Social - Governance index on Vietnamese people's intention to purchase and choose products

With a follow-up survey on job choice of workers aged 25 to 35 about three companies with the same salary and travel conditions. Meanwhile, company A on its website only has basic information about products, businesses, contact addresses, and organizational structure; Company B has more information about environmental protection activities, application of environmentally friendly technologies, reduction of energy consumption costs, and contributions to social activities, plans for sustainable development in the future of the business; Company C has more information about contributing to voluntary organizations, having fun activities during holidays and Tet holidays for employees. The results of public information about the company's Sustainable Development Plan and responsibility to contribute to society accounted for 78% of the employees' choice. Thus, the publicity of the company's sustainable development activities and social responsibility has attracted employees when choosing a working environment.

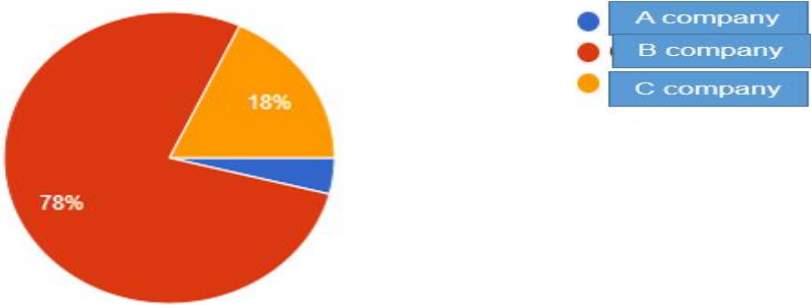


Figure 6. Survey results on the trend of choosing enterprises of Vietnamese workers

“Climate change risk is an investment risk,” said Larry Fink, President of BlackRock, the world's largest asset manager, in an annual letter, stressing the importance of sustainability. The environmentally friendly technology that businesses adopt is intended to produce results with indicators related to energy saving, carbon reduction, social responsibility and risk management.

3.4. Why have to focus on developing environmentally sound technology in the ESG model in Vietnam?

The policies of the Government of Vietnam always focus on investing in sustainable development, applying green, clean and environmentally friendly technologies. However, Vietnam is a developing country and there are many problems to be solved related to technology. Outdated, outdated or indirect technologies that increase environmental pollution are still being used. Therefore, in order to implement the zero-carbon policy and reduce environmental pollution, the first important thing is to innovate technology.

Technological innovation in the direction of environmental friendliness is the application of new technologies that ensure environmental standards. Production input – output ensures safe processes for the environment and green products. It is the foundation for businesses to build a sustainable ESG model.

3.5. How to start implementing ESG policies with businesses in developing countries including Vietnam?

It is first necessary for developing countries to identify the most important areas that ESG should focus on.



Figure 6. ESG model

Source: www.inews24.com Korea's online magazine

From Figure 6, we see the three components that make up the ESG. In which factor E - Environmental is the factor ranked first. Right from the title of the article, the author has focused on ESTs, because many countries in Southeast Asia, including Vietnam, give priority to the development of technology lines. Environmentally friendly, green and clean technology. Environmental technology is the means to implement solutions to cut greenhouse gases, reduce environmental pollution and develop sustainably. The identification of the main factors is concentrated in the above model.

Secondly, it is necessary to assess the current situation of enterprises when participating in ESG. For example, has the business ever applied ESTs? Have you participated in social responsibility activities? Does the corporate governance structure take into account the interests of employers and employees? That shows where your business is in the ESG model.

Thirdly, develop development policy for ESG based on reliability indicators. If you are a large enterprise, you can build your own set of indicators for the company. For small businesses, it is possible to link up with businesses in the same field and participate in publicizing the ESG index. Or the solution of hiring a company is a 3rd party directly participating in the assessment.

4. Conclusion

In short, if you want to develop a sustainable business, you must first encourage businesses to choose the right ecosystem. In this study, the ecosystem proposed by the author is Environmental - Social and Governance (ESG) with the focus on developing environmentally sound technology lines (ESTs) as the main factor. Sustainable national development must first develop sustainable businesses. Not only environmental protection, environmentally friendly technology will be the key to increase the competitiveness and sustainable development of enterprises in the future. The development of environmentally friendly technologies in the ESG ecosystem has not been mentioned by many domestic academic research works. However, this is an ecosystem that many developed countries are interested in, especially during the period when the covid 19 pandemic has adversely affected global businesses. In Asia, Japan and Korea

are the two leading countries in research related to ESG trends. Through two quick surveys with Vietnamese consumers and workers, it can be seen that Vietnamese people are very interested in sustainable development. Developing environmentally friendly, green and clean technology lines has long been a priority for investment by the Government. Laying the technology foundation that has been prioritized by the government to develop in the form of ESG to benefit businesses is an important issue that businesses need to pay attention to.

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THE ROLE OF NATURAL RESOURCES IN THE INFORMATION SOCIETY

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Abstract

The natural resources have a vital role in the survival and development of human society and also in maintaining the ordinary parameters of ecosystems, biodiversity and health. Thus, the existence of an information society, in which the flow of information, goods and people is making rapidly and sometimes with harmful effects, the sustainable management of natural resources can contribute to the reduction of the negative impacts produced by humans. In this paper we have tried to highlight the role of natural resources in the development of society by addressing in a different way, primarily, the renewable resources and, later, the non-renewable ones. To emphasize their role, we analyzed the evolution of some indicators like agricultural area, total water resources, the production of fossil fuels and we presented their importance for a healthy economy and environmentally friendly.

Keywords: *fossil fuels, information society, natural resources, renewable resources, Vietnam, sustainable development*

1. Introduction

Natural resources play an undeniably high role in today's society as it affects the living standards of the population and is a key factor in the development of society. Unfortunately, as the population grew and the need for resources has become more acute, the importance of natural resources was better acknowledged. Moreover, the situation has even reached the point of wars between countries over natural resources some states are missing. However, currently, policies and strategies for sustainable management of natural resources are being implemented globally, so as not to restrict the absence of some society and raising living standards.

Emphasizing the importance of natural resources is increasingly evident in the present context of globalization and information society, so we considered interesting to analyze natural resources in Vietnam since we live in an information society and since information changes everything today.

We don't know the exact origin of the concept of information society, but "Duff (2000) presents two possibilities regarding its origin: the concept was first mentioned by either Americans or Japanese, appearing in both versions since the '60s". However, the perspective of those specialists who believe in American origins is influenced, not by the

exact appearance of the concept, but by the meaning ascribed to other phrases similar to the knowledge industry. But, as Duff and others specialists state (2000), the concept of information society has emerged for the first time in Japan in 1964. So, with the promotion of this term a major importance was given to information and other specific terms of the new companies, such as technology and time. Information society is identified by the speed with which information travels through globalization by harnessing time.

We structured this research into five parts in order to provide clearer evidence of the role of natural resources in the Vietnam society. In the information society, as the name suggests, information is a key element and knowing how to use is the most important. Internationally, there is more information about the sustainable management of energy resources. These are translated into policies and strategies, but their implementation is difficult for various reasons. Among these reasons are included the lack of information, the lack of financial resources for their promotion and implementation at local level, the indifference and the unconsciousness of humans and so on. Therefore, the information society offers us the opportunity to learn from the past and to update and disperse quickly the necessary information for a proper management of natural resources. As a result of their high importance and complexity, the natural resources are taken into consideration separately in international policies and represent the key areas from the green economy and sustainable development. Thus, in view of the fact that natural resources can be renewable and non-renewable, we considered necessary to analyze them separately at Vietnamese level, because their management must take into account the characteristics of each category.

2. Literature Review

In the green economy, the natural resources management represents a strategic variable necessary for the sustainable development of society and for the increase of people's living standards. Thus, in Asia, the land resources management, the water management, the biodiversity, the air pollution and the food resources management are part of the nine fields of action of the policies made due to the need of green economy's functioning. By adopting these policies, the Asian Pacific Environmental Network wishes to minimize the negative impacts of climate change on resources, to improve the quality of surface water and groundwater, to decrease and even stop the pollution from dumping the waste in waters, to reduce the current rate of biodiversity loss, to protect the ecosystems, the species and the genetic diversity, to efficiently manage the fisheries, to protect and to conserve the forests, to protect the local flora and fauna and to avoid overexploitation of natural resources. Thereby, we see why the natural resources play an important role in the European economy, but also how these are in an interdependent relationship with other fields of action of green economy, such as climate change, energy, transport, waste and chemicals. Sustainable management of natural resources is a requirement of green economy, that comes up with measures in order to diminish the dangers that society and natural environment are regularly subjected to. The role of natural resources not only contributes to the achievement of economic processes, but also at maintaining the biotic environment on Earth. With the emergence of information society the technologies that exploit natural resources have

multiplied, their exploitation was done in a fast rhythm and led to a decrease in stocks reserves, which ultimately led to resources over-exploitation and to their gradual depletion until the humanity acknowledged their limited nature. These issues were the basis for setting the objectives in the field of natural resources management and the basis of the necessity of decoupling the resource consumption from economic growth. The Asia has policies for a constant monitoring of biodiversity, of stopping the land degradation, the drought and the forest degradation and of protecting natural resources as a whole. “Bran et al. (2011) list these areas for which they made strategies, including air pollution, sustainable use of resources and land protection”. However, Vietnam still has much work to do regarding the implementation of strategies to sustainably manage the natural resources.

Today's world is constantly becoming industrialized as more and more countries make major technological breakthroughs. Industrial and technological advances have also driven the demand for raw materials for research, development and production. As a result, more and more resources are used to satisfy industrial needs, accelerating the depletion of natural resources and emitting toxins and chemical by-products. An inefficient use of natural resources can lead to natural capital degradation, to human health and biodiversity damage, to irreversible changes in nature, air pollution and climate change intensification, which ultimately can change the society that we know today. So, by adopting and implementing the green economy objectives also in Vietnam, there will be a joint effort for an efficient and rational use of resources.

3. Results

3.1. Renewable resources in Vietnam

In the category of renewable resources enters a part of land resources, food resources, water resources, forest resources, wind and solar resources. In order to highlight the role of renewables in the information society in Vietnam, we chose to analyze the potential of natural resources, as well as some statistical indicators that we considered relevant to the study, by showing their impact on the planet. Right from the early years of the 2011 - 2021 decade, Vietnam has focused on implementing many solutions to promote the effective use of natural resources in order to take advantage of opportunities for cooperation in accessing and receiving transfers. technology, digital transformation for the sustainable development of the country.

Currently, the land resources are facing a number of problems related to degradation and pollution, that could affect the people, because these can affect local biodiversity, can decrease the possibilities of obtaining food and thus can reduce the economic activities in the area. In Vietnam, by 2020, the agricultural area will account for about 27.3 million hectares, or 80.4% of the total land area, increasing steadily since 1994 (18.3 million hectares). The biggest change is that unused land has decreased sharply from 11.7 million hectares to 2.1 million hectares in the same period, which shows that the exploitation and use of land resources for different purposes has increased. and is being promoted. However, the structure of agricultural land has changed strongly due to the transformation of production structure and the structure of crops and livestock in agriculture in recent years.

In the period 2001 to now alone, although the area of agricultural land has increased sharply (from 8.88 million hectares to 11.53 million hectares, the area of rice land has decreased from over 4.34 million hectares to over 4.34 million hectares). 4.14 million ha), accompanied by an increase in land for other annual crops and perennial crops. The decrease in the area of rice land is partly due to urbanization and industrialization that has converted a part of agricultural land (including rice land) to non-agricultural land, the rest is due to the low efficiency of rice cultivation, do not bring attractive income such as shrimp farming, freshwater aquaculture, fruit trees, vegetables, flowers, ornamental plants, animal husbandry... Soil quality is very important in providing necessary food for the population. That's why Vietnam should reduce its degraded land surface and increase current productivity. These issues need to be considered when implementing sustainable resource management strategies, because land is an important resource in the context of increasing population, decreasing agricultural land area and thus decreasing production. food quantity. Today, a challenge to food security is directly dependent on the condition of the land and its efficient and sustainable use. The role of land resources in today's society is emphasized because more than 95% of people's food needs are provided by them. This highlights the fact that humanity cannot exist without land resources.

With regard to water resources, their role in the economy, but mostly in human existence is vital. We believe that its importance derives from at least three approaches: water as a necessity for human and biodiversity survival, the water needed in agriculture and the water necessary for producing renewable energy. Vietnam is a country with a dense river system, with a total annual surface water flow of 830 to 840 billion m³. The total volume of water from abroad flowing into Vietnam accounts for about 63%. As for underground water resources, there is a total reserve of about 189.3 million m³/day, concentrated in the Northern Delta, the South and the Central Highlands. However, we must not underestimate the fact that water sources are being polluted, affecting not only the quality but also the biodiversity and environmental landscape of the locality. Also, it should be noted that water availability is variable and limited, so during certain times of the year it becomes scarce or even unavailable in some local areas. On the other hand, because the flow is unevenly distributed according to the season and region, in which 70 - 80% of the total flow is concentrated in the flood season, the dry season lasts from 6 to 9 months with the total flow amounting to only about 20 years. - 30%, so basically Vietnam is still a country lacking water. This temporary water shortage coupled with population growth can lead to serious problems in water management and ensuring the water availability for local populations and biodiversity. According to the report of the Ministry of Natural Resources and Environment, the volume of wastewater being treated in industrial zones is currently only about 65%, urban areas 15%, agriculture 0%. This is a great risk causing degradation of surface water and groundwater resources. Another problem of water scarcity is related to agricultural activities, with their development at the right time and place. On the one hand, the lack of irrigation for crops leads to financial loss, and on the other hand, loss of food resources. In Vietnam, there is a lack of necessary infrastructure for irrigation of agricultural areas and therefore measures are needed to address these problems. Another role of water is to produce renewable energy

through the operation of hydroelectric power plants. Annual electricity production has increased more than 20 times, from 8.6 BWh in 1990 to 256.7 BWh in 2021. The annual rate of increase during this period is about 12 - 15%, almost twice the rate of increase. GDP growth. Hydroelectricity, natural gas and coal are the main energy sources for electricity generation. Coal accounts for the highest proportion of energy sources with 41.6%, followed by hydropower with 37.7% and gas with 18.8%. In addition to large and small hydropower, renewable energy accounts for only a very small part (0.5%). However, since the beginning of 2019, the share of renewable energy in the energy system has increased significantly and is largely thanks to solar energy; however, wind energy is also on the rise. Although Vietnam has a high renewable energy potential, it cannot fully exploit its potential because of limitations such as lack of adequate infrastructure and high initial economic investment. These resources thus benefit both natural capital and human health, as well as social development by raising people's living standards.

Forest resources also have a major role in the sustainable development of society, because contribute to preserving the natural capital within normal parameters, provides the raw material for construction, help reduce greenhouse gases which intensifies climate change and helps improving the health status of population. In Vietnam, in the period 2011 - 2021, the country can average about 230,000 hectares of forest each year; contributing to bringing the national forest coverage rate to about 42% by the end of 2021. But the area of natural forest has increased insignificantly (compared to only 9 million hectares in 1990, by 2021 it will be 10.3 million hectares). Out of a total of 10.3 million hectares, only 15% is rich in reserves; 50% is medium forest; the remaining 35% is poor forest. Even in some areas, the area of production forest increased sharply, but the area of natural forest decreased deeply. Of the 230,000 ha of forests planted each year, up to 215,000 ha are production forests. Thus, in 10 years, the whole country has added about 2.15 million hectares of forest to create raw materials for the wood processing industry. As a result, the output from plantation timber has increased from 5.16 million m³ (in 2011) to about 20.5 million m³ in 2021. Another problem is that pests are increasingly affecting forest resources. In addition to wood products, forest products also have by-products such as medicinal plants, mushrooms, and berries as food for humans and animals. The role of forest resources is undeniable for their benefit to society and the planet. Forest resources contribute to the protection of water, atmosphere, soil, improvement of climate factors, meaning benefits include purification and maintenance of its gas composition, erosion control, pollination and seed dispersal, maintaining species diversity. Forests protect human health, energize people and are a space for entertainment and relaxation. At the same time, protect historical and cultural relics. By the sanitary function of the forest, this stimulates the body and contributes to the healing of diseases (asthenia, respiratory diseases). Even considering only the economic benefits of forest resources, we can still say that forest resources play an important role in human activities and in the protection of natural capital. Another important role of the forest is to be a powerful fighter against pollution. Many studies have shown that forests really have a great role to play in absorbing large amounts of CO₂ and removing oxygen in nature, and when they are cleared, forests remove a large amount of CO₂ back into the atmosphere.

contribute to the greenhouse effect and global warming. So, the poor management of forest resources can lead to floods, landslides, climate change, desertification, food shortage, that's why it is important to pay more attention to these issues. this problem and need to implement more effectively measures to protect and conserve natural forests. The first step would be to pass tougher laws against those who don't care about these resources.

3.2. Non-renewable resources in Vietnam

In the category of non-renewable resources are the fossil fuels and some underground minerals. Their exhaustive character requires greater attention to resources management, since information society is based on far higher energy consumption. In Vietnam, the coal is used to prepare coke, synthetic gas and obtaining heat, the oil is the main source of global energy and the natural gas has various usages in industry. The Earth takes millions of years to create fossil fuels while the rate of human consumption is very fast, making this fuel source increasingly exhausted. In the world, if the current rate of exploitation and consumption is maintained, the estimated oil reserves will only be enough for another 53 years, natural gas for about 55 years and coal for 113 years. In Vietnam, if the current rate of exploitation is kept at the same rate, oil will only have 34 years left, natural gas will have 63 years and coal will only have 4 years (Vuphong energy 2021).

In Table 1, we present fossil fuel production for the period 2010-2020. It can be seen that oil production in 2020 has decreased by a third compared to 2010 and it also shows a decrease in natural gas production. Coal production tends to increase steadily during this period. This decrease in output is due on the one hand to the policies introduced by Vietnam and on the other hand due to the decline in activities in the industry. Since they already have this information, Governments are left to propose, adopt and implement measures as possible to protect natural resources.

Table 1. Fossil fuel output, period 2010 – 2021

	2010	2012	2014	2016	2018	2020	2021
Coal (million tons)	44.8	42.1	41.1	38.7	42.4	48.3	40.2
Crude oil (million tons)	15.0	16.7	17.4	17.2	13.9	11.5	10.9
Natural gas (million m ³)	-	9.355	10.210	10.610	10.010	9.160	-

Source: GSO, 2021

In the list of depleted resources, there is also a part of mineral resources, which with the process of industrialization also plays an increasingly important role. Vietnam has a wide range of such resources located throughout the territory and should be properly exploited.

Recently, minimizing the negative impact of fossil fuels on natural capital and human health has been one of the greatest challenges facing mankind today. The increase in the amount of CO₂ in the atmosphere since the industrial revolution worries international experts and governments because of its rapid rhythm of increase, a fact that has determined the emergence of studies in this field. shows that the increase in CO₂ emissions is the main source of fossil fuels, followed by land use. Given the fact that at the European level, targets to reduce CO₂ emissions have been set and measures have been taken in this regard, Vietnam

has also joined forces with countries fighting against greenhouse gas emissions. and against harmful effects that may arise in the future. Therefore, since 1990, Vietnam has almost halved its greenhouse gas emissions due to the implementation of environmental and other policies. So, in figure 2, we have illustrated the evolution of CO₂ emissions for a number of national economic activities related to the analysis of non-renewable resources.

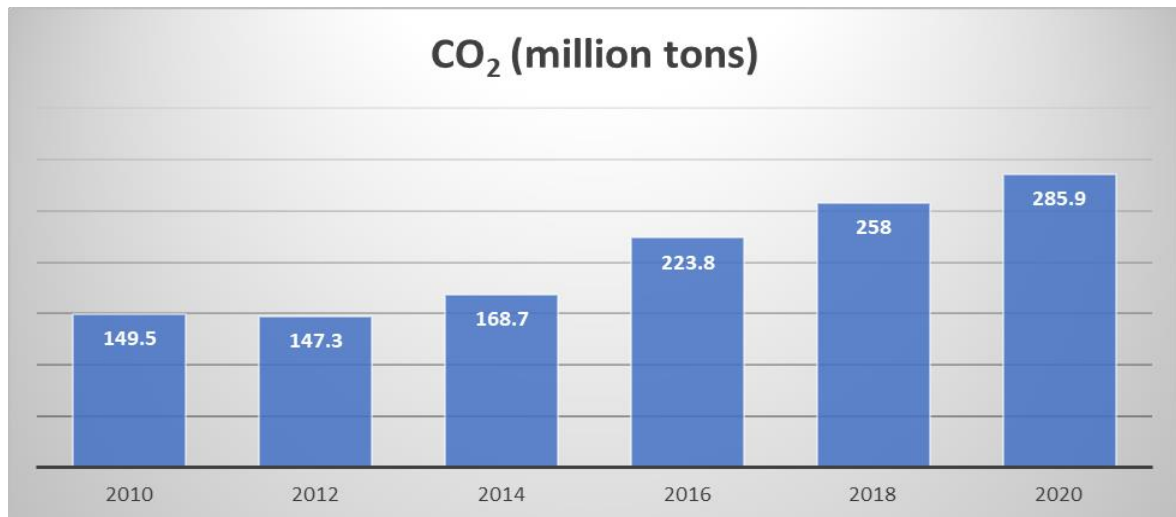


Figure 1. Emissions of carbon dioxide on the activities of national economy (2010 - 2020)

Source: Andrews.edu.vn

It is easy to see that the biggest share of CO₂ emissions is generated by the production and supply of electric and thermal energy, gas, hot water and air conditioning, followed at some distance by metallurgical activities. Therefore, both the government and the population should pay attention to how are exploited and used the non-renewable resources because these are highly polluting and affect both the natural environment and human health.

4. Discussion and Conclusion

In a society bombarded with economic, social and environmental problems, the rapidity of information's circulation and its transparency allow each person to be able to analyze the current state of natural resources, to identify current and future challenges that, afterwards, to be proposed and implemented measures to prevent and control them and to be carried out strategies for a sustainable resource management. Both the non-renewable and renewable resources produce some positive and/or negative impacts on nature and on people, so they must be investigated separately. The Vietnam's opportunity lies in the fact that it has a diverse and significant amount of natural resources which exploited and used in a rational way, can contribute both to increase social welfare and the green economy requirements so that future generations do not have to suffer. The effects of these resources are amplified when all environmental factors are properly presented. Gradually, renewable resources can replace non-renewable resources and can lessen their negative effects, but this can be done by recognizing the need of sustainable policies for natural resource management. Therefore, the role of the Vietnamese renewables is to help to develop the society, to reduce negative impacts and to provide quantifiable information regarding the state of natural capital.

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CIRCULAR ECONOMY IN VIETNAM: OPPORTUNITIES AND CHALLENGES

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Abstract

In recent years, circular economy has become a prominent topic and a model that many countries are aiming to replace the linear economic model. The orientation of the Party and Government of Vietnam can apply circular economy (CE) as the key to meet many sustainable development goals including reduce environmental pollution during development in output, respond well to resource depletion and climate change. The problem is how Vietnam can and Vietnamese enterprises exploit the opportunities and understand the challenges of the CE model well to position themselves for effective implementation. Therefore, this paper aims to identify challenges and opportunities of CE in Vietnam towards sustainable development. The paper provides an overview of the CE model and highlights the main challenges, opportunities and benefits of applying CE to Vietnam in sustainable development.

Keywords: *circular economy, sustainable development, Vietnam*

1. Introduction

Linear economy is the process of turning resources into waste, which inevitably leads to resource depletion and environmental pollution (Sariatli, 2017). In other words, from starting to exploit resources as inputs to the economic system, then to production, distribution, consumption and finally disposal. The linear economy has been causing pressures on resource depletion and increasing emissions. A large amount of solid waste, wastewater, and exhaust gases are released into the environment but there is no treatment, control and management of the waste, leading to serious environmental pollution in many places and areas (Sariatli, 2017). According to estimates of the United Nations Environment Program (UNEP), by 2030, if the development continues with a linear economic model, the world's resource use demand will increase 3 times compared to today. This will exceed the capacity of the earth to supply, the amount of waste will exceed the capacity of the environment to bear.

Vietnam has been facing many challenges in terms of resource depletion, pollution, environmental degradation and climate change. Recent statistics show the seriousness of that

such as the amount of plastic waste with about 1.83 million tons/year; daily-life solid waste with more than 61,000 tons/day, of which up to 71% of landfill waste (equivalent to 43 thousand tons/day); severe depletion of many resources, typically coal. Vietnam has had to import coal since 2015, possibly importing up to 100 million tons of coal by 2030 (Nguyen Dinh Dap, 2021). According to calculations by the World Bank, water pollution can cost Vietnam's GDP up to 3.5% by 2035. In particular, Vietnam is among the most vulnerable countries to climate change. Accordingly, it is forecasted that by 2030 climate change and natural disasters could cause losses of up to 11% of Vietnam's gross national product. That leads to an urgent need to find a more efficient and sustainable economic model in using resources, reducing pollution and environmental degradation, and responding to global climate change.

On the other hand, Vietnam is one of the countries heavily affected by the COVID-19 pandemic. According Japan International Cooperation Agency (2020), the developments of COVID-19 have had a strong influence on Vietnam's economic growth prospects both in the short and medium term. According to the General Statistics Office, Vietnam's GDP in 2020 has increased by 2.91%, which is the lowest increase in a recent decade period 2011-2020 (GSO, 2020). Currently, businesses and society face a shortage of production and consumption models that have had a lasting impact on the supply chain. Therefore, a sustainable development strategy, implementing a circular economy model is an inevitable choice. According to the report of the Organization for Economic Cooperation and Development (OECD) 2011, if we continue to develop according to the linear economy based on capital resources - production - consumption - disposal, even if we achieve As a result of high growth, Vietnam will still face natural and environmental disasters.

In recent years, the Vietnamese Party and Government have paid more attention to and mentioned the application of the circular economy in association with sustainable development, also known as green growth. Specifically, the content on building a circular economy was identified by the 13th Party Congress as one of Vietnam's development orientations in the period of 2021 - 2030 in order to achieve the sustainable development goals. The biggest benefit of this model is to help save energy and resources associated with the goal of fast but sustainable development and environmental protection in the present and future period. However, to develop a circular economy model requires a lot of strict institutional, legal and resource conditions of a country, especially in the post-COVID-19 economic recovery period. Therefore, this study provides a circular economy model of the previous countries, assessing the opportunities and challenges of this model is extremely necessary. From there, it helps to develop appropriate policies and measures to effectively apply to Vietnam's economic conditions.

2. Method

The article uses theoretical analysis and synthesis methods. This is a method of collecting scientific information on the basis of studying existing documents and documents and by manipulating logical thinking to draw necessary scientific conclusions. Accordingly, the article analyzes and synthesizes information and data based on arguments and previous

research results to clarify basic concepts of circular economy, collect and analyze data on the circular economy in Vietnam in recent times as well as summarize the opportunities and challenges that Vietnam faces in developing this model. From there as a basis to propose some recommendations to develop the circular economy in Vietnam in the coming time.

3. Results

3.1. Circular economy overview

3.1.1. Concepts and features

Circular economy is the opposite concept of linear economy in model and way of development. Linear economy is a way of economic development in a straight-line model, from the extraction of resources at the input for production, to distribution, consumption and finally waste at the output (Sariatli, 2017). Therefore, the linear economic model will accelerate the process of resource exploitation and waste generation, which inevitably leads to increasingly depleted resources and polluted environment (Hoang Nguyen et al., 2020).

The term circular economy has been around since the late 1970s, originating in Europe. Recently, it has been of particular interest to many researchers, starting with Chinese authors after implementing regulatory control measures in the country. The core of the circular economy is a closed cycle of raw materials at the input stage and waste at the output stage. (Yuan et al., 2006). It is important that this model has a foundation of design and manufacturing activities with the goal of extending the life of the material and eliminating negative effects on the surrounding environment (Potting et al., 2017). Cyclic systems embody the application of reuse processes through sharing, repair, refurbishment, remanufacturing and recycling to create a closed cycle in resource usage to minimize minimizing the amount of resources used at the input stage and the amount of waste generated as well as the possibility of causing environmental pollution and waste (Geissdoerfer et al., 2017; Potting et al., 2017).



Figure 1. Circular economy model

Source: National Agency for Science and Technology Information, 2021

This is an economic model towards long-term sustainable development that has been implemented in many countries around the world because it achieves three goals: (i) Responding to resource depletion at the input stage; (ii) Overcoming the problem of environmental pollution at the output; (iii) Harmoniously combine economic growth with environmental protection (Sehnm et al., 2019). Besides, the model also brings many other benefits to countries such as saving costs, reducing price fluctuations, reducing risks from suppliers, promoting innovation and creativity through substitute products. According to the United Nations Development Agency, by 2030, the benefits of the circular economy could bring in \$4.5 trillion and support 10 out of 17 of the United Nations' sustainable development goals (Truong Thi My Nhan, 2019). Sustainable development goals also known as global goals, universal goals designed to end poverty, protect the planet and ensure that everyone enjoys peace and prosperity in each country of the United Nations by 2030 (Assembly, 2015). In a word, the traditional economic model is only concerned with resource extraction, production and then disposal after consumption, causing a large amount of waste. Meanwhile, the circular economy model focuses on the management and regeneration of resources in a closed cycle to reduce the amount of waste generated. If circular thinking is fully applied in the process of designing, manufacturing and recycling products, the circular economy will open up growth opportunities for global businesses and create hundreds of millions of new jobs.

3.1.2. The multiple benefits of the circular economy

Developing a circular economy has become a trend of countries because it also brings many different benefits:

Economic and social benefits: In Europe, it is estimated that circular economic models can bring in €600 billion in net profit per year, create 580,000 new jobs and reduce emissions of greenhouse gases (MacArthur et al., 2015). In addition, the goal of increasing resource efficiency to 30% by 2030 from the European circular economy models will help create 2 million more jobs and increase the GDP of the whole bloc by 1% from efficiency resource usage and 3.9% from the creation of new markets and new products (COM, 2014). In Vietnam, the circular economy model in eco-industrial parks implemented in Ninh Binh, Can Tho and Da Nang saves 6.5 million USD annually (van Beers et al., 2019). The benefits of the circular economy are becoming increasingly evident, attracting the participation of businesses and investors.

In particular, the circular economy is an appropriate transition in the context of achieving the goals of sustainable development and responding to climate change. According to the European Environment Agency, managing materials such as the production and disposal of materials contributes to two-thirds of greenhouse gas emissions (Sehnm et al., 2019). The circular economy helps to mitigate this as the entire circular economy model revolves around the sustainable management of materials. This is demonstrated through the reuse of products and materials, the promotion of the use of renewable resources, the maintenance of development activities, and the control and containment of factors that can negatively affect natural resources and the environment.

The circular economy opens up many new business opportunities for businesses. Enterprises can enjoy a more secure supply of resources by reusing existing resources, rather than depending on finite resources. This can reduce material costs, allowing companies to operate more efficiently. Not only that, the circular economy allows businesses to apply an environmentally friendly business model, thereby expanding the network of consumers and creating a beautiful image in the eyes of customers.

The circular economy also benefits consumers. Because the reuse of materials can help consumers have more income from selling used products. Other more potential benefits to consumers are new products and new jobs. To achieve a circular economy, many new industries will have to emerge. Jobs in some industries such as coal mining will be lost in the future and replaced by green production and green consumption. Thus, the shift to a circular economy will create more jobs for workers.

3.1.3. Circular economy and sustainable development

Sustainable development is development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. (WCED, 1987). In Vietnam, Clause 4, Article 3 of the Law on Environmental Protection 2014 stipulates: “Sustainable development is development that meets the needs of the present generation without compromising the ability of future generations to meet those needs on the basis of a close and harmonious combination of economy growth, ensuring social progress and protecting the environment”.

The circular economy approach helps economies to solve the dilemma between economic development and the harmful effects of environmental pollution. Indeed, according to the Accenture Strategy estimates, the circular economy could generate benefits of \$4.5 trillion globally from 2015 to 2030 (Lacy & Rutqvist, 2016). Riêng tại Châu Âu, kinh tế tuần hoàn có thể đem lại 600 tỉ EUR lợi ích ròng hằng năm, tạo ra 580.000 việc làm mới và đồng thời giúp giảm một lượng rất lớn rác thải khí nhà kính của khu vực này (Within, 2015). Therefore, many researchers point out that the circular economy is an indispensable path to build an economy towards sustainable development in the future.

Besides, other research also shows that in order to achieve the goal of sustainable development, businesses must be able to produce products suitable for the circular economy (Hannon et al., 2016). Accordingly, enterprises must design products that are beneficial for reuse, repair and recycling. In addition, enterprises also need processes and systems to support customers when products are defective, damaged or no longer bring customer satisfaction. On the other hand, sustainability is a balanced combination of economic performance, social inclusion and environmental resilience for the benefit of present and future generations (Geissdoerfer et al., 2017). Previous researchers have shown that the circular economy is seen as a fundamental condition for sustainable development and there is a positive correlation between these two factors.

In addition, the ongoing COVID-19 epidemic exposes more and more the limitations of the traditional economy, which is based on profits and continuous resource consumption. This model raises many problems such as environmental pollution, effects on climate

change, loss of biodiversity or unequal distribution of wealth. Moreover, people's negative attitude towards nature protection also affects the increase in pollution levels (Malone & Truong, 2017). In 2015, the United Nations adopted 17 Sustainable Development Goals (SDGs) with the goal of improving livelihoods and the natural world by 2030, with the participation of all countries in the world. To succeed, the SDGs are based on two major assumptions: *globalization and sustainable economic growth* (Assembly, 2015). However, COVID-19 has hindered progress in achieving these goals (Sharma et al., 2021). Before COVID-19, progress on the SDGs was very slow. Following to Naidoo & Fisher (2020), two-thirds of the 169 specific goals will not be achieved by 2030, and some could become counterproductive as they are threatened by the COVID-19 pandemic. To achieve the SDGs, therefore, a circular economy approach to solid waste management needs to be a priority on the post-COVID economic agenda.

Naidoo & Fisher (2020) emphasized that it is no longer realistic for us to depend on globalization and economic growth as a driving force for green investment and sustainable development. The application of the circular economy - an industrial economic model that fulfills the multiple roles of separating economic growth from resource consumption, waste management and wealth creation is seen as a possible solution. The circular economy can enhance resilience to crises, make the economy more sustainable and competitive, reduce reliance on external suppliers, and reduce the impact of transportation. Rebuilding the circular economy model to move towards sustainability is an opportunity that all countries must seize. Any positive post-COVID-19 environmental impact must begin with a shift in our production and consumption habits towards cleaner and more sustainable models. As the global economy recovers from COVID-19, the world sees more clearly the close links between environmental, economic and social sustainability (Bauwens et al., 2020).

3.2. Circular economy development in Vietnam: opportunities and challenges

3.2.1. Actual situation of applying knowledge-based economy in Vietnam in recent times

Around the world, there have been a number of large corporations that have started operating under the circular economy model. IKEA (the world's largest furniture retailer) has committed to fully applying the circular economy model by 2030. Lego (a corporation famous for its toy assembly kits) has begun implementing a plan to green the ecosystem with the first assembly using plant plastic. Carlsberg (Danish Brewing Company) has improved its packaging solution to reduce the use of plastic. At Schneider Electric (France), circular economy activities account for 12% of revenue and have saved about 100 thousand tons of resources between 2018 and 2020.

Vietnam has had models close to the basic economy since very early, such as collecting and recycling scrap metal, collecting and recycling paper; In agriculture, there are models of garden - pond - barn, garden - forest - pond - barn, gas recovery from livestock waste. Although there are still many limitations such as environmental pollution, these models have also initially approached the basic economy. Specifically, the model of processing aquatic by-products (shrimp head, shrimp shell) produces SSE, Chitosan; eco-industrial park model in Can Tho, Da Nang, Ninh Binh; initiative to recycle Tiger beer cap

into iron to build a bridge in Tien Giang; Heineken Vietnam with initiatives to reuse waste or by-products to reduce emissions into the environment; DOW's model of using flexible plastic packaging for roads; Unilever's model of collecting, recycling and reusing 100% of waste from plastic packaging; model of processing aquatic by-products; Vietnam Packaging Recycling Alliance (Ha Van Thang, 2020).

Coca-Cola Company is still persistent towards the goal of collecting and recycling 100% of bottles and cans sold by 2030. In Vietnam, this goal is still being gradually realized by Coca-Cola through the efforts to design, collect and collaborate in the direction of a circular economy with the message “Recycle me” on the packaging of all products, to encourage consumers to join hands in recycling bottles/cans after rewarding drinks. These examples, when summarized and evaluated, will contribute to supplementing and perfecting the knowledge economy for our country in the coming time.

In addition, our Party and State have issued many documents related to the local economy and green economy: Decision No. 2149/QĐ-TTg dated December 17, 2009 of the Prime Minister approving the National Strategy on integrated solid waste management to 2025, vision to 2050; The National Action Plan for the implementation of the Sustainable Development Strategy 2011-2015; Decision No. 1216/QĐ-TTg dated September 5, 2012 of the Prime Minister approving the National Environmental Protection Strategy to 2020, with a vision to 2030; Resolution No. 24-NQ/TW, dated June 3, 2013 of the Central Committee on proactively responding to climate change, strengthening natural resource management and environmental protection; Decision No. 2612/QĐ-TTg dated December 30, 2013 of the Prime Minister approving the Strategy on using clean technology for the period to 2020, with a vision to 2030; Decision No. 622/QĐ-TTg dated May 10, 2017 of the Prime Minister on promulgating the national action plan to implement the 2030 Agenda for Sustainable Development; Decision No. 889/QĐ-TTg dated June 24, 2020 on approving the National Action Program on sustainable production and consumption for the period 2021 - 2030.

Many legal documents with regulations related to the eco-economy were also promulgated such as: Law on Environmental Protection, Law on Minerals, Law on Water Resources, Law on Land, Law on Consumer Protection, Law on Forestry, Law on Finance. Natural resources, marine and island environment, Law on plant protection and quarantine, Law on natural disaster prevention and control, Law on food safety, Law on economical and efficient use of energy, Law on chemicals, Law on product quality commodity products... Currently, the Ministry of Natural Resources and Environment is developing criteria, roadmap and mechanisms and policies to promote the knowledge economy in Vietnam. It is an economic model in which design, manufacturing, and service activities aim to prolong the life of matter and eliminate its negative impact on the environment.

The above legal documents and regulations represent a shift towards building a knowledge-based economy, responding to climate change and building a green and sustainable economy. The Resolution of the 13th Party Congress sets the target: by 2025, Vietnam will be a developing country with modern industry, surpassing the low middle income level; by 2030, Vietnam will be a developing country with modern industry and high

middle income; By 2045, Vietnam will become a developed and high-income country. Building a new economy was identified by the 13th Party Congress as one of the country's development orientations for the period of 2021-2030 to achieve the goals of sustainable development, environmental protection, and response to climate change in the world. large scale in the next 10 years.

3.2.2. Opportunity and challenge

Opportunities

Firstly, the circular economy model is a common development trend of countries around the world and has been successfully proven in many countries such as the European Union, Canada, Sweden, the Netherlands, Denmark, Singapore, Finland, China, Japan... Therefore, Vietnam will draw many lessons from previous countries and then apply it appropriately to its economic and social situation.

Secondly, Vietnam is in the stage of perfecting the institution of a socialist-oriented market economy, so the transformation from the traditional economic model to the circular economy model will contribute to promoting more sustainable economy development.

Thirdly, Vietnam has been taking advantage of many advantages from the industrial revolution 4.0, implementing circular economy development associated with a high-tech platform, moving from the real world to the digital world. This will be a great opportunity to help improve the efficiency of economic growth compared to previous methods.

Fourthly, the pressure on environmental pollution, shortage of resources, large emissions, especially plastic waste will be significantly reduced when developing a circular economy model. In addition, Vietnam is implementing the United Nations' sustainable development goals, so developing a circular economy model will help reduce substances that cause greenhouse effects. This is the development method that helps Vietnam achieve many criteria on sustainable development goals by 2030 as in the spirit of Decision No. 889/QĐ-TTg.

Fifthly, developing a circular economy model will receive high support and consensus of the whole society. The reason is that this is a way of economic development to help solve the scarcity of resources, protect the environment to cope with climate change and bring about high economic efficiency in the direction of long-term development.

Challenges

The COVID-19 epidemic has not yet determined an exact end time, but the economy has begun to accelerate recovery along with many risks. Therefore, the transition to a circular economy is inevitable, but the challenges for Vietnam are huge:

First, currently, Vietnam does not have a specific legal framework for circular economy. In addition, a set of criteria to identify, evaluate and classify the level of development of the circular economy has not been developed. Therefore, this challenge must be overcome as soon as possible, otherwise the development of a circular economy model is just a spontaneous action and has not really been effective.

Second, change the perception of people and businesses about the model and value of the circular economy. It is really difficult to create a general consensus on the correct

perception of the nature of the circular economy from design to implementation in industries and fields, for people, businesses, and levels of state management. Meanwhile, realizing the true nature of the circular economy, starting from design to implementation in all industries and fields, requires the coordination of each individual, business and state management to create a chain of links operating smoothly in each stage. This depends greatly on the efforts of the people, the business community and the policies of the state.

Third, circular economy development must go hand in hand with innovation and application of modern technology. Meanwhile, Vietnam is a developing country, most of the technology is outdated, and production scale is fragmented and small. On the other hand, Vietnam does not have a team of experts who are good at designing, recycling and reusing. Human resources are one of the important links, providing creative and innovative solutions that play a key role in the success of the circular economy. Vietnam is lacking a lot of technology experts and experts related to economics, research on circular economy policy. Therefore, at present, Vietnam largely relies on links and grants from developed countries in this field such as Japan, the UK, France, Canada, China and a number of countries in the European Union.

Fourth, the capacity of reuse and recycling technology of Vietnamese enterprises is still limited. In addition, people's long-standing habits in production and consumption of disposable plastic and plastic products are very large and difficult to change in a short time. This is really a big challenge for Vietnam in the economic transition because the circular economy model requires the classification and cleaning of emissions before being recycled and reused.

4. Discussion and Conclusion

Given the opportunities and challenges that Vietnam is facing as analyzed, the article proposes some recommendations to promote the development of the circular economy in order to contribute to sustainable development in the coming time. the following number of solutions:

First, to institutionalize the circular economy through a system of laws, policies, and administrative procedures... to implement the circular economy in a systematic and synchronous manner. It is important that the forms of incentives, incentives in terms of mechanisms, finance, access to resources and clear and transparent sanctions are established from the very beginning. Along with that are policies to encourage and promote the business community to invest, develop the recycling industry, renewable energy, and promote the use of environmentally friendly products. Experience from a number of countries that have been implementing circular economy shows that in their countries there are clear laws and regulations on this issue.

Second, develop a roadmap to implement the circular economy from micro to macro. In which, businesses are the central driving force. The circular economy development roadmap also needs to be associated with financial mechanisms to achieve the set goals such as public-private cooperation mechanisms, green financial mechanisms, etc. From there, a reasonable roadmap is determined. The purpose is to gradually replace fuels and products from hazardous materials with single-use products with environmentally friendly fuels and materials, and products with repeated use.

Third, it is necessary to conduct in-depth and extensive research on circular economy development right from the initial approach to implementation with the model's criteria in order to create a general consensus from all levels of government to the community of businesses and citizens. It is necessary to strengthen communication to raise awareness of people and businesses about the circular economy in order to change production and consumption thinking in the direction of increasing the use of renewable energy and recyclable or fully reused products; enhance resource recovery from used products, prolonging product life by providing product upgrade, refresh and redesign services. At the same time, it is essential to strengthen cooperation in research and development to connect consumers through the form of shared consumption to improve the efficiency of product use. Thereby, it will mobilize the participation of the whole community in the development of a circular economy, in which the role of the state and enterprises is of utmost importance.

Fourth, building a circular economy should be based on high technology. This is one of the prerequisites for building a circular economy because only modern technology can bring about a zero-emission future and sustainable development for future generations. Therefore, Vietnam needs to have policies to support businesses and individuals to innovate in production with environmentally friendly products with high reusability. Currently, Vietnam has implemented waste separation at source and garbage after sorting must be collected, cleaned and transported before being put into recycling and reuse. Separation of waste at source has really become a mandatory requirement, a criterion to evaluate Vietnamese people's culture and will gradually change the perception of the whole society, which contributes to develop circular economy process. Furthermore, it is vital to continue to improve one more step towards the circular economy models that have been present in Vietnam in the past time. Especially plastic and nylon products must be thoroughly implemented and resolved in the nearest time in order to minimize emissions to the environment.

In conclusion, it is clear that the circular economy offers many opportunities in addition to challenges. To develop a circular economy in Vietnam, it is required that all sectors of society understand the nature and purpose of this economic model. Therefore, the state and relevant departments need to summarize and re-evaluate the existing development models for a number of fields and industries, which helps to learn from experience and serve as a basis for establishing suitable criteria for the circular economy model in the near future. In addition, the state also needs to take advantage of opportunities in this model and take measures to overcome challenges in the process of developing a circular economy.

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THE WILLINGNESS TO PAY OF VIETNAMESE PEOPLE FOR REDUCING AIRLINE CARBON EMISSIONS

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Abstract

Nowadays, few people think that the aviation industry causes serious pollution to the environment. This is a rather "delicate" issue related to the convenience of human beings in the modern era. The aviation industry consumes up to 5 million barrels of fuel per day. The burning of fossil fuels now produces about 2.5% of all Carbon Dioxide (CO₂) emissions – this share is estimated to increase to 22% by the year 2050 as other sectors produce less CO₂ emissions. Anybody can fly now, and in the generation of low-cost airlines, the demand for air travel will increase sharply, along with the number of planes on the air will be double by 2035. There is currently no way to carry 8 millions people per day in the sky without burning oils. This study investigated whether Vietnamese are willing to pay for an increase in their travel cost to reduce the carbon emissions from their flight to minimize the environmental impact. Using the contingent valuation method (CVM) and a survey of 200 Vietnamese residents to gate the willingness to pay (WTP) for CO₂ offsets when traveling by airplane. The results reveal that WTP is 16.56 USD (equivalent to 331,200 VND) per person; income and education were found to have a significant relationship with WTP. Besides, the regression results also show that there are 4 factors affecting Vietnamese willingness to pay namely age, marital status, income and education, in which income and education have the greatest influence on the willingness to pay.

Keywords: *Contingent Valuation Method (CVM), Willingness to Pay (WTP), Carbon Dioxide Emissions, Ariline Carbon Offsets, The Aviation industry Emissions, Airtravel.*

1. Introduction

Climate change is the change of the climate system including the atmosphere, hydrosphere, biosphere, lithosphere, and ice in the present and in the future due to natural and man-made causes. However, the main cause of Earth's climate change is the increase in activities that generate greenhouse gas emissions, and the over-exploitation of sinks and reservoirs of greenhouse gases such as biomass, forests, marine ecosystems...

The World Meteorological Organization estimates that the Earth's temperature will increase by more than 1.5°C within the next 20 years, leading to floods, storms, droughts and more severe heat. Entering the beginning of 2022, it is forecast that the winter months of this year will be relatively hot, and extreme weather patterns will also remain regular on the warming globe. Vietnam is one of the most vulnerable countries to the impacts of climate change, which is shown in detail by natural disasters such as the increased number of heavy rains, heatwaves and floods in the last three years in the country. In spite of the fact that Vietnam is a country that is severely affected by climate change, it is also a country that contributes to an increased risk of extreme events globally. Carbon dioxide (CO₂) emissions here are the main cause of climate change and the transportation industry is the main source of carbon emissions.

In recent years, with the improvement of living standards, many people choose to travel by air, specifically by plane, instead of other road means such as cars and trains. Therefore, the use of airplanes to travel is becoming more and more popular. People nowadays travel using air transportation not only for business purpose but also for leisure purpose, and it is getting the increase from year to year. This also can relate to the cost of travel where the price offered is affordable for all level income. Thus, people chose to travel more using air transportation rather than driving or used any road transportation. According to the study of Mayor and Tol in 2010, "Increasing incomes and lower travel costs lead to a boom in air travel".

The main objective of this study is to quantify whether air travelers, as a polluter, endorse increases in cost of their travel to reduce the CO₂ emissions from their flights. More specifically, the objective aims to find the determinant for the willingness to pay (WTP) and quantify the value of WTP in reducing CO₂ emissions. The results can be used as a reference to help the aviation industry take more specific steps in reducing CO₂ emissions. The cost that each airline passenger is willing to pay for reducing CO₂ emissions will help the aviation industry have more budget to improve technology, research new techniques, towards using clean, alternative fuels (e.g. biofuels), which produce less CO₂ emissions.

According to Mehedi Masud et al. (2015), quantifying an individual's willingness to pay to reduce CO₂ emissions will help decision-makers to identify alternatives to encourage individuals to participate in reducing environmental pollution. Besides, this study hopes to help the aviation industry or policy makers to design effective financial tools to take measures to reduce CO₂. To achieve this goal, the research team conducted a survey in Vietnam. Survey participants are Vietnamese people who have traveled by air.

The rest of the paper is structured as follows. The next section presents information about the survey methodology and the last section concludes the paper.

2. Method

2.1. Contingent Valuation Method (CVM)

The Contingent Valuation Method is a method of estimating the value of environmental resources and services that have no market value. This method is called "random" assessment because it tries to get respondents to say how they would act if they

were placed in a hypothetical situation. The CVM is quite commonly used, directly asking interviewees whether they are willing to pay a certain amount for non-market goods (Bateman and Willis, 1999). This method is widely used in economic fields such as environmental economics, health economics, natural resource economics.

Some studies also use contingent valuation method (CVM) to quantify the monetary value of CO₂ offsets in the aviation sector. Brouwer, Brander and Van Beukering (2008) suggest that the average value of WTP among 400 passengers at Amsterdam Schiphol Airport in 2006 was €26,601 or RM132.76, as a CO₂ tax. His research also used double-limited CVM questions. Lu and Shon (2012) interviewed 1339 international Taiwanese tourists using a double-limited CVM questionnaire. Depending on the destination of different flights, the average value of WTP per ton of CO₂ emissions is different, which is clearly shown in this study.

2.2. Sampling technique and data collection method

The survey was conducted from February to March 2022. All participants in this survey were Vietnamese citizens and the target respondents of the study were employed people filtered from the list. The questionnaires were distributed and information was collected through face-to-face interviews as well as telephone interviews or online questionnaires.

According to Hair et al. (2006), the sample size is determined based on: (i) the minimum level and (ii) the number of variables included in the model's analysis, with the minimum level (Min) = 50. Ratio of observations relative to an analytic variable (k) can be 5/1 or 10/1. If $n < \frac{k}{\text{Min}}$ the minimum is calculated, the minimum level of the study to be selected is 50 observations.

This study is oriented to build a model with 9 variables, including 1 dependent variable (WTP) and 8 independent variables (described in detail in the following section), so when choosing the ratio $k = 10/1$, the minimum of sample size would be $10 \times 9 = 90$ observations.

Due to limited resources, the research team plans to collect 100 observations for each study subject who are employed and currently attending at university/college. Thus, the total number of observations of the study was 200 observations.

Out of a total of 300 questionnaires distributed, 282 responses were obtained, of which 82 were not accepted due to unsatisfactory requirements. Therefore, only 200 questionnaires were used, in which, 106 answers came from the employed and 94 answers came from people going to university/college. Basic information about the survey sample is shown in Table 1.

Table 1. Sampling method, capacity and some characteristics of the sample

Order	Classification criteria	Unit	Frequency		Percentage (%)	
			Employed	Students	Employed	Students
	Total number of respondents	people	106	94	51.5	48.5
1	Gender				100	100
	- Male	people	53	50	50.00	53.19

Order	Classification criteria	Unit	Frequency		Percentage (%)	
			Employed	Students	Employed	Students
	- Female	people	53	44	50.00	46.81
	Marital status				100	100
2	- Single		56	93	52.83	98.93
	- Married		49	1	47.17	1.07
3	Average number of people in the family	people	4.19	3.80	-	-
	Literacy				100	100
4	- University and below		73	94	68.87	100
	- Postgraduate degree		33	0	31.13	0
5	Average Age	age	31	21	-	-
6	Average Income	Millions VND	14.95	6.7	-	-
	Purpose of trip				100	100
7	- For Business		38	7	35.85	7.45
	- For Travel		62	81	58.49	86.17
	- Another one		6	6	5.66	6.38

Source: Summary of the authors' survey data, 2022

Primary data used in this study was collected by non-probability sampling method, in which, the choice of sample depends on the characteristics of the population and the needs of the survey. There are sampling techniques used, including Convenience sampling; Quota sampling and Snowball sampling.

Convenience sampling is a way of selecting elements that are accessible to the researcher, taking the full number of observations according to the sample size required by the research. Besides, Quota sampling is a way of dividing the research sample size with a certain ratio, applying a convenient sampling technique for the necessary number of observations. In this study, the authors divide the sample into two research subjects who are working and studying to apply convenient sampling technique until there are enough observations. In addition, snowball sampling is a way of selecting a number of known elements, and then asking their opinions through these people to introduce other elements to the research sample.

In this study, interviewees were asked to respond to three bound price scenarios, the questionnaire included prices for five scenarios (Figure 1). The starting value of 10\$ (approximately 200,000 VND) was established by the average value of the first 15 survey respondents. The price increase or decrease is calculated at 50% of the starting price (\$ 5 equivalent to about 100,000 VND).

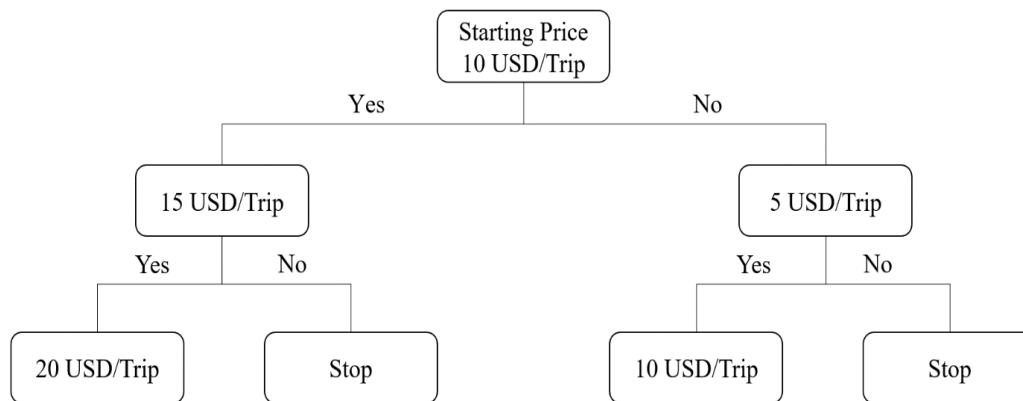


Figure 1. Interview scenarios for willingness to pay

Source: Synthesized from the authors' research, 2022

2.3. Data analysis methods and Model Framework

After collecting, the data is processed through SPSS and EXCEL software. During the analysis of the data, the contingent valuation method (CVM) was used to estimate their willingness to pay for their own air travel carbon offsets. Descriptive statistical methods are also used to analyze people's understanding and views on air pollution as well as carbon offsets when traveling by air.

For this research topic, the authors use Binary Logistic model to analyze the influence of each factor on people's willingness to pay for carbon offsetting and provide recommendations and solutions.

This is a common model in studies used to estimate the probability that an event will occur. The feature of binary regression is that the dependent variable has only two values: 0 and 1. Different from the multivariable regression model, the research team will estimate the probability that survey participants are willing to pay with the dependent variable, belongs to WTP. Specifically:

- With $WTP = 0$, it means that survey participants are not willing to pay for CO₂ offset when traveling by plane.

- With $WTP = 1$, it makes sense that survey respondents are willing to pay for CO₂ offset when traveling by plane.

The probability function applied in the study:

$$P_i = P(WTP = 1) = E\left(WTP = \frac{1}{X}\right) = \frac{e^{(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n)}}{1 + e^{(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n)}}$$

In which, $P_i = P(WTP = 1) = E\left(WTP = \frac{1}{X}\right)$ is the probability that survey respondents are willing to pay for CO₂ offsetting.

After transformation, we have the Binary Logistic regression equation as follows:

$$\log_e \left[\frac{P_i}{1 - P_i} \right] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n$$

The variables included in the study are described in detail in Table 2 below.

Table 2. Expected variables in the model

Variables	Sign	Expected Sign	Explanation	Base on
Dependent Variable	WTP		The willingness to pay for reducing carbon emissions when traveling by plane	
Travel costs	Price	-	Travel costs are expected to have a negative impact because of the increase in fares, air travelers will not be willing to pay as this will reduce their income.	Abdul Rahim and Nur Fatihah Shaari (2017)
Gender of respondents	Gen	+	Females will pay more for carbon offset and are more sensitive towards environment compared to male because female will be more worried about their children future and environment. The expected sign for this variable is positive. (1-male; 2-female)	Abdul Rahim and Nur Fatihah Shaari (2017)
Age of respondents	Age	+	As people are getting older, they will pay more for carbon offset, which they are more concern and aware about the importance to take care of the environment for today and future generation. Thus, the expected sign will be positive.	Fatihah and Rahim (2017)
Marital status	Sta	+	Married people will have a higher willingness to pay because they consider about their family and children in the future. The expected sign for this variable is positive. (0-Single, 1-Married)	Abdul Rahim and Nur Fatihah Shaari (2017)
Income of respondents	Inc	+	As the income of passengers increases, they are willing to pay more because they might have a higher level of education and holds a high position in a job, thus making them feel more responsible towards the environment. Thus, the expected sign for income variable is positive.	Choi (2015); Fatihah and Rahim (2017)
Literacy of respondents	Edu	+	A person with a high level of education are more aware and responsible towards the environment and they are willing to pay for extra money to take care of the environment. The expected sign is positive. (1-University and below, 2-Postgraduate degree)	Jou and Chen (2015); Choi and Ritchie (2014)

Variables	Sign	Expected Sign	Explanation	Base on
Number of flights/year	Fly	+	The larger the number of flights per year, the higher the willingness to pay, because people who move a lot will feel they need to take more responsibility for offsetting CO2. The expected sign for this variable is positive.	Araghi et al.(2016);Jou and Chen (2015)
Purpose of trip	Pur	+	Passengers whose purpose of flight is to travel will have a higher willingness to pay than passengers who fly for business or other purposes. The expected sign for this variable is positive. (1-Business, 2-Travel, 3-Other one)	Lucia Rotaris and Marco Giansoldati (2019)

Source: Synthesized from the authors' research, 2022

3. Results

3.1. Rate of interest

In the survey, interviewers raised an issue related to air pollution around the area where the participants lived, so that they ranked the most serious emission source. The ranking results of these subjects are listed in Table 3. Thereby, we have an overview of their level of interest in emission sources, which they consider to be the main causes.

Table 3. Ranking of respondents' interest in air pollution issues

Problem	Choosing which is the most serious problem	
	Number of people selected/issue	Percentage/issue
Air pollution due to smog from road traffic	95	47.50%
Air pollution due to construction activities	45	22.50%
Air pollution from factories	99	49.50%
Air pollution due to agricultural production	14	7.00%
Air pollution due to changing seasons	14	7.00%
Air pollution due to daily routine	37	18.50%
Air pollution is caused by airplanes releasing exhaust gases directly into the atmosphere	24	12.00%
Total number of observations per issue	200	100%

Source: Synthesized from the authors' research, 2022

The data shows that up to 49.50% of survey respondents believe that air pollution is caused by manufacturing plants, followed by dust from road traffic (47.50%). Air pollution from construction activities also accounts for a relatively high proportion with 22.50%,

equivalent to 99/200 survey respondents. The difference in proportion between the most serious cause of air pollution from road traffic dust and that from manufacturing plants is not as high as 2%. This is relatively consistent with the actual situation in a developing country like Vietnam.

In the process of industrialization and modernization, industrial growth is inevitable, for that reason, the number of manufacturing factories have rocketed in recent years. On the other hand, the problem of road traffic is always a Gordian knot for Vietnam, with the number of motorbikes and cars accounting for a much larger proportion than environmental friendly vehicles. Therefore, it is inevitable that survey participants evaluate these emission sources as having the most serious impact on the air environment.

However, from the demonstrated table, we can see that the number of survey respondents who think that air pollution from emission sources is aircraft accounts for a low proportion with only 12%, equivalent to 24/200 research subjects. This proves that people do not recognize how serious the emissions from airline account for.

Only 7% of people surveyed said that air pollution is caused by agricultural production and the same portion said that air pollution is happened by natural causes. This is quite reasonable because they are seasonal activities, appearing only at certain times of the year, so not many people show interested. Agricultural production, such as burning straw, takes place only in rural areas, so if the respondents were in the city, this risk would be underestimated. Similar to seasonal changes that prevent air circulation from low to high, causing the rising of dust concentration, it only occurs at certain times, especially at the change of seasons in the North of Vietnam. The level of concern about this issue is also low.

3.2. The attitudes and views of respondents on current air quality

3.2.1. The satisfaction current air quality

Figure 2 depicts the satisfaction level of the respondents about the air quality in the places that they live and work.

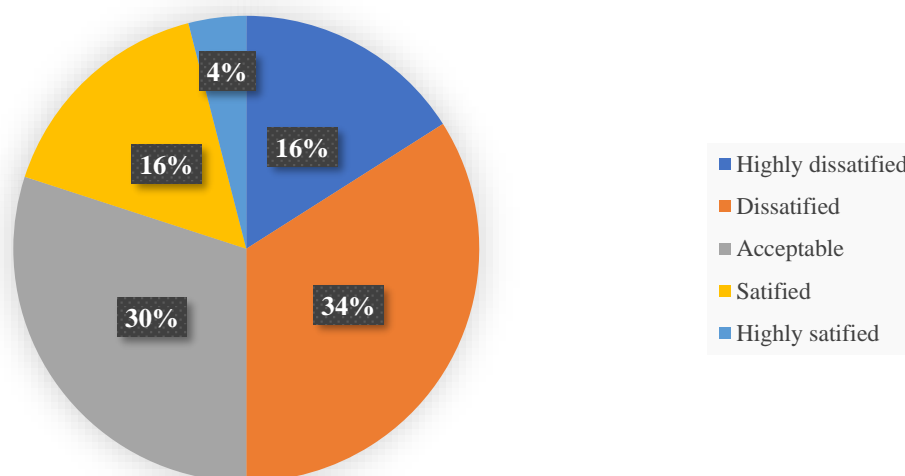


Figure 2. Satisfaction with air quality of respondents

Source: Synthesized from the authors' research, 2022

Research shows that 16% of survey participants are very dissatisfied with the air quality in the living area; 34.5% replied that they were not satisfied. This ratio clearly reflects people's views on the fact that the air is becoming increasingly polluted, endangering the health of the interviewees as well as their family members.

The percentage of people who accept with the current quality of drinking water is at an average level, accounting for 30%. But few respondents were very satisfied (only 8 survey respondents answered very satisfied, accounting for 4%). The results of this survey show that the current air quality is really concerned, and there is a need for mechanisms to reduce environmental pollution, especially the air environment.

3.2.2. Perspectives on how air quality affects family health

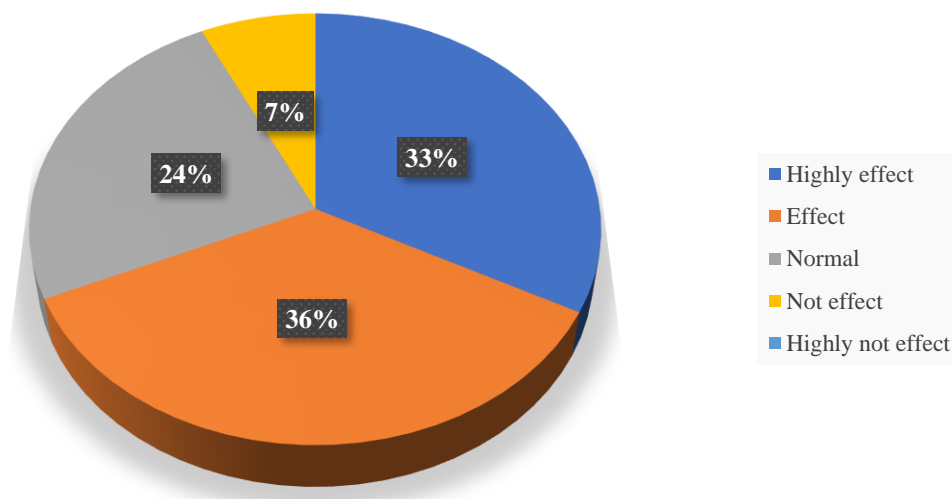


Figure 3. Perspectives on the influence of air quality

Source: Synthesized from the authors' research, 2022

A relative number of interviewees said that air quality has a great influence on health, accounting for 32.5%; along with 35.5% saying it has an influence. There are few respondents that air quality does not affect their family's health (only 6.5%) and only very few people think that air quality has no effect on their family's health (only 3 people) people and accounted for 1.5%. This shows that people have a certain understanding of the role of air quality in particular and environmental quality in general, and at the same time have a high awareness of the dangers of poor air quality seriously declining.

This is an inevitable result, because with information technology, people are better informed and know more about the increasing pollution and the importance of better preserving the environment.

3.3. Respondents' understanding of air pollution and carbon offsets

Out of 200 survey samples with 106 working people and 94 studying people participating in the survey, up to 68.5% of the survey respondents received propaganda information corresponding to 137 people. The remaining 63 participants did not receive propaganda information, accounting for 31.5% of the total survey respondents.

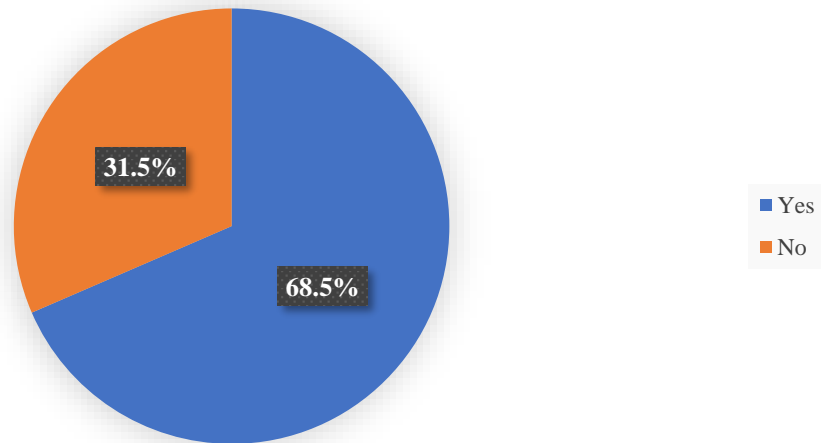


Figure 4. Actual situation of receiving propaganda information on emission reduction

Source: Synthesized from the authors' research, 2022

For survey respondents who have occupation, there are 77 people receiving enhanced information on reducing emissions into the environment, but the number of people who did not receive this information accounted for nearly 50%. These figures reflect the reality of this subject in a relatively realistic way. In terms of knowledge, these subjects have undergone the same period of knowledge acquisition as school subjects, and now they spend more time at work, so the problem of receiving this high of information will be limited.

For those attending school who participated in the survey, 66 people received propaganda information and the remaining 28 people did not receive information, accounting for about 30% of the total 94 respondents. This situation shows that young people, especially students, pay much attention to air pollution issues. This reflects the current situation in Vietnam, where students have more free time to receive information than working people, which is reflected in their active participation on social networking sites and television. ...At the same time, at this student's school, many volunteer activities related to environmental protection will be organized to raise awareness and the spirit of preserving the green environment for the young generation.

Table 4. Sources for receiving propaganda information on reducing air pollution

Sources	Employed		Students	
	Frequency	%	Frequency	%
Television	67	94.37	59	89.39
Books and newspapers	43	60.56	34	51.52
Communal Radio station	67	94.37	59	89.39
Mass organization	19	26.76	24	36.36
Friends, neighbors	22	30.99	19	28.79
Voluntary	26	36.62	32	48.48
Other (Social Media...)	2	2.82	10	15.15

Source: Synthesized from the authors' research, 2022

The table above shows that the survey respondents mainly receive propaganda information from television and radio. The number of people receiving information from television and radio stations of school and employed people is similar. For employed people, 67 respondents receive information from television and radio, accounting for 94.37% of the total number of people who receive propaganda information, in contrast, 59 students receive information from these sources, accounting for 89.39 %. The remaining receiving sources also account for a relatively high number such as books and newspapers; propaganda, volunteers. These sources are reliable, so the quality of information will be guaranteed, people will focus on receiving information from this source.

Besides, other sources such as social networks or from friends and neighbors with a low trust level which publish a lot of false information would lower individuals' capability of receiving information. However, according to the table, young people and individuals who are going to school that prefer information from these sources account for a higher percentage than employed people (10/28 accounting for 15.15%). This fact is easy to understand, because students are using social networks more often, the level of information filtering of these individuals is not as guaranteed as those of employed people. Therefore, the number of people going to school receiving information from this source is higher than that of employed people.

Table 5. Evaluating the effectiveness of information communicators

Propaganda effective influencers	Voters	Percentage (%)
Responsible authorities figures	56	40.88
Women Union and National United Front Figures	8	5.84
Youth Union	14	10.22
Reputable figures	28	20.44
Influencers/KOLs	32	22.63

Source: Synthesized from the authors' research, 2022

According to the assessment of the people participating in the survey, 40.88% of the respondents think that the local leaders will be the most effective propagandists on reducing air pollution. A rather large proportion in the survey sample corresponding to 56 people selected. Next, 22.63% of survey respondents think that celebrities are also effective propaganda objects. This situation is because, in the current technologically advanced age, the influence of Influencers or KOLs has a great impact on those receiving information, especially young people.

3.4. Analysis of willingness to pay and influencing factors

3.4.1. Statistics of survey respondents' willingness to pay

The percentage of survey participants willing to pay to offset CO2 emissions when traveling by plane is 200/300 survey samples, accounting for 66.67%, which is a relatively

high rate. The survey team conducted a survey of people with prices of \$20 equivalent to 400,000VND/flight, \$15 equivalent to 300,000VND/flight, \$10 equivalent to 200,000VND/flight and \$5 equivalent to 100,000VND/flight.

Table 6. WTP statistics for CO2 offsets when traveling by civil aircraft of the employed

Price (VND/flight)	Number of surveys collected	The answer to the question of WTP			
		Willing		Not willing	
		Frequency	%	Frequency	%
100,000	106	12	11.32	94	88.68
200,000	106	17	16.04	89	83.96
300,000	106	3	2.83	103	97.17
400,000	106	74	69.81	32	30.19

Source: Synthesized from the authors' research, 2022

From the data table we can see that, in general, the number of people willing to pay at the price of 400,000 VND/flight is the highest, followed by the level of 200,000 VND/flight, the lowest is the price of 300,000 VND/flight, accounting for only billion rate 2.83%.

With the price of 400,000 VND/flight, the number of people willing to pay reached the highest rate, accounting for 69.81%, the remaining 32 people who were not willing to pay will be asked again with decreasing prices.

Similarly, when the minimum price is 100,000 VND/flight, the number of people willing to pay has decreased to only 12 people working and 94 people unwilling to pay this price. This means that these individuals are still willing to pay but their payment level is less than 100,000 VND/flight, they think that the price will be more suitable for their income.

Table 7. WTP statistics for CO2 offsets when traveling by civil aircraft of student

Price (VND/flight)	Number of surveys collected	The answer to the question of WTP			
		Willing		Not willing	
		Frequency	%	Frequency	%
100,000	94	15	15.96	79	84.04
200,000	94	20	21.28	74	78.72
300,000	94	8	8.51	86	91.49
400,000	94	46	48.94	78	82.98

Source: Synthesized from the authors' research, 2022

Out of 200 satisfactory survey samples, 94 participants are attending school. The proportion of students participating in the survey accounted for 33.34%. These individuals,

mostly possess unstable income, are still dependent on their family or have low income, so the WTP of them is invisible and has no statistical significance. This individual's decisions are based on a sense of responsibility to the community, for the purpose of protecting the environment according to the awareness and concern of these individuals to the issue of CO₂ offset when traveling by plane.

Table 8. Reasons for willingness to pay for CO₂ offsets when traveling by air

Reasons	Frequency	Percentage (%)
The air is now heavily polluted, affecting the health of me and my family.	119	86.86
I believe I am not responsible for paying extra to reduce carbon emissions from aircraft.	73	53.28
I wish that the next generation can breathe fresh air.	114	83.21
I think this price is reasonable for each of my flights to reduce carbon emissions.	85	62.04
I believe the extra payments will effectively fund the Government's carbon reduction programmes.	67	48.91
I believe that the environmental protection tax is too low to effectively fund the current carbon reduction programs.	42	30.66
I believe that reducing carbon emissions from aircraft is essential.	80	58.39
Other reason	2	1.46

Source: Synthesized from the authors' research, 2022

In the study, a total of 200 people were willing to pay for CO₂ offsets when traveling by air. The main reason that people are willing to pay is mainly because "The current air is heavily polluted, affecting the health of me and my family" with 119 people choosing, accounting for 86.86% of the total number of people willing to pay. With the same number as the above reason, the surveyor who wants the next generation to be able to breathe fresh air also accounts for a high proportion with 83.21%, equivalent to 114 answers.

The remaining reasons also account for a relative proportion, specifically: I believe that I should be responsible for paying more for reducing carbon emissions from aircraft (53.28%); I think this price is reasonable for each of my flights to reduce carbon emissions

(62.04%); I believe the extra payment will effectively fund the Government's carbon reduction programs (48.91%); I believe that the environmental protection tax is too low to effectively fund the current carbon emission reduction programs (30.66%); I believe that reducing carbon emissions from aircraft is essential (58.39%).

Table 9. Reasons for unwillingness to pay more for CO₂ offsets when traveling by air

Reasons	Frequency	Percentage (%)
My income is not enough to pay for the above expenses.	3	33.33
I am satisfied with the current air quality.	1	11.11
I believe that saving money for the future is more important.	3	33.33
I don't think it's my responsibility to reduce carbon emissions from planes, it's the responsibility of the airlines and the Government.	5	55.56
I think the above cost is too expensive and will incur more costs in family living.	1	11.11
I don't think paying the extra money will contribute to reducing carbon emissions and increasing existing air quality.	7	77.78
I believe this cost is already included in the current airfare.	6	66.67
Other reason	0	0.00

Reason for unwillingness to pay higher: This reason is for survey participants who are willing to pay for CO₂ offsetting, but their willingness to pay is less than 100,000 VND/flight (does not accept all the price set by the authors).

Source: Synthesized from the authors' research, 2022

Table 9 lists the reasons that respondents to this survey are not willing to pay at the level suggested by the research team based on the contingent valuation method (CVM). In general, the number of survey participants who did not pay at the prices offered by the survey was relatively small, about 9 out of 200 participants.

In which, 7/9 individuals said: I do not think that paying more will contribute to reducing carbon emissions and increasing current air quality, which is the reason why they do not pay at the stated price with 77.78%.

3.4.2. Analysis of willingness to pay and influencing factors

Test the fit of the variables in the model, the results are described in the following table:

Table 10. Omnibus test of Model Coefficients for the employed

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	64.866	8	.000
	Block	64.866	8	.000
	Model	64.866	8	.000

Source: Research result, 2022

The Omnibus Tests of Model Coefficients table gives us the results of the Chi-square test to evaluate the hypothesis of appropriateness of the regression model. The sig value of Chi-square test in the Model row is $0.000 < 0.05$, so the regression model is suitable.

The Model Summary table gives the model fit results. The value of -2LL for the empty model is 144,789, while the -2LL for the last proposed model is 79,923. This shows that the independent variables included in the model have significantly reduced -2LL compared with the empty model. Therefore, the regression model is suitable.

The Cox & Snell R Square and Nagelkerke R Square values are both quite good, in which the Nagelkerke R Square value of 0.616 is relatively high. Thus, it can be concluded that the regression model has a rather high fit.

Classification Table for classification results of Observed and Predicted cases.

- In 48 observed cases of unwillingness to pay, 41 cases of non-payment are predicted, the correct prediction rate is $41/48 = 85.4\%$.

- In 57 actual cases of willingness to pay, 49 cases of willingness to pay are predicted, the correct prediction rate is $49/57 = 86.0\%$.

Thus, the average willingness-to-pay ratio for the whole model is $(85.4 + 86.0)/2 = 85.7\%$.

The Omnibus Tests of Model Coefficients table gives us the results of the Chi-square test to evaluate the hypothesis of appropriateness of the regression model. The sig value of the Chi-square test in the Model row is $0.489 > 0.05$, so the regression model is not suitable.

The Model Summary table for Cox & Snell R Square and Nagelkerke R Square values are both very small, with a Cox & Snell R Square value of just 0.056 and a Nagelkerke R Square value of just 0.109. Thus, it can be concluded that the regression model is not suitable.

3.4.3. Regression results

Table 11. Description of WTP of the employed

Criteria	Observations	Average	Standard deviation	Minimum	Maximum
WTP	106	16.56	0.53772	5	20

(Source: Synthesized from the authors' research, 2022)

Therefore, **meanWTP = 16,56 USD x 20.000d = 331.200 VND**

Regression model includes explanatory variables: price, gender, education level, income, number of family members.

We have the following regression model results:

Table 12. Results of the regression model of the employed Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Gen	.406	.594	.468	1	.494	1.501
	Sta	1.757	1.053	2.781	1	.095	5.794
	Inc	1.607	.353	20.672	1	.000	4.986
	Edu	1.947	.696	7.824	1	.005	7.010
	Fly	.068	.108	.393	1	.531	1.070
	Age	-.107	.057	3.563	1	.059	.899
	Price	.157	.454	.121	1	.728	1.171
	Pur	-.213	.577	.136	1	.712	.808
	Constant	-6.969	2.295	9.223	1	.002	.001

a. Variable(s) entered on step 1: Gen, Sta, Inc, Edu, Fly, Age, Price, Pur.

(Source: Research result, 2022)

The results of the Binary Logistic regression model with the variables selected above, we can estimate the general model:

$$WTP = \log_e\left(\frac{WTP_i}{1 - WTP_i}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots + \beta_n X_n$$

As a result, we have the model:

$$WTP = \log_e\left(\frac{WTP_i}{1 - WTP_i}\right) = -6,969 - 0,107 \text{ Age} + 1,757 \text{ Sta} + 1,607 \text{ Inc} + 1,947 \text{ Edu}$$

The probability level of willingness to pay:

$$P_{(WTP)} = E(Y=1/X) = \frac{e^{(-0,107 \text{ Age} + 1,757 \text{ Sta} + 1,607 \text{ Inc} + 1,947 \text{ Edu})}}{1 + e^{(-0,107 \text{ Age} + 1,757 \text{ Sta} + 1,607 \text{ Inc} + 1,947 \text{ Edu})}}$$

*** Interpretation of the results in the regression model:**

Regression results show that there are 4 statistically significant variables, which are marital status, age, income and education:

Age: Sig. = 0.059 < 10%, so the price variable is statistically significant at the 10% level, showing that the age of the respondents has an effect on the willingness to pay (as expected). The slope coefficient $\beta = -0.107$ has a negative sign, showing that price has a negative effect on willingness to pay, that is, the older the age, the lower the willingness to pay. This can be explained by the fact that the elderly have rich life experiences by going through hard time, so they have more rigor in spending compared to the young, who have a more generous spending. The value $\text{Exp}(B) = 0.899$ is significant, it means if increasing by 1 year, the willingness to pay will decrease by 0.899 times.

Marital status: Sig. = 0.095 < 10%, showing that the marital status variable affects the willingness to pay for carbon offsets when traveling by plane. The slope coefficient $\beta = 1.757$ shows that the marital status variable has a positive influence on the willingness to pay, which means that married people will tend to be more willing to pay. The value $\text{Exp}(B)$

= 5.794 indicates that if marital status changes (from unmarried to married), the willingness to pay increases by 5.794 times.

Income: Sig value. = 0.000 < 10%, this indicates that the income variable has an effect on the respondents' willingness to pay (as expected). The coefficient $\beta = 1.607$ means that income has a positive effect on people's willingness to pay, from the coefficient β_3 indicating that the higher the income, the higher the probability that the surveyed people are willing to pay. The value $\text{Exp}(B) = 4,986$ explains that if income increases by 1 step, the willingness to pay increases 4.986 times.

Education: Sig. = 0.005 < 10%, so the education given in the questionnaire has an impact on the respondents' willingness to pay as expected. The slope coefficient $\beta = 1.974$ this shows that education has a positive influence on willingness to pay, that is, the higher the education, the higher the probability that the surveyed people are willing to pay and vice versa. The value $\text{Exp}(B) = 7.010$ explains that if education increases, the willingness to pay also increases by 7.010 times.

The remaining variables are Gender variable, Price variable, Flight Number variable and Intent variable are not statistically significant because of Sig value. > 10%. This is different from the initial expectations of the survey. These variables are not statistically significant, implying that with different genders, different prices, different number of flights and different purposes of travel, people are still willing to pay the same. It is initially expected that an increase in fares will cause a decrease in willingness to pay, or by gender there is an expectation that women will be more willing to pay than men, an increase in the number of flights will increase willingness to pay. or Purpose of travel will have a higher willingness to pay. However, in the research sample, there was an equality in gender between men and women participating in the survey, showing that gender is not related to the level of concern about people's living environment. And because the survey targets a relatively high-educated population (from college/university or higher), the respondents' awareness of environmental issues will also be better, so the demographic variables This study has no impact on willingness to pay.

Table 13. Results of the regression model of the students
Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Gen	1.008	.762	1.749	1	.186	2.741
	Sta	18.582	40192.942	.000	1	1.000	117478077.89
	Inc	.075	.582	.017	1	.897	1.078
	Edu	-.066	.218	.092	1	.762	.936
	Fly	.977	.619	2.493	1	.114	2.656
	Age	-.204	.957	.045	1	.831	.816
	Price	-19.401	40192.942	.000	1	1.000	.000
	Pur	1.008	.762	1.749	1	.186	2.741
	Constant	18.582	40192.942	.000	1	1.000	117478077.89

a. Variable(s) entered on step 1: Gen, Sta, Inc, Edu, Fly, Age, Price, Pur.

Source: Research result, 2022

Table 13 shows that the variables included in the model of students are not statistically significant. This can be explained by students who are still surrounded by their families, do not have much life experience.

The fact that the students surveyed are willing to pay and have awareness about environmental protection is because they have access to the mass media and listen to propaganda about the seriousness of climate change. as well as measures to protect the environment.

Students do not have financial autonomy, are completely dependent or partially dependent on their family, so financial decisions have not been properly considered, leading to many students taking surveys despite using very few aircraft, dependent income but very high willingness to pay.

4. Discussion and Conclusion

The research topic shows that although Vietnamese people have not received much propaganda about offsetting carbon generated by air travel, they are aware of the important role of environmental protection. The environment, especially the air, is now more polluted than ever, especially pollution from vehicles as well as pollution from construction activities.

Most people are dissatisfied and distrustful of the current air quality, and they are of the opinion that air quality affects the health of themselves and their families. Through the research topic, if there is a program to offset aviation carbon generated by flying, many people will support it. Besides, the average price that people are willing to pay is also relatively at 331,200 VND/flight.

According to the model results, the marital status, age, income and education are the factors affecting the willingness to pay of the respondents, which are shown specifically as follows: Married people will have the ability to pay. the higher their willingness to pay; As age increases, willingness to pay for CO₂ offsets decreases; The higher the income, the greater the willingness to pay for the CO₂ offset; The higher the level of education, the greater the willingness to pay for CO₂ offsets.

In which, the influence of Education and Income has the greatest influence on people's willingness to pay for the cost of offsetting CO₂ when traveling by plane. Therefore, it is necessary to have special solutions to improve the education level, people's awareness about environmental protection and CO₂ offsetting policies in the future. What needs to be done is to raise the awareness of staff, passengers and children - the future "preschools" of the nation. In addition, it is necessary to further promote propaganda policies to raise people's sense of responsibility in paying polluters, along with measures to protect the environment, especially the air environment. gas. In the era of digitalization and the rise of social networks, propaganda needs to be deployed in a diverse, in-depth, multi-platform, helping to better reach all people, especially exploiting idol psychology. to have special promotion campaigns from famous young singers, idols, KOLs on social networks, to help optimize campaign effectiveness.

In addition, the Government should pay more attention to people's living standards, stabilize the macro-economy, and improve the purchasing power of the economy. When life is improved, real income increases, people will feel more responsible for preserving the environment for future generations.

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JOB OPPORTUNITIES ASSOCIATED WITH THE DEVELOPMENT OF SOLAR ENERGY IN NINH THUAN PROVINCE

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Abstract

The development of solar energy in Ninh Thuan province is considered a breakthrough solution on the basis of utilizing value of resources toward development of green economy, forming motivation for territory development; and increasing job opportunities, converting job for Ninh Thuan residences. However, this is new sector and Ninh Thuan has limited resources, especially quality of human resource so Ninh Thuan has not been utilized job opportunities. Therefore, in order to improve access to job opportunities, Ninh Thuan must have comprehensive development policies, diversifying types of industrial development along the product value chain, combined with develop human resources proactively, in accordance with local capacity.

Keywords: *Job, Renewable energy, Solar energy, Ninh Thuan*

1. Introduction

Solar energy is a process converting sunlight into electrical energy; is encouraged to develop in order to reduce greenhouse gas towards a long-term carbon-neutralized economy through limiting fossil fuel.

Ninh Thuan's great advantages in developing solar energy, combined with the effectiveness of investment-attracting policy has opened up development opportunities for different economic branches; including the opportunity to change jobs. Nevertheless, renewable energy in general and solar energy in particular is a new branch, causing unsynchronized response from local resources, leading to challenges in development process, especially in taking advantage of the opportunity to change jobs.

This study focuses on clarifying content in development of solar energy as well as jobs associated with solar energy; hence, proposing solutions to improve jobs associated with solar energy in Ninh Thuan province, based on results of synthesizing, analyzing and investigating sociological in December, 2021 with 2 subjects: (i) Group discussion conducted at levels of administration department: province level at Department of Industry and Trade, Department of Resource and Environment; commune level at People's Committee in Bac Phong commune, Thuan Bac district in order to collect general data on

policies, progresses and results of energy-development policy; (ii) Questionnaire interview with 100 families randomly chosen in Bac Phong commune, Thuan Bac district.

2. Method

This study based on results of synthesis, analysis and sociological investigation in December, 2021 in Ninh Thuan with 02 methods: (i) Group discussion implemented at Department of Industry and Trade, Department of Natural Resources and Environment and Bac Phong Commune People's Committee; (ii) Questionnaire interview with 100 households at Bac Phong Commune People's Committee, Thuan Bac district.

3. Results

3.1. Development of solar energy in Ninh Thuan province

Ninh Thuan is a coastal province in South Central Coast, located deep in tropical region of Northern hemisphere with the highest annual number of sunny hours all across the country; on average is 2,837 hours per year, dry seasons is 230 sunny hours per month, which is about 9 hours per day. High number of sunny hours, lasting during day with radiation intensity 4.4 – 5.7 kWh/m²/day; in which, potential of electricity generation is 3.3 – 4.4 kWh/kWp/day, the highest across the country, distributed equally between locals in the province [4,17,18].

On the basis of effectively manipulating strategies, orientations in national energy development and advantages of radiation and thermal resources, especially after the Government agreement of Ninh Thuan development policy to the national centre of renewable energy, taking advantage of electricity-price policy according to Decision no.11/2017/QĐ-TTg on April 4th 2017, Decision no.13/2020/QĐ-TTg on April 6th 2020 of the Prime Minister about solar-energy electricity projects and peculiarity policy mechanism assisting the province in developing socio-economy according to Resolution no.115/NQ-CP on August 31st 2018 [1,10]. Ninh Thuan has actively deployed construction, promulgated break-through policies in order to turn potential to competitive advantage; step by step creating national centre of renewable energy [7,11]. With solar-energy electricity, chosen investors must obey several requirements; including priority to investors who are large-scale, socio-economically effective and have policy assisting in local social security work, training commitment and labor use [16].

Result in 2021, the whole province had 35 solar-energy electricity projects, accounting for 78.6% of total capacity and 71.9% of renewable-energy investment capital, equal to 65,701.9 billion VND. Solar-energy electricity plants were located in 6 districts; majorly in Thuan Nam, Thuan Bac and Ninh Phuoc district with capacity and investment capital making up more than 85%; particularly, Thuan Nam district accounted for 51.4% of capacity, roughly 50% of investment capital; following was Thuan Bac district with 20% of capacity and investment capital. In 2022 is expected to have 6 more projects with 646MW, accounting for 53% of total renewable-energy electricity in national grid [5,9]. Simultaneously, the province has actively removed “bottlenecks” in terms of clearing capacity of above-mentioned energy projects basing on mobilization of budget capital and private economic sector in order to improve the infrastructure of synchronized electricity

transmission, integrate wind-energy and solar-energy electricity in national electricity grid according to Resolution 115, until late 2020 had basically solved reducing generation of energy projects in the province.

Table 1. Overview of solar-energy development according to district boundary

No.	District	Quantity	Capacity on demand COD (MW)	Investment capital (billion VND)
1	Ninh Hai	1	28	854.10
2	Bac Ai	1	40	1,291.70
3	Ninh Phuoc	10	348,01	10,268.70
4	Ninh Son	4	264	7,540.00
5	Thuan Bac	4	484	13,034.40
6	Thuan Nam	15	1228.8	32.713.00
	Sum:	35	2392.81	65701.9

Source: [12]

Solar-energy projects have become important source of electricity generation, in time supplemented the load demand of local and flown into national electricity grid, contributing to ensure energy security, decrease greenhouse gas amount, especially, enhance advantages for local economy, create job opportunities and change jobs for labor force. On calculation, the market share of renewable-energy projects accounts for one-third of total budget revenue in 2021-2025 period, solar energy particularly is 79%, equal to more than 3.8 trillion VND per year; in which, the year 2022 is predicted to achieve the highest contribution with roughly 40%. Those electricity plants having enormous contribution, making up of nearly 40% of total revenue, are: solar-energy electricity plant BIM (14%), solar-energy electricity plant Trung Nam (12.4%) and solar-energy electricity plant Xuan Thien (8.5%); On average every MW of solar-energy electricity will create 0.32 billion VND for local budget [5].

Although, developing solar energy has achieved remarkable outcomes, contributing to support production and people's life; nevertheless, there still are challenges affecting on the progress of turning advantages of solar energy into one of local motivational development solutions. As follows:

On the mechanism, policy: Energy-development policy has not associated with relevant ones, which results to unsynchronized investment attraction, not having long-term solutions ensuring effectiveness for investors, especially private economy participating in renewable-energy market and taking part in constructing the system of electricity transmission. Work of planning and predictions have been unsynchronized, inappropriate with practice; therefore, impact on the effectiveness of investment; which appears clearly in the practice of developing electricity source with electricity grid system and human resource' ability. There has not yet stable price mechanism, dependent on the State leading to limits on policy effectiveness.

On the infrastructure of electricity grid: remaining limits, resulting to grid jams; major reason is that the construction progress of electricity-transmission projects, capacity release have not kept pace with the construction progress of solar-energy plants; accordingly, transmission system took 36 months with lines, 110kV station; 60 months with lines and 500kV station; whereas finishing construction of energy plant only took roughly 12 months.

On the human resource: remaining limits, quality of the human resource has not caught up with the development requirement; training work has not met demand, in province only Ninh Thuan Vocational College is the high-quality labor training facility in fields of mechanics, technology, economy and service with target of relevant professional training is 765 people per year, whereas the demand is up to 40 thousand [18].

3.2. Job opportunities associated with the development of solar energy

Job opportunities associated with the development of solar energy increase with the diversification of energy-development supply chain. Comparing to fossil fuel industry branches that have already been mechanized and required large amount of capital, renewable energy industry branches use more labors to generate same electricity unit. Until 2020, Vietnam has been one of 5 nations with large number of jobs in solar photovoltaic field, about 126,300 jobs in total in 2020; in which, 99.7 thousand of jobs are in rooftop solar energy field; centralized in manufacture and installation components in supply chain with approximately 25 thousand jobs, the rest work in operation and maintenance components. Vietnam is assessed as a nation with increased job demands in the field because more solar-electricity projects will be exploited in near future [6,8].

Target of increasing renewable energy market 10% in electricity planning will create opportunity for more than 315 thousand of jobs per year; about 25% of which will be for skilled labor. In which, solar energy accounts for 87.4% total jobs created nationally, in Ninh Thuan particularly there will be up to 36 thousand jobs, equal to 3,402MW of electricity generated from solar energy.

Table 2. Estimation of direct jobs created until 2025

No.	Territory	Amount of generated electricity (MW)	Coefficient	Sum of jobs
1	Vietnam	12,000	10.56	117,744
2	Ninh Thuan	3,402		35,925

Source:[15]

In Ninh Thuan province, solar-energy development projects are majorly constructed on agricultural land with an acreage of more than 3 thousand ha of acquired land, nearly 970 families affected; in which, Thuan Nam district makes up the largest proportion - 51.4% with 15/35 plants; following is Thuan Bac district accounting for 20.4% acquired land for 4/35 plants [9]. According to research in Bac Phong commune, Thuan Bac district: Acreage of acquired land majorly cannot be proactive in water source, ineffectively producing and productivity is low. For example, acquired land for project of Trung Nam solar-electricity plant, with capacity of 204MW, is approximately 223.7 ha; equal to 1ha per MW, including

agricultural land accounting for 97% of 192 families. Agricultural land acquired in dry season is 90% without producing; 9.75ha of which is 1-crop rice land.

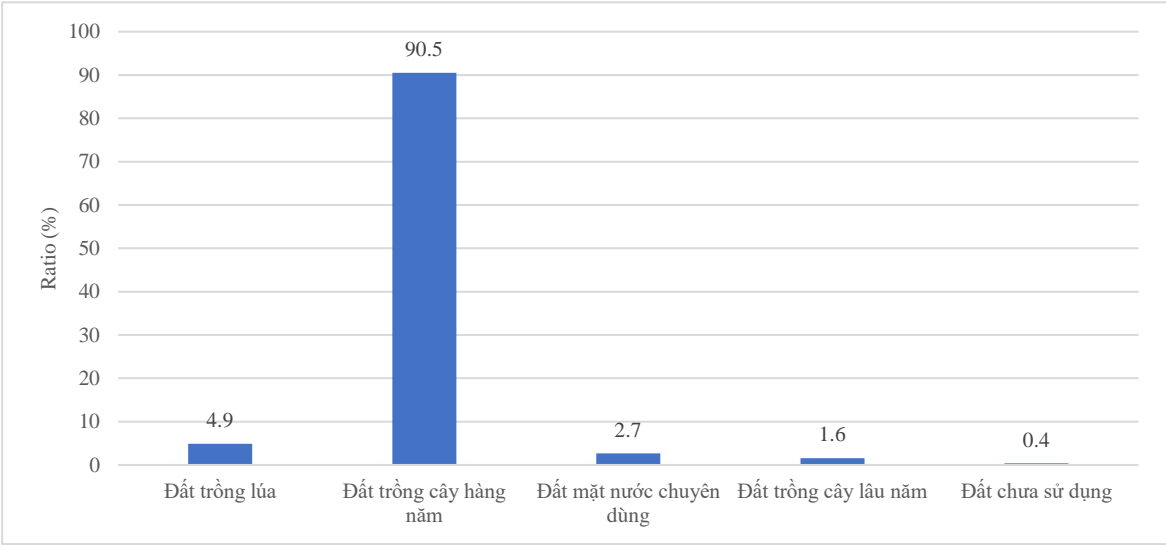


Figure 1. Ratio of acquired land for construction of Trung Nam solar - electricity plant

While deploying solar-energy development projects, activities ensuring harmonious rights among the Government, people and investor were conducted correctly with regulations of the State, especially in ensuring social security, job improvement. As follows:

Propaganda for enhancing awareness of the role of solar energy development: This has been organized since the start of project basing on cooperation of the local government and investors, in order to ensure the consensus and unity while in progress, especially policies relevant to acquired land and impact of project on environment, socio-economy in the province and where project is constructed. According to investigation result, 99% of investigated people have understood the role of solar energy, agreed with province policy in construction of solar-energy plants.

Opportunity to change job: Developing energy projects means decreasing agricultural land acreage and impacting on people’s life; about 60% of investigated people said acquired land had little impact on jobs but remarkable on income; only 8.5% of investigated those responded it had no impact on their jobs and income. Nevertheless, with compensation and assistance policy, acquired land has reduced negative effects, especially people are assisted with an enormous amount of expense to change or improve jobs. Accordingly, province has policy that prioritizes investors having assistance policy in work of social security, committing to train and use local labor (Clause 7, Article 4) [16]. In addition, according to Article 31 about compensation, assistance, resettlement in Ninh Thuan province (Decision no.64/2016/QĐ-UBND date 09/26/2016), family, person directly participating in farm is assisted in changing and finding job with the amount of money equal to 2 times of agricultural land price with total acreage of acquired agricultural land; assisted acreage must not exceed local quota of agricultural land. Assisted people if are still in working age, having demand to be trained, then in addition to money, province also assists

in vocational training and vocational handling according to Decision no.63/2015/QĐ-TTg date 12/10/2015 of the Prime Minister about policy in assistance of vocational training and vocational handling for acquired-land labor.

According to compensation plan of solar-energy projects in Bac Phong commune, Thuan Bac district: Expense assisting in changing jobs, finding jobs for each family is fairly great, majorly from tens of millions to billions VND, for instance Tapur Bai family (1.1 billion VND) to construct Trung Nam solar-electricity plant; in case of Xuan Thien plant, families are assisted with more than 700 million VND (Nguyen Thi Thi family, Pham Thi Thuy family,...) [13,14]. Together with receiving money, local people have been instructed by Commune People's Committee how to efficiently take advantage of money source; some people use assisted money combined with compensation to purchase land to re-produce agriculture, families with remaining land invest to improve productivity. Nevertheless, majority of them do not have demand to be trained, change jobs, find jobs because they are mainly elder ones, ethnic minority with limited academic level, refusing to change. Annual vocational training programs of Vocational Centre have integrated vocational fields basing on demand of solar-energy plant, announced widely in people community, yet, no one has participated in vocational class to change and improve vocational skills (Cadres of Bac Phong commune at group discussions, 2021). Investigation result from questionnaire is similar to ideas from above-mentioned discussions, 100% investigated people agreed with form of counselling and assisting in changing jobs, find jobs by money, 55% in which assessed satisfied and very satisfied; the rest assessed normal.

Job opportunities in solar-energy plants are limited, have not met expectation of local authority and people. If we take consideration of the life-cycle of a solar-energy plant, including construction, operation and demolition stages, people have the biggest amount of job opportunities in construction stage with the ground work, auxiliary works; attracting 30-40 labors; operation stage is limited in potential with jobs, such as: grass cut, guarding, battery wash but majorly are seasonal, do not have stable contracts. Bac Phong commune has 2 solar-energy plant but only creates jobs for 49 labors. Xuan Thien solar-energy plant uses up 260ha per 150 families with acquired land but only creates 9 jobs for 18 labors, which from Ninh Thuan province is 15/18, mainly are middle-level managers and staff; top-level managers (Director and Chief Technical) are from other provinces, permanent residents of Bac Phong commune account for 27.8%; equal to 5 labors (01 middle-level manager – shift leader and 04 staff in accountancy, repairment and maintenance) [3].

3.3. Solutions to promote job opportunities associated with the development of solar energy in Ninh Thuan province

With the potential and advantage of solar energy, Ninh Thuan gradually improves regional conditions to exploit effectively, converting natural potential to development motivation, central solution performing Resolution 115/NQ-CP of the Government about performing peculiar mechanism and policy assisting Ninh Thuan province in developing socio-economy, stabilizing people lives in 2018-2023 period. Result of performing favorable policy for solar-energy development is rather positive with total contribution to province budget

stably increasing, opening up opportunities for the economy. However, since Ninh Thuan is a province with low starting point, limited infrastructure and human resource, so taking advantage of opportunity is not efficient; including opportunity to change jobs. Hence, to use more effectively job-development opportunities associated with solar-energy development, it is needed to have development orientation, synchronized solution. As follows:

First, creating more job opportunities through the efficiency of favorable mechanism, policy for the province; combined with policy deployed in stimulating exploitation and use of solar energy. Good use of investment resource will create infrastructure assisting in developing in supply-chain way; becoming a local not only a generating source but also supplying science-technology advances and equipment for other regions, becoming indeed National Centre of renewable energy in solar energy and wind power.

Second, promoting work of forecast to create proactiveness in implementing, deploying suitable policy, especially forecast in human resource to meet the development demand of renewable energy in general and solar energy in particular in different methods, such as: determine direct labors that can use factor-approach method with the database of new-installed capacity, energy production and working coefficient; determine indirect jobs that can approach value chain, integrated with statistics of corresponding skills. To determine the number of jobs in order to develop branch, including direct jobs, indirect jobs and intermediary jobs provide can use input-output analysis (IO) [15].

Third, continuing to boost work of propagande, deploying policy, especially having solution to instruct people in using reasonably assisted expense to change and find jobs. Solution for people to improve relevant professional level, vocational skills, ensuring the stability of choosing jobs, not only in renewable energy branch but also others in society, suitable to practical conditions of people and locality. According to investigation survey, people desire province to develop industrial zones, diversify industrial types in Thuan Bac district in order to attract and solve on-site labor.

Fourth, vocational training policy and labor market need to associate with energy-converting process to create jobs with fairness, commensurate remuneration. Ninh Thuan also needs to increase monitoring in performing regulations about prioritize projects developing solar energy in training commitment, use of local labors and labors must have stable, long-term contracts from projects.

4. Conclusion

Developing solar energy has been considered a break-through solution to perform development strategies of province basing on effectively taking advantage of thermal, radiation resource and favorable policy of the State. So far, solar energy and wind power have become two renewable energy sources contributing greatly to budget, important power to deploy development policy of the province. Nevertheless, in development progress has exposed challenges, especially in making use of opportunities associated with branch development, including opportunity to change, improve jobs, majorly because this is a new branch, infrastructure cannot meet development pace, people having low academic level and conservative in changing and improving vocational skills. Hence, to diversify jobs,

effectively use the job opportunity associated with branch development, Ninh Thuan needs to have synchronized solutions in order to enhance the quality of resources according to value chain of energy product and diversify different industrial types to solve jobs issue for people at project-development place.

Note: The research on which this paper is based is a result of the scientific research project “*Stable job associated with renewable energy in Ninh Thuan province*” according to Contract no.371/HDKH-KHXH, date 12/30/202 of Vietnam Academy of Social Sciences.

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SPECIFICITY OF AN ELECTRONIC PRODUCT LIFE CYCLE: A CASE STUDY AT ENTERPRISES PRODUCING ELECTRONIC PRODUCTS IN VIETNAM

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Abstract

The electronics manufacturing industry in Vietnam is on the rise to move towards integration with the global economy. The electronic product life cycle is unique due to the rapid and continuous change in electronic technology. Moreover, the manufacturing process of electronic products has several impacts on the environment. This paper synthesizes several product life cycle concepts and introduces reasons why the electronic product life cycle affects the environment. The authors conducted a case study at two Vietnamese electronics manufacturers to clarify the content of the product life cycle. Since then, the authors expect the findings to serve as a premise for the implementation of later studies on factors affecting the electronic product life cycle in enterprises manufacturing electronic products in Vietnam.

Keywords: *life cycle, product life cycle, case study, electronic product, Vietnamese enterprises.*

1. Introduction

1.1. Product Life Cycle (PLC) or Life Cycle

The content of the product life cycle is considered a crucial tool for analysis and marketing mix planning (Wells, Burneth, & Moriarty, 1995). According to Morden (1991), the product life cycle emphasizes that most products can only be finite in the market - it can be short-term (for example, fashion items) or long-term (some types of industrial machinery) (Morden, 1991). Regarding the product life cycle, according to Kofler (2000), the concept of life cycle includes the following contents:

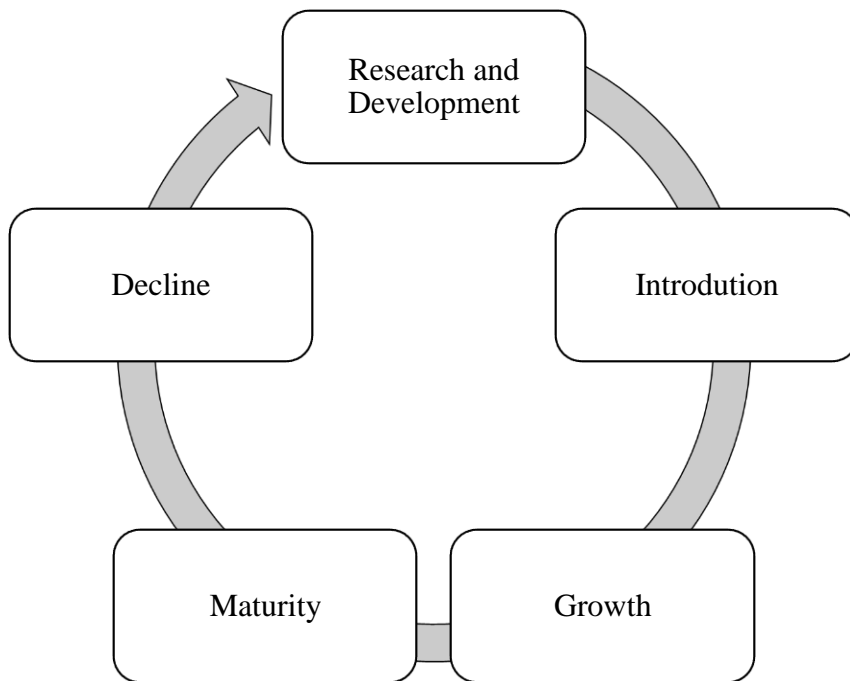
(a) That a product has a finite life, that is, it cannot indefinitely exist unless specific strategies are developed to reinvent and re-establish its relevance.

(b) The product sale goes through several stages, each with its issues and concerns.

(c) Profit fluctuates depending on where the product is in its life cycle.

(d) These products necessitate various marketing, financial, manufacturing, purchasing, and personal tactics or assistance from marketing personnel at many phases to optimize the benefits or potentials available to the product. (Kofler, 2000)

The product life cycle is categorized into five main phases (ACCA F5, 2015):



Source: ACCA, F5

Figure 1. Product life cycle

Phase 1: Research and development: The product is researched and designed for advancement. In this phase, costs are incurred; however, it does not generate revenue because the product has not been placed on the market.

Stage 2: Introduction: The product is introduced to the market. At this stage, because potential customers are not aware of the new products, the business will have to invest in marketing and advertising costs so that customers can pay attention to their products. In addition, extra capital investment costs may incur and increase production capacity as customer demand increases.

Phase 3: Growth: The product starts to take a larger market share, the revenue will increase, and the business begins to be profitable.

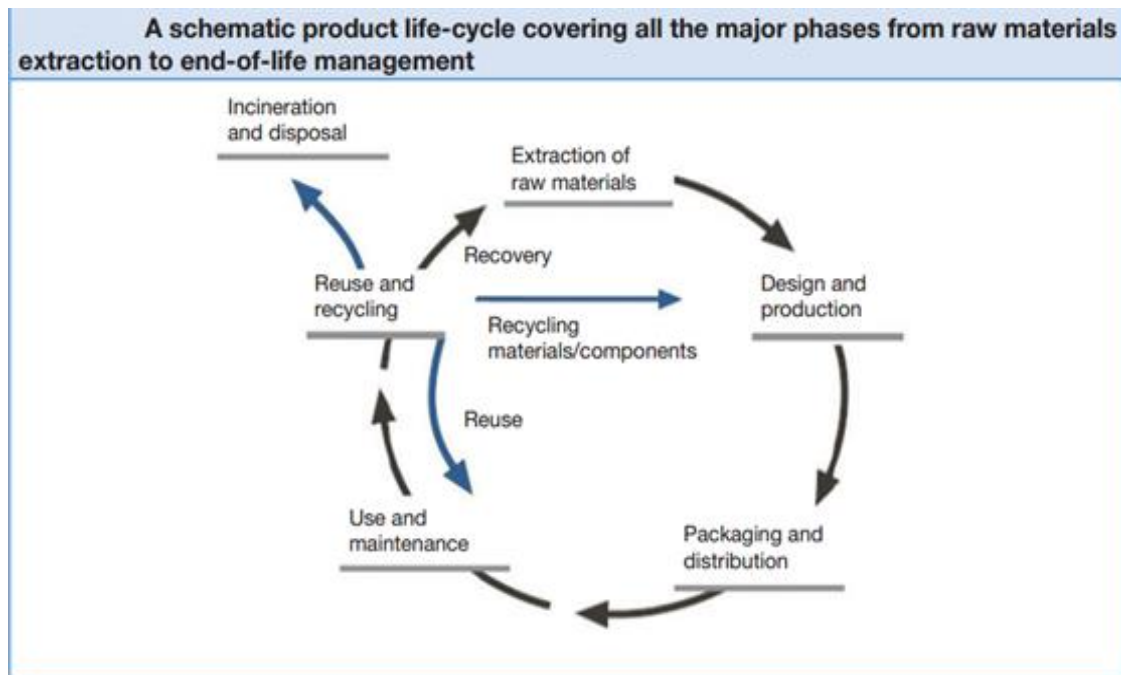
Stage 4: Maturity/Saturation: Customer demand for the product starts to decrease while revenue and profit reach the highest level and remain stable. It is the most profitable period in the product lifecycle. The product may be modified or improved in some functions to maintain its demand and extend the product lifecycle as long as possible.

Stage 5: Decline/Recession: Demand for products drastically reduced, and enterprises reached *saturation* point. Eventually, the business may be at a loss. Hence, this is when they consider the decision to stop selling the product.

1.2. Specificity of electronic product life cycle affecting the environment

Currently, the demand for modernized products/services tends to be increasing. However, some people are interested in how the production and consumption of such

products/services affect the environment and society. Besides, others think about disposing of products/services after they no longer need to use them, including how to recycle, reuse, or dispose of waste properly. Regarding the sustainability of a product or service, it is essential to use a lifecycle perspective and assess all relevant impacts of that product/service from the beginning to the end of the “from cradle to grave” life cycle (European Commission, 2010a). Therefore, it is critical not only to consider the environmental and social aspects of the product/service in use but also to assess the level of natural resource consumption (use of resources for the production process) as well as the emission of pollutants into the environment (concerning the recycling and waste disposal phases). For example, when manufacturing laptops, the actual production stage consumes a much more significant amount of resources than the actual weight of the computer. Therefore, if recycling is not under regulations, it can cause waste of resources, depletion of metal resources for production, and cause significant damage to people and the environment. (European Commission, 2010b)



Source: (UNEP/SETAC 2005)

Figure 2. A schematic product life-cycle covering all the major phases from raw materials extraction to end-of-life management

The majority of electronic products are part of a complex industrial network, starting with raw material extraction, component manufacturing, parts assembly, distribution, retail, use, recycling, and scrap disposal. Each phase of the network consumes energy and natural resources and then discharges pollutants into the environment. The product life cycle perspective looks at all the contents of the value chain. From there, provide effective solutions for the phases of the overall network. For example, study the wastewater treatment and solid waste treatment system ...(Menikpura, Gheewala, & Bonnet, 2012). The

governments are particularly concerned about these environmental pollution abatement issues and are willing to invest in high-profile projects. A life cycle perspective can indicate which stage of the product life cycle is causing the most extensive environmental burden. Therefore, creating motivation to improve less effective phases.

2. Method

2.1. Research methodology

Case study method

Case studies are considered an important research method, typical in comprehensive and in-depth investigations. It is a tool in social science research, the role of which is more prominent when studying issues related to education (Gulsecen & Kubat, 2006), sociology (Grassel & Schirmer, 2006), and community-based issues (Johnson, 2006). One of the reasons for recognizing case studies as a research method is that researchers have become more concerned about the limitations of quantitative methods in providing comprehensive and insightful explanations of social and behavioral issues. Through the case study method, the researcher can go beyond the quantitative statistical results and understand the behavioral conditions through the aspect of the research object. By analyzing both quantitative and qualitative data, case studies help explain the process and outcome of a phenomenon through observation, re-establishment, and comprehensive analysis of the cases investigated (Tellis, 1997). The case study method is widely used in academia by researchers interested in qualitative methods (Baskarada, 2014).

A case study is a study in which: (a) there is a single case study or a small number of comparative case studies in the context of the research selected and (b) the results obtained from the study are analyzed by qualitative methods. (Dul & Hak, 2008)

According to (Yin, 2003) has classified several case studies, namely descriptive research, explanatory research, exploratory research, and empirical research. In this topic, the authors use descriptive method to observe and describe the activities related to the product life cycle in Vietnamese electronic products manufacturing enterprises. The descriptive study shows the actual situation and infinite descriptions of the phenomena in the selected context. When carrying out descriptive research, the researcher should listen, learn and understand the participants' experiences in the situation (Kohlbacher, 2006).

To investigate the two actual situations, the author uses hand-to-hand discussion tools and group discussions. Hand-to-hand discussions were conducted by the author with the company's administrators (Chairman of the Board of Directors, CFO, Director/Head of R&D) and group discussions were conducted with department heads and accountants.

3. Results

3.1. Study case selection

The companies selected for research are operating in the field of producing electronic products, electronic products with distinctive characteristics in terms of technology and

continuous innovation (because the research project focuses on product life cycle research). Focusing on case studies at these companies will help provide a clearer view of the electronic product life cycle, showing how many stages the electronic product life cycle goes through and what work needs to be carried out in each separate phase.

On the other hand, the selected companies are young enterprises, with a good investment in the R&D department, research and development costs account for a large proportion of the total expense. The companies have specialized R&D departments, develop clear and comprehensive new product development processes, and explicit tasks to different departments. Therefore, the work to be done in each stage of the product life cycle is also clearly and meticulously defined from the beginning when coming up with new product ideas.

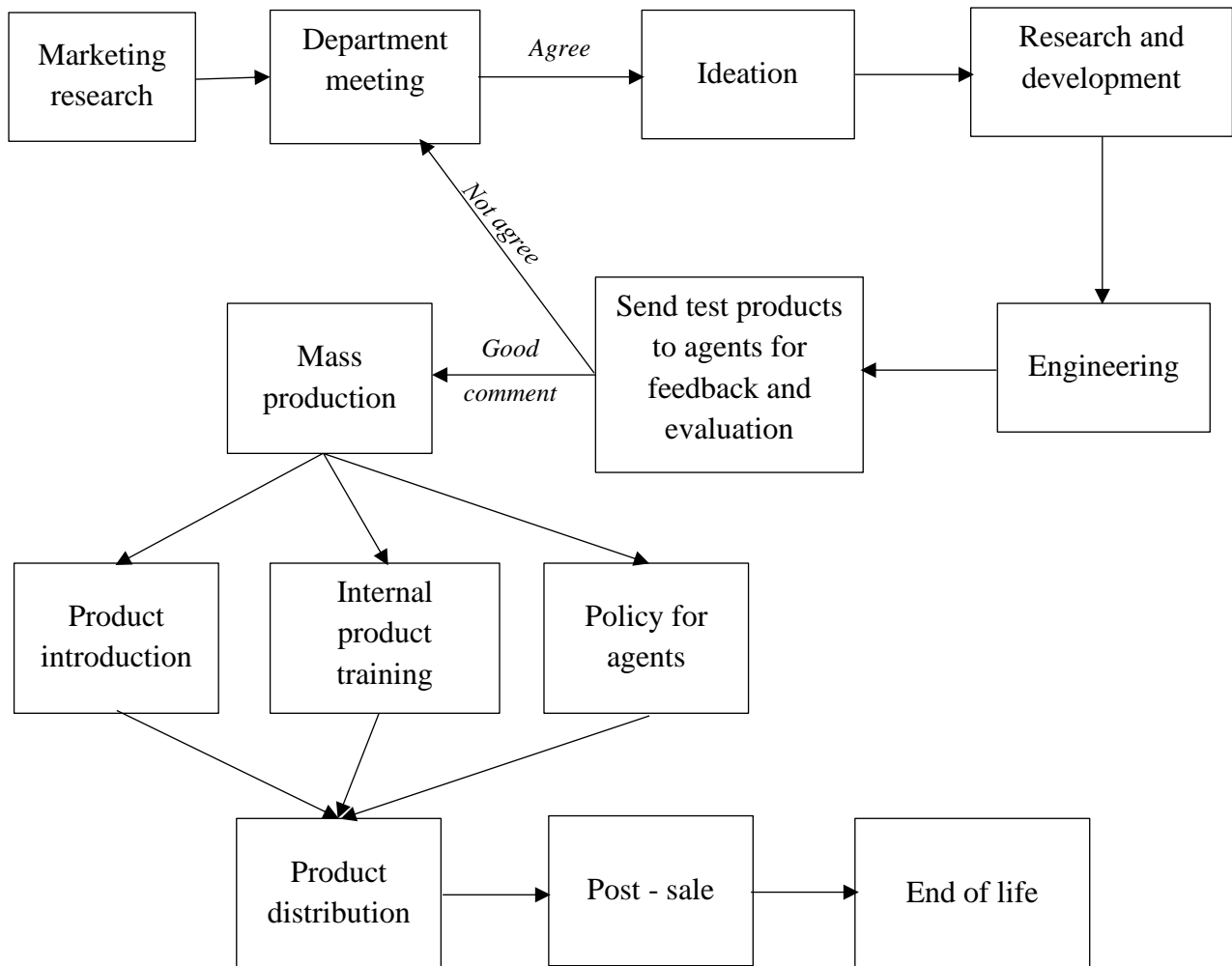
3.2. Case study on electronic product life cycle at Lumi Vietnam Joint Stock Company

Owning core technology and outstanding research capacity, Lumi Vietnam Joint Stock Company has confirmed its pioneering position in the smart-home electronics technology market - smart home by product innovations leading the trend and the ability to integrate into the world's leading ecosystem such as Apple, Google, Amazon... Constantly adopting the strategy of "gambling", Lumi is almost the only one to continuously launch the first Smart home products and pioneer in the market to keep the competitive advantage, including with international brand smart home competitors in Vietnam. Lumi's solution offers superior convenience to customers through its simplicity and ease of use but at only about 1/3 the price of similar products in the market.

Lumi Company is a young company founded in April 2012 with three founding members. However, with continuous effort, strive, and research, in August 2016, Lumi achieved the European standard certificate - CE. Lumi has also obtained UL certification, CE -RoHS certification - a global trade passport that helps Lumi export high-tech products to Europe and foreign markets. Currently, Lumi has spread a distribution network of more than 135 agents nationwide and exports its products to 08 other countries, including Thailand, Australia, India, Brazil, Laos, Cambodia, Lebanon (Li Gang), and Singapore.

Lumi works on a pioneering mission to provide superior and safe living and amenity solutions for customers, operate efficiently and collaborate on sustainable development with partners in tandem with spreading positive sentiments to the community. Intending to build a comprehensive smart home ecosystem, Lumi raised the idea of the new product AI Camera Hub - the first advanced artificial intelligence application security solution in Vietnam. Artificial intelligence (AI) is one of the breakthrough technologies applied to many life areas, especially smartphones and surveillance cameras. As a pioneer in developing the smart home ecosystem, Lumi has focused on research and artificial intelligence application for anti-theft security solutions and identified this as a spearhead technology in 2021.

**Describe the life cycle process of electronic products at
Lumi Vietnam Joint Stock Company**



Source: author group

Figure 3. Diagram of the life cycle process of electronic products at Lumi Vietnam Joint Stock Company

3.3. Case study on electronic product life cycle at HTP High-Tech Product Development Investment Joint Stock Company

HTP - high-tech product development investment joint-stock company established in 2014 with the slogan "change to be the best", HTP aims to improve the product, always accompany and listen to customers to bring actual benefits and satisfaction to them. HTP constantly innovates, develops, and aims to contribute to raising the technological level of Vietnam to the world market. The products of HTP contribute to the application of security, military, and defense administration.

Types of the company's products and services include:

- Network and network security solutions;
- E-government and e-commerce;
- IT services and solutions for Small and Medium Enterprises.

HTP Company cooperates with three leading scientific research centers in Vietnam: Military Engineering Academy, Post and Telecommunications Academy, and Vietnam Institute of Science and Technology.

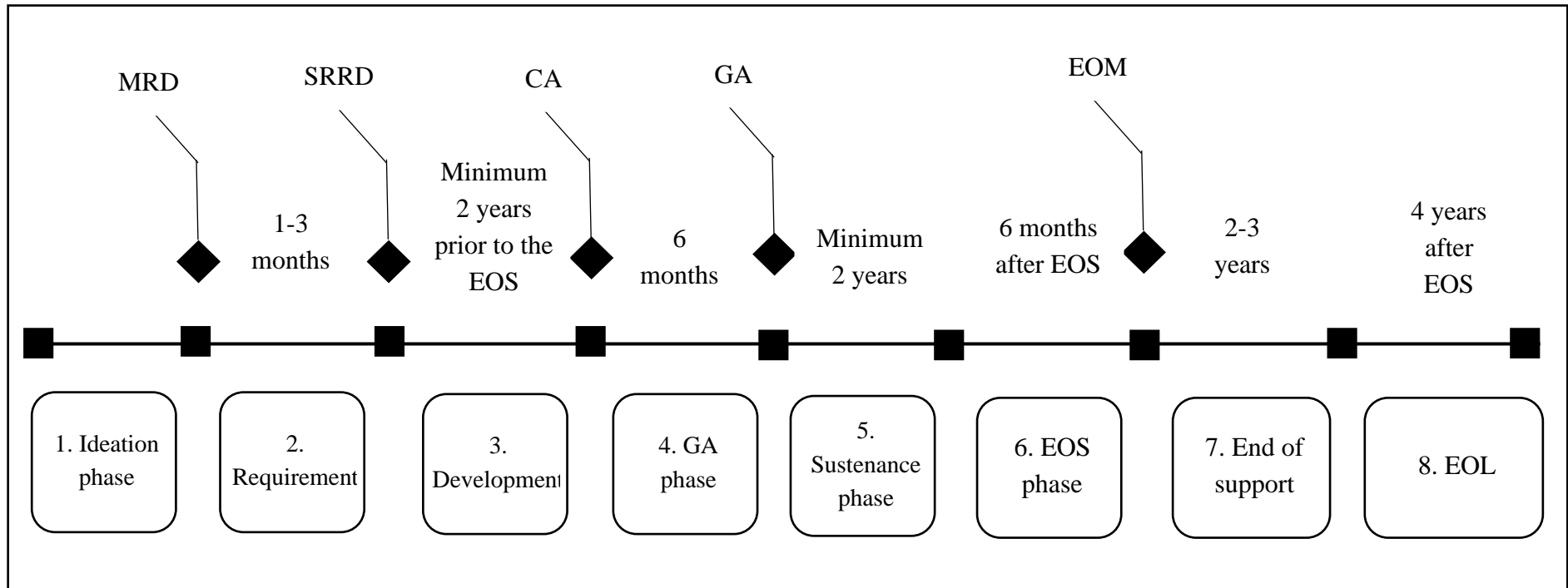
The company's product development division consists of more than 60 highly skilled engineers, of which the most prominent are the network equipment development team and the cybersecurity development solution of 25 engineers (six PCB design engineers, five software development engineers, 12 FPGA development engineers, and two testers).

From 2019 - to 2020, the company has achieved the goal of consuming more than 30,000 products for businesses and government organizations in Vietnam. It is expected that, by 2022, the company will expand its product consumption market to Southeast Asian countries and beyond Vietnam's territory, with the estimated amount of consumption reaching about 70,000 - 80,000 products/year, equivalent to a growth of over 20%/year.

The definition of product life cycle is defined by the company to ensure and standardize the effort to improve and develop a complete product from idea to distribution to the market. To ensure comprehensive product development, the life cycle is subdivided into stages. Each phase represents the achievement of a milestone in the product lifecycle development, which is the input to the next phase until the completion and delivery of the product to the market. The phases are:

- Product Ideation (Ideation)
- Product Feature Analysis (Requirement)
- Product Development
- Production
- Support & Sale
- Obsolescence

Describe the life cycle process in HTP High-Tech Product Development Investment Joint Stock Company



Source: compiled by a group of authors

Figure 4. Diagram of electronic product life cycle process in HTP High-Tech Product Development Investment Joint Stock Company

Subject index:

MRD: Market Requirement Document

SRRD: System Release Requirement Document

CA: Controlled Availability

GA: General Availability

EOS: End of sale

EOM: End of manager

EOL: End of life

4. Discussion and Conclusion

The authors study the actual situations of the electronic product life cycle to compare the results with the published studies as a prerequisite to developing further studies related to the electronic product life cycle (for example: research factors affecting product life cycle along with cost accounting by product life cycle). The author found that R&D and technology are factors that directly affect and have an extensive impact on the product life cycle. Both Lumi and HTP have separate research and development departments and professional product development processes. The work to be done by each department in the different stages is clearly and specifically specified. The R&D department plays a significant role in formulating the product idea (which is the first and most decisive phase in the product life cycle) because, in this phase, 80 - 85% of the life cycle costs will be estimated. The product technology is the factor that creates the position and success of the product in the market. Besides, R&D is also directly related to product technology, which establishes technology trends for new products. The conclusion drawn is consistent with Cooper and Slagmulder (2004) regarding the decision-making efficiency in the design phase. And the study influences the success of cost control throughout the system life cycle.

To create a complete product feature sheet, both companies must rely on the market demand report by the marketing department/product marketing department to identify through surveying the needs and tastes of customers at present. After assessing market demand, and factors that may create or influence consumer trends, the new company offers ideas on new product development for consideration and consideration. Therefore, it can be seen that customer taste is also an extensive factor affecting the product life cycle. Customers' tastes can create a new consumer trend, which means that new products will be developed based on the consumer trend, replacing the equivalent old product in the market. It is in line with the research by Hanna et al. (1995), Lagrosen (2001), Gruner and Homberg (2000) point out the importance of the customers' interaction in the process of developing new products since they can become a regular source of ideas and customer satisfaction is a sustainable and profitable opportunity of the business. The new product life cycle will start after or possibly earlier than the time when the old product disappears in the market (production stops).

The paper clarifies some concepts about the product life cycle and why electronic product manufacturing enterprises must pay attention to environmental issues. The authors classify the product life cycle process based on two case studies of Vietnamese electronics manufacturers Lumi and HTP. Since then, the authors have a clearer understanding of the electronic product life cycle to facilitate the implementation of further studies on the product life cycle in enterprises manufacturing electronic products in Vietnam.

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THE FACTORS AFFECTING VIETNAMESE HOUSEHOLDS' ELECTRICITY-SAVING BEHAVIOR: AN EMPIRICAL STUDY USING EXTENDED THEORY OF PLANNED BEHAVIOR

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Abstract

The study has extended the theory of planned behavior (TPB) to consider the factors affecting Vietnamese households' electricity-saving behavior. The study used large-scale surveys at a number of households throughout Vietnam. 538 valid questionnaires from households were used in the study to investigate relationship among factors in the research model. Collected data went through quantitative analysis steps including measurement model and structural model assessment to test scales and hypotheses using PLS-SEM software. Research results show that all hypotheses in the research model have been supported with the collected data. From there, the authors make some suggestions to promote Vietnamese households' electricity-saving behavior.

Keywords: *Electricity-saving behavior, theory of planned behavior, Vietnamese households.*

1. Introduction

Energy saving and emission reduction are important issues in formulating a long-term energy strategy (Yu et al., 2016). Environmental policy makers are increasingly emphasizing the responsibility of consumers for the environmental side effects of their behaviour, and many environmental claims are expressed in terms of related activities of households such as recycling, purchasing of green-labeled products and activities reduce household electricity use (Ek & Söderholm, 2010). The potential for energy savings (for residential electricity consumption) is considered very important (Alfredsson, 2004; Gardner & Stern, 2008). Household is the basis of changes in the use of energy-saving behavior in urban areas because this is the sector with the largest number of electricity users, so if electric energy is reduced by households, the national electricity consumption will decrease significantly (Fithri et al., 2015).

Vietnam is one of the countries with the highest energy consumption intensity in the region and in the world (Hien & Chi, 2020). According to Decision No. 428/QĐ-TTg dated 18/2016, approving the adjustment of the national electricity development plan for the period 2011-2020 with a vision to 2030, electricity demand in Vietnam will continue to grow at a rate of 7.4% to 8.4% per year from 2021 to 2030. According to statistics of the electricity

industry, electricity consumption in households accounted for about 35-40% of the total national electricity consumption. Therefore, the economical, safe and effective use of electricity by each person and household has a very important role, not only contributing to reducing electricity consumption and saving costs for the family, but also protecting the environment and saving national resources. Currently, in Vietnam, large hydroelectric resources have been fully exploited; nuclear power projects have been halted; but still only account for a small part of total generating capacity (Le & Pitts, 2019). The demand for electricity continues to increase, but the potential for development of electricity supply in Vietnam faces many limitations such as environmental problems, resource depletion, sustainable development... Therefore, saving electricity becomes an important factor. Priority should be given to all sectors of the economy, including in the residential sector, particularly among households in Vietnam. A deeper understanding of the process and factors that drive households' energy-saving intentions is needed for electricity-saving policy-making and efficient household electricity behavior (Liu et al., 2020).

Currently, there are three main types of measures to promote electricity-saving behavior in households: economic orientation, technology orientation and psychological and behavioral orientation (Arawomo, 2017; da Silva & Cerqueira, 2017). Economic orientation mainly consists of price measures and financial incentives, but some studies have pointed out the limitations of both measures. Cheung et al. (2016) pointed out that most people are not sensitive to changes in electricity prices and are not willing to change comfortable living habits to save electricity because compared to other household consumption expenditures, the proportion of electricity expenditure is small, so it cannot attract the attention of residents. Handgraaf et al. (2013) believe that financial incentives can promote energy-saving behavior of residents in a short period of time. Technology orientation mainly popularizes energy-saving equipment and technology to improve efficiency, but the promotion and use of energy-saving technology and equipment has a strong "rebound effect" (Sorrell & Dimitropoulos, 2008). Due to the lack of economic and technologically oriented measures, more and more researchers are paying attention to the studies of energy saving behavior based on psychological and behavioral perspectives (Hong et al., 2019; Shi et al., 2017; Van de Broek et al., 2019). Psychological and behavioral orientation emphasize psychological factors including attitudes, social norms, and environmental perceptions (Fornara et al., 2016; Zhou & Yang, 2016) to promote household electricity-saving behavior. Currently, when investigating the factors affecting the intention and behavior of households to save electricity, a number of theories are widely used, including the theory of rational behavior (TRB), norm activation model (NAM) and theory of planned behavior (TPB). TRB only pays attention to conditionally driven factors while ignoring non-controlling factors such as time and chance (Lam & Hsu, 2004). Similarly, NAM only pays attention to internal factors and ignores external factors such as social environment and resources (Shi et al., 2017). However, unlike other models, TPB takes both non- controlling and external factors into account and is considered the most overarching theory to understand environment-related behavior (Rivis et al., 2009).

Therefore, the study has extended the theory of planned behavior (TPB) to consider the factors affecting Vietnamese households' electricity-saving behavior.

2. Literature Review

Electricity-saving behavior encompasses the full range of consumer choices and actions to reduce their domestic electricity consumption. These include everyday eco-friendly gestures in areas (e.g: heating, cooking, lighting, electrical equipment) and installation and equipment choices (e.g.: household appliances, insulation, heating, renewable energy use) (Abrahamse et al., 2007; Urban & Ščasný, 2016).

TPB is a classical model for explaining or predicting behavior and behavioral change (Ajzen, 1991). The TPB model suggests that the immediate determinant of an individual's particular behavior is behavioral intention (BI), which reflects an indication of an individual's willingness to take action. The model also shows that BI for a particular behavior is a function of three predictors, namely attitude (ATT), subjective norm (SN) and perceived behavioral control (PBC). TPB effectively encompasses an individual's prosocial and non-necessary behavior and adequately demonstrates the performance of explanatory power (Chen, 2013; Hassan et al., 2016). Therefore, the model has been widely used in studies of various pro-environmental behaviors, including energy conservation (Chen et al., 2016; Wang et al., 2015); water conservation (Han & Hyun, 2018; Lowe et al., 2015; Wells et al., 2016); recycling and waste management (Oztekin et al., 2017; Wan et al., 2014). Therefore, we hypothesize that:

H1. There is a positive relationship between electricity-saving intention and behaviors of Vietnam households.

According to Ajzen (1991), attitude is the degree to which an individual has a favorable or unfavorable assessment of a particular behaviour. The more positive an individual's attitude toward a certain behavior is, the stronger their intention to perform that behavior (Shi et al., 2007). Attitude refers to the level of people's perception of the practice of energy saving behavior, largely depending on the degree of preference for energy saving and the information held by the individual towards this behavior (Wang et al., 2011). The more positive people's attitude towards energy saving, the more effectively they can reduce their energy consumption (Oikonomous et al., 2009). According to Ek and Söderholm (Ek & Söderholm, 2010), residents' attitude towards the environment is an important factor in predicting their energy-saving activities. Zhang et al. (2018) studied the factors affecting households' electricity-saving in Shandong, China, and found that attitude has a positive relationship with the intention to save electricity in the households. Based upon these findings, we hypothesized that:

H2. There is a positive relationship between attitude and electricity-saving intention of Vietnam households.

Perceived behavioral control refers to the degree to which an individual perceives performing a particular behavior as easy or difficult (Kaffashi & Shamsudin, 2019). When an individual believes that a certain behavior is easy to perform or that he or she is capable of performing that behavior, the higher the intention to perform that behavior (Wang et al., 2018). It mainly depends on the costs and benefits in implementing a particular behavior, such as financial costs, effort and time (Lindenberg & Steg, 2007). Dianshu et al. (2010) conducted a study regarding the relationship between electricity price and consumption in China and the results show that economic benefits have a great influence on energy saving

behavior. This conclusion has been confirmed by several studies regarding the effect of financial costs on household s'energy consumption (Banfi et al., 2008; Scarpa & Willis, 2010). Darby (1999) who conducted research on energy-saving behavior in residential areas in the UK, found that cost savings and improved comfort for residents significantly improved energy-saving behavior. Anker-Nilssen (2003) affirmed the decisive role of time saving, convenience, comfort and mobility in an individual's energy saving decisions. The higher the level of perceived behavioral control related to energy saving, the better the people's response to energy saving (Oikonomos et al., 2009). Wang et al. (2018) demonstrated perceived behavioral control positively affected residents' intention to save electricity. Based on these previous findings, we hypothesized that:

H3. There is a positive relationship between perceived behavior control and electricity-saving intention of Vietnam households.

Subjective norms are social pressures that influence people to perform certain behaviours. Ajzen (1991) recognizes that there are two important factors behind whether or not a person performs a behavior, namely behavioral intention and the degree to which the he/she is aware of the decision to perform a certain behavior. Midden and Ritsema (1983) surveyed Dutch residents, finding that subjective norms and personal ethical attitudes are important influencing factors on household energy savings. Black et al. (1985) argues that the energy-saving behaviors of households are largely influenced by norms. This view was further tested by Webb et al. (2013) who consider subjective norms to be an important predictor of household energy saving intentions and behavior. Personal and social relationships with family, friends and colleagues are also important factors influencing residential energy consumption behaviour. Wang et al. (2011) also found that the subjective norms and energy saving behavior of residents are positively correlated, in other words, residents are willing to listen to suggestions by people close to them. The more an individual believes that significant others want them to engage in a particular behavior, the more likely that individual is to engage in the behavior (Wang et al., 2018). Hence, we hypothesized that:

H4. There is a positive relationship between subjective norms and electricity-saving intention of Vietnam households.

Environmental knowledge is defined as an individual's understanding of energy issues (e.g. environmental pollution due to excessive energy consumption) and the individual's level of understanding for energy issues will affect their level of interest in energy use. Energy literacy is also defined as the stage where individuals perceive and understand the energy crisis (Sugandini & Djawoto, 2018). Knowledge is thought to be able to enhance the ability of consumers to understand and appreciate specific advertising messages and is sufficient to encourage the formation of a consumption process (Miller & Russell, 2004). Lack of knowledge can lead to negative attitudes from consumers (Childs & Poryzees, 1998). Previous studies have revealed the importance of understanding energy issues and found that it has an essential role in influencing households' energy saving intentions and behaviors (Han et al., 2013; Urban & Ščasný, 2012). Consider these findings from previous studies, we hypothesized that.

H5a. There is a positive relationship between environmental knowledge and electricity-saving intention of Vietnam households.

H5b. There is a positive relationship between environmental knowledge and electricity-saving behavior of Vietnam households.

Increasing psychological research suggests that repetitive or habitual behavior is easily influenced by past behavior or habits. When behavior is performed repeatedly, it takes less consideration for it to become a habit (Russell et al., 2007). According to Verplanken and Holland (2002), habits refer to relatively stable patterns of behavior, which can be triggered by past behavior and performed without rational judgment. Habits are important, and once individuals form habits, they are more likely to perform the behavior. According to the study of Wang et al. (2018), when learning about the factors that affect the intention and behavior of households to save electricity, the results show both intention and behavior to save electricity are influenced by habit. In the study of Maréchal (2010), the author showed that many energy consuming behaviors, such as turning off the lights, are believed to be under the control of habit. Huebner et al. (2013) also show that people do not identify habits as important barriers to behavior change. In the study of Broek et al. (2019), habit was also concluded as one of the factors affecting both intention and behavior to save energy. Hence, a hypothesis can be proposed as follows:

H6a. There is a positive relationship between habit and electricity-saving intention of Vietnam households.

H6b. There is a positive relationship between habit and electricity-saving behavior of Vietnam households.

3. Method

3.1. Research context

In Vietnam, in the past period, energy demand has continuously grown at a high rate compared to other countries in the region and the world, in which, primary energy demand in the period 2010 – 2019 increased about 6%/year, especially the average growth rate of commercial power output was 10.9% in the period 2010 - 2015 and 10.1% in the period 2016 - 2019. With great efforts of all levels and sectors, basically, Vietnam always ensures to supply enough energy and electricity for production, business activities and people's life, contributing to economic growth and ensuring the safety of the people. According to forecast in the next 5 years, electricity demand will still grow at about 8.5%/year.

To ensure sufficient supply of electricity demand in the country, to meet the socio-economic development goals of the whole country with the average GDP growth of Vietnam about 6.6%/year in the period of 2021 - 2030 and about 5.7%/year in the period 2031 - 2045, the National Power Development Planning Project 2021 - 2030, with a vision to 2045 (Power Master Plan 8) gives an annual calculation that Vietnam needs to invest the power industry is about 13 billion USD/year in the period of 2021 - 2030 and over 12 billion USD/year in the period 2031 - 2045. This requirement poses a huge challenge for the electricity industry in arranging sufficient investment capital to develop the electricity sources and power grids, to meet the development needs of the economy and to ensure energy security.

Therefore, in parallel with the exploitation of primary energy sources to meet the energy needs of the economy and society as a whole, economical and efficient use of energy plays an important role in ensuring national energy security. Every household in Vietnam has been campaigning to save energy in general and electricity in particular. However, in order for each household to have the intention and behavior to save electricity, the state management agency needs to have a policy to promote it based on factors affecting these intentions and behaviors.

3.2. Sample and data collection

We used quantitative research method in this study. To collect quantitative data, an online survey was conducted using a structured questionnaire. The variables used in this study were measured using validated items and then collected and analyzed. The demographic characteristics of the respondents were also collected using the questionnaires. Through a network of friends and colleagues, the questionnaire was sent to a total of 600 residents living in Vietnam via e-mail. Respondents are internet users over 18 year-old who are interested in saving natural resources and energy. This ensures that the participants have a certain level of knowledge and interest in the problem energy. Respondents were asked to volunteer to complete the questionnaire in the email. Respondents were assured that their anonymity and privacy would be respected and there were no right or wrong answers. Data was collected within 2 months from January to March, 2022. The total number of questionnaires collected was 557, the number of valid votes for processing is 538.

3.3. Measures

Behavior (BE). The author uses the scale of four items of Hien và Chi (2020) to measure behavior. Each item of the scale was rated from 1 (strongly disagree) to 5 (strongly agree), and a sample item from the scale was “I always turn off electrical appliances when there's nobody in the room.”

Intention (IN). The four-item scale by Hien và Chi (2020) was used for intention. Each item of the scale was rated from 1 (strongly disagree) to 5 (strongly agree), and a sample item from the scale was “I plan to save electricity in my home.”

Attitude (AT). For attitude, the authors adapted Hien và Chi (2020) with five-item scale. Each item of the scale was rated from 1 (strongly disagree) to 5 (strongly agree), and a sample item from the scale was “Saving electricity in my home is important to reduce CO2 emissions.”

Subjective norms (SN). The authors used Zhang et al.'s (2018) three-item scale to measure subjective norms. Each item of the scale was rated from 1 (strongly disagree) to 5 (strongly agree), and a sample item from the scale was “My energy-saving behavior will be affected by my families, friends and teachers.”

Perceived behavioral control (PBC). The three-item scale by Li et al. (2020) was used for perceived behavioral control. Each item of the scale was rated from 1 (strongly disagree) to 5 (strongly agree), and a sample item from the scale was “I am capable of saving electricity in my home. ”

Environmental knowledge (EK). Environmental knowledge was measured with Wang et al. (2014) with three items. Each item of the scale was rated from 1 (strongly

disagree) to 5 (strongly agree), and a sample item from the scale was “I know the meaning of the labels affixed on the energy-efficient devices.”

Habit (HB). Habit was adapted from Wang et al. (2018) with five items. Each item of the scale was rated from 1 (strongly disagree) to 5 (strongly agree), and a sample item from the scale was “I turn off the light even if I just leave the room for a while.”

4. Results

4.1. Profile of respondents

Table 1. Profile of respondents (N = 538)

Demographics	Frequency	Percentage (%)
Gender		
Male	259	48.1
Female	279	51.9
Age		
18-28	136	25.3
29 - 38	172	32.0
39 - 48	124	23.0
49 above	106	19.7
Educational background		
High School Graduate	78	14.5
University Graduate	387	71.9
Post Graduate	73	13.6
Monthly Income (USD)		
Less than 500 USD	126	23.4
500 – 1000 USD	216	40.1
1000 – 2000 USD	118	21.9
More than 2000 USD	78	14.5
Marital Status		
Married	298	55.4
Single	240	44.6
Living area in Vietnam		
North	189	35.1
Central	112	20.8
South	237	44.1

Table 1 shows the demographic characteristics of the respondents. Of the 538 household representatives surveyed, 48.1% of respondents are male and 51.9% of respondents are female. 32% of respondents are between the ages of 29 and 38, followed by those aged 18 to 28. The majority of respondents (71.9%) have a University Graduate

education. The average monthly income is less than 500 USD, accounting for 23.4% of the survey sample, over 40% of respondents have an income of 500 - 1000 USD. The number of married people (55.4%) is higher than the number of single people (44.6%). A larger proportion (44.1%) of respondents live in the South, followed by 35.1% of those living in the North, with the remaining 20.8% living in the Central region.

4.2. Results

4.2.1. Measurement model

Table 2. Convergent validity

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
BE	0.877	0.916	0.730
IN	0.873	0.922	0.798
AT	0.908	0.935	0.784
SN	0.822	0.893	0.737
PBC	0.896	0.935	0.828
EK	0.876	0.924	0.802
HB	0.884	0.893	0.736

Cronbach's Alpha, composite reliability (CR), and average variance extracted (AVE) were presented in Table 2. All variables' Cronbach's Alpha values were acceptable for testing reliability of the scale (Nunnally, 1978). CR values were greater than the minimum threshold of 0.60 (Bagozzi & Yi, 1988), ranging from 0.893 to 0.935, thus confirming their reliability. AVE ranged from 0.730 to 0.828, all of which were above the suggested threshold of 0.5 (Anderson & Gerbing, 1988; Fornell & Larcker, 1981). These results indicated that all measurement items had high convergence values. The discriminant validity is defined as the extent to which a construct was truly distinct from other constructs by empirical standards. The Fornell-Larcker criterion compares the square root of AVE with the correlation coefficients of the two latent variables. It has been highlighted by Hair *et al.* (2014) that the higher value in the diagonal line settles the validity of discriminant. For the analysis of table 3, the model of our research study indicated acceptable discriminant validity.

Table 3. Fornell and Larcker [64] criterion

	AT	BE	EK	HB	IN	PBC	SN
AT	0.885						
BE	0.384	0.855					
EK	0.270	0.411	0.895				
HB	0.315	0.485	0.257	0.858			
IN	0.403	0.588	0.379	0.462	0.893		
PBC	0.300	0.401	0.274	0.306	0.441	0.910	
SN	0.325	0.471	0.273	0.293	0.524	0.293	0.858

4.2.2. Structural model assessment

Table 4 shows the variance inflation factors (VIF) values, which were smaller than 5, which confirmed that there are no issues of multicollinearity in our estimation model. According to Cohen *et al.* (Cohen, 1988), the values of f-square between the range of under and 0.020 had a super small or no effect, between the range of 0.020 and 0.150 had a small effect; between the range of 0.150 and 0.350 had a medium effect; between the range of 0.350 and above had a substantial effect on an endogenous latent variable. In our model all relationships between variables are confirmed. Besides, the other variables of the model have the values of f-square between the range of 0.020 and 0.350, which shows a significant effect on the constructs and validity of the model (Table 5).

Table 4. Collinearity assessment (VIF) – Inner VIF

	AT	BE	EK	HB	IN	PBC	SN
AT					1.249		
BE							
EK		1.180			1.178		
HB		1.284			1.227		
IN		1.401					
PBC					1.226		
SN					1.234		

Table 5. Hypotheses testing results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
AT -> IN	0.128	0.127	0.040	3.195	0.001
EK -> BE	0.196	0.194	0.042	4.703	0.000
EK -> IN	0.143	0.144	0.038	3.774	0.000
HB -> BE	0.250	0.251	0.034	7.440	0.000
HB -> IN	0.231	0.231	0.037	6.230	0.000
IN -> BE	0.398	0.398	0.048	8.226	0.000
PBC -> IN	0.200	0.199	0.039	5.084	0.000
SN -> IN	0.317	0.318	0.034	9.270	0.000

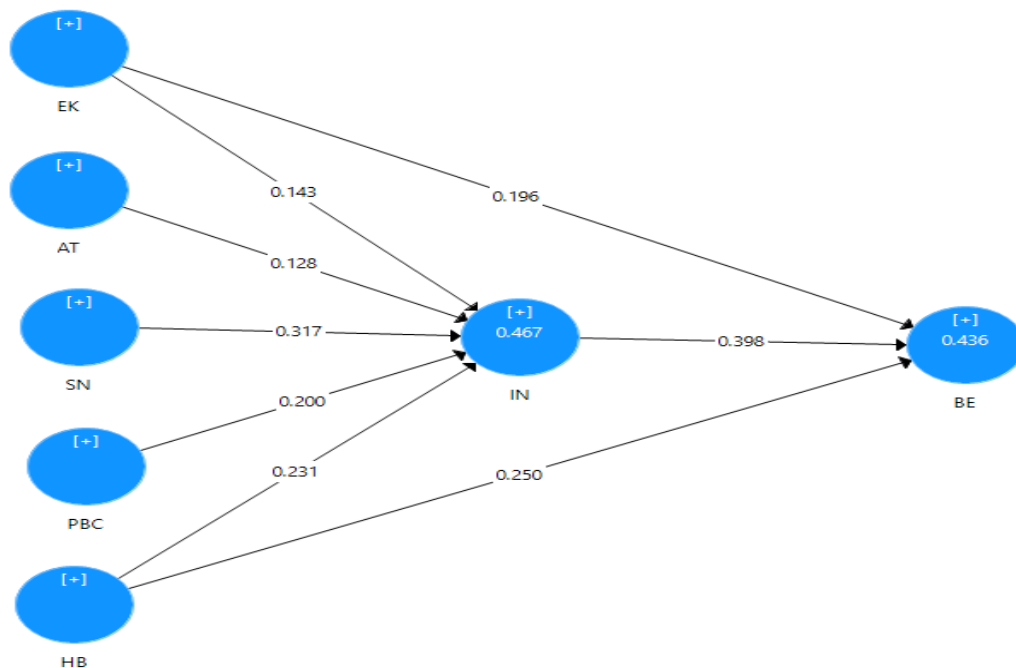


Figure 1. Research model

In the analysis of Table 5 and Figure 1, all hypotheses of the research model are accepted due to the satisfactory index of T and P values. In which, SN has the strongest influence on IN ($\beta = 0.317$), followed by the influence of HB and PBC ($\beta = 0.231$ and 0.20) and the influence of EK and AT ($\beta = 0.143$ and 0.128). IN, HB and EK all had a positive effect on BE ($\beta = 0.398$, 0.250 and 0.196 respectively).

5. Discussion and Conclusion

5.1. Discussion

Overall, as expected, the extension of the basic TPB model has been verified on electricity-saving behavior in the context of households in Vietnam. The research results show that the factors of attitude (AT), cognitive behavioral control (PBC) have an impact on intention (INT) thereby affecting behavior (BEH) in energy saving behavior. The above conclusion is also reached by Ru et al. (Ru et al., 2018); Webb et al. (2013).

We have improved the model further by introducing two more determinants of Vietnamese household energy saving behavior, HB and EK. HB and EK are also shown to have a positive effect on the intention and behavior of households to save (regression coefficients are 0.159 and 0.165 , respectively), which means that when people perform repetitive about electricity-saving, they will form a habit. However, turning a habit does not have too great an impact on the intention (Wang et al., 2018; Tetlow et al., 2015). At the same time, EK plays a crucial role in encouraging individuals to participate in energy efficiency. This finding is also consistent with previous studies (Han & Cudjoe, 2020; Han et al., 2013; Cai et al., 2019; Ding et al., 2019). They believe that EK is an important factor influencing the decision to save electricity. An individual with an understanding and knowledge of the environment will have more obvious energy-saving behavior.

5.2. Conclusion

Firstly, consider the importance of SN, PBC and AT for energy saving intention and behavior. State management agencies need to promote savings programs aimed at all households, encourage people to propagate and mobilize family members, friends and colleagues to use electricity economically for themselves, family and society.

Secondly, consider the importance of HB for energy saving intention and behavior. State management agencies guide households through many channels such as television, radio, books and newspapers so that people build the habit of turning off electrical appliances such as lights, fans, and computers when leaving the room. ... and during the day try to open all the doors to illuminate the room with natural light. Opening the doors not only saves a small amount of electricity but also helps to open the atmosphere, giving us a sober and optimistic spirit. Another habit should also be noted, which is to periodically check once a week electrical equipment to promptly repair and replace, because the use of inefficient equipment is also the cause of failure and increased energy consumption.

Thirdly, consider the importance of EK to the intention and behavior of households to save electricity. We see that it is necessary to add knowledge of saving electricity to the knowledge frame for students. Educating students, students form awareness and create habits for them right when they are still at school. Thereby, they will have awareness and habits of saving electricity in the future. If students support the propaganda and implementation of energy saving, they will be the force to spread the energy saving activities to other subjects such as friends, teachers, parents...

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PAYMENT FOR FOREST ENVIRONMENTAL SERVICES IN VIETNAM

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Abstract

This research discusses payments for environmental services in Vietnam, especially payments for forest environmental services in the period 2011-2020. First of all, the research represents conceptual approaches in terms of payments for environmental services. Then, the research applies a variety of research methods to make use of secondary and primary data in order to analyze the current status of payments for forest environmental services in Vietnam in the 2011-2020 period, in which describing people's perceptions about payments for forest environmental services. Based on the actual situation of payments for environmental services and from urgent requirements of the environmental protection as well as existing advantages, the research proposes recommendations to establish and develop the marketization of payments for environmental services in general and payments for forest environmental services in Vietnam in particular. This is considered as a solution for sustainable environmental protection in the coming time.

Keywords: *environmental services, experience, payments for forest environment services.*

1. Introduction

Environment and environmental protection is no longer a concern of a single country, it has been a global problem because of the rapid rate of environmental degradation over the past 50 years. This degradation situation is caused by many different reasons, including both subjective and objective; however, the main cause is due to people's weak awareness of environmental protection. People exploit the environment without any calculation, resulting in the serious exhaustion and it is difficult to make compensation. Even there was a time people considered the environment as a reward given by the Mother Nature, and the works of restoration and environmental protection are the State's responsibilities. This kind of thinking has led to the uncontrolled use of the environment, which even harms the environment.

In the world, right from the 90s of the 20th century, many countries in Africa, Asia, Eastern Europe and Latin America have piloted environmental service payment programs in many areas such as the protection of water resources, forests, beautiful landscapes, biodiversity conservation and protected areas. This is very meaningful because it affirms that people's thinking about using natural resources has been gradually changed, natural resources are considered as a kind of property, and payments are required for using them.

In Vietnam, along with the economic mechanism transition from the centrally planned economy to the market mechanism, in the early 2000s, the payment mechanism for environmental services has also been set up. First of all, the payment for environmental services has been piloted in Son La and Lam Dong provinces since 2008. By 2010, the payment policy for forest environmental services has been officially performed across the country. Vietnam's achievements in payments for forest environmental services shall be suggestions for Thailand in applying this tool for environmental protection and sustainable development.

2. Method

2.1. Formation of the theoretical framework

To form a theoretical framework, the author summarizes and analyzes theories of domestic and foreign authors on the issue of payments for environmental services and the marketization of payments for environmental services, including basic issues such as the need for the marketization of payments for environmental services, the State's roles in the process of marketizing payments for environmental services, contents and criteria for assessing the degree of marketization of payments for environmental services, conditions to carry out the marketization of payments for environmental services and other factors affecting the process of marketization of payments for environmental services in Vietnam.

2.2. Material sources

2.2.1. Primary material sources

To obtain primary material sources, the author collects information from different sources, especially information on the understanding level of people across the country about environmental services and payments for environmental services through Personal interview questionnaires on payments for environmental services.

Personal interview questionnaires are used to achieve information on age, income and occupation of interviewees, especially concentrating on the understanding of people in terms of environmental services in particular and payments for environmental services in general, assessments of environmental service users about the current payment level for environmental services, environmental service users' willingness to pay an additional amount to benefit better environmental services (such as fresh air, more beautiful natural landscapes and so on). All collected information is used to study the current situation and serves as a basis to indicate limitations of the implementation process of payments for forest environmental services in Vietnam.

The authors issued 300 questionnaires to survey some highly representative areas such as Hanoi, Ho Chi Minh City, Thai Binh, Pleiku and Dak Nong. In which, Hanoi and Ho Chi Minh City are two large cities of the country with high population density and higher education background compared to other provinces, beneficiaries of environmental services in these two cities are high, namely: Hanoi (60 questionnaires) and Ho Chi Minh City (60 questionnaires). The author also selected Thai Binh Province (60 questionnaires) - a purely agricultural province without forest areas, to study the population's understanding of environmental services, and two provinces that have large forest areas and implemented

payments for forest environmental services are Pleiku (60 questionnaires) and Dak Nong (60 questionnaires). The survey was conducted in 2019 by the authors of this research.

To guarantee high accuracy from respondents, the author designed such questionnaires based on both qualitative method and content analysis method. It means that questions raised are not only in the form of multiple-choice questions but also open-ended questions so that respondents can propose their additional opinions. On the other hand, the author also represented many answers in each question to avoid inadvertent answers of respondents. The age of subjects ranges from 24 to 60 years old, their average income is from 5 to 10 million VND/month. Research subjects are selected at this age because they are the main subjects of payments for environmental services, most of them already have stable jobs and incomes; thereby they can clarify the issue: Whether service beneficiaries (who must pay for services they use) understand services and amounts they are paying for. This expresses the reliability of answers. In addition, the author also used the random interview method for research samples. This method will guarantee the reliability of research results.

2.2.2. Secondary material sources

The formation of this theoretical framework is commenced from reading and studying a lot of domestic and foreign articles, journals, and monographs on payments for environmental services. In addition, the author also searched and consulted many Ph.D. dissertations on environmental services and payments for environmental services. However, this type of material is very limited because the payment for environmental services is still a large research gap in Vietnam. As a result, the Internet is used as a useful research tool because material sources on payments for environmental services, especially the marketization of payments for environmental services that the author can access are mainly from documents abroad, in which a lot of useful information is found from the website <https://www.sciencedirect.com>, links of this web also take the author to full researches of foreign authors.

Information and data relating to the marketization of payments for environmental services in Vietnam are summarized and analyzed from reports of the Vietnam Forest Protection and Development Fund (VNFF), reports of leading experts specialized in payments for forest environmental services in Vietnam, reports of experts of the Center for International Forestry Research (CIFOR) and many other related documents.

3. Results

3.1. Approach to the concept of payments for forest environmental services

There are many approaches to the concept of environmental services.

The first approach, environmental services are understood as environmental pollution and degradation treatment services. Based on this approach, the World Trade Organization (WTO) proposes 7 main groups of environmental services including wastewater services; waste services; cleaning and other similar services; emission reduction services from vehicles; noise reduction services; nature and landscape protection services and other services.

Under the commitment to market opening after joining the World Trade Organization (WTO), Vietnam has determined to open the market for environmental services in 5 sub-sectors in the WTO, including (1) Wastewater treatment services; (2) Waste treatment services; (3) Carbon cleaning services; (4) Noise treatment services and (5) Environmental impact assessment services. In the second approach, environmental services are those that the environment provides to people. According to Forest Trend, Katoomba, UNEP (2008), environmental services are those provide services (foods, clean water, raw materials, fuels, fibers, and genetic resources); regulatory services (watershed protection, flood control, climate regulation, water regulation, water purification, pollination, disease prevention etc.); supporting services (soil construction, nutrient regeneration, nutrient regulation, basic production etc.); cultural services (aesthetic values, social relations, entertainment and ecotourism, history, science and education etc.).

According to the opinions of Sven Wunder and many other scholars, environmental services include watershed protection services; biodiversity conservation services; beautiful landscape services; carbon capture and storage services.

This research approaches the concept of forest environmental services from the point of view of Sven Wunder. Therefore, forest environment services are those that the forest environment will provide benefits for people and society; or in other words, it is the direct or indirect interests that people benefit from functions of the forest environment. To benefit from these services, people have to pay a certain amount of money to the people who maintain and provide such services. That is the payments for forest environmental services. Table 3.1 expresses the types of forest environmental services.

Table 3.1. Classification of forest environmental services

Environmental services	Characteristics	Buyer	Provider
Watershed protection	Provided by the forest ecosystem. Watershed forests provide many kinds of services including soil erosion control, water quality maintenance, and water flow regulation.	Hydropower plants, clean water supply and production facilities, industrial production facilities directly use water sources, and other downstream organizations and individuals	Forest owners (forest-allocated households or State authorities) and local residents (who are paid to stop or minimize the deforestation).
Biodiversity conservation	Disease prevention, ecosystem value etc.; for example, paying for local communities to set aside natural restoration areas for the formation of biodiversity corridors	Government and beneficiaries, tourism companies, national parks, and protected areas	Local communities, residents, national parks, and protected areas.

Environmental services	Characteristics	Buyer	Provider
Beautiful landscape/ Ecotourism	Tourists travel to beautiful natural landscapes/protected areas/national parks where preserve landscape and biodiversity values that are paid for landscape maintenance and diversification	Tourist companies, tourists, national parks and reserves, accommodation and transportation companies	National parks, reserves, local communities and households
Carbon storage and absorption	Climate change (forests absorb carbon to reduce greenhouse gases), etc.; for example, hydropower plants make payments for farmers to plant and protect forests;	Government, local people and hydropower plants benefit;	Local communities, residents, land owners, forest owners and agencies assigned to manage land areas and forests.

Source: Summarized by the authors from reports of VNFF, CIFOR and articles of other authors.

3.2. Achievements and limitations in payments for forest environmental services in Vietnam in the 2011-2020 period

3.2.1. Fundamental achievements

Firstly, the Government has made great efforts in promulgating legal regulations and policies to form a legal corridor to promote the marketization of payments for environmental services.

Vietnam is one of the first countries in Asia to promulgate the National program on payments for environmental services. Many difficulties still exist; however, thanks to great efforts of the Government and ministries as well as significant supports of international organizations, Vietnam has initially built a policy system for payments for environmental services (the first is payments for forest environmental services) as the legal basis for implementing payments for forest environmental services in Vietnam. The most prominent policies are Decree No. 05/2008/ND-CP and 4 attached guidelines, and Decree No. 99/2010/ND-CP and 13 attached guidelines. In addition to these decrees, the government also issued Decree No.147/2016/ ND-CP in 2016 amending and supplementing Decree 99/2010/ND-CP and Decree No.156/2018/ND-CP to clarify regulations on payment for forest environmental services in the Forest Law 2017. In particular, payment for environmental services is receiving much attention from the government. Article 138 of the Law on Environmental Protection 2020 has expanded the scope of payment for environmental services: in addition to payment for forest environmental services, there is payment for marine ecosystems, mangrove ecosystems, and rocky mountain ecosystems.

Although these policies are still insufficient; they have formed a basic ground for the implementation of the payment market for environmental services in Vietnam.

Secondly, the institution and organization of the enforcement apparatus for the environmental service market have been initially established, Forest Protection and Development Funds from central to grassroots levels have been established, creating an intermediary in the payment mechanism for environmental services.

The Steering Committee of Vietnam Forest Protection and Development Fund (VNFF) is formed in most of the provinces where the Forest Protection and Development Fund is established (44 Forest Protection and Development Funds at the provincial level have been established in a total of 60 provinces). In addition, VNFF has also signed 659 authorization contracts on payments for forest environment services with facilities in charge of using payments for forest environment services. This is an important momentum to implement the marketization of payments for environmental services.

After 10 years from the effective date of Decree No. 99/2010/ND-CP, the Forest Protection and Development Fund has been established in 45 provinces nationwide; of which the organizational apparatus of 39 Funds at the provincial level has been stabilized and formed specialized departments with headquarters and put into operation [2]. Such Forest Protection and Development Funds have performed successfully their authorized tasks of payments for forest environmental services; acting as an important and indispensable link in the authorized payment of forest environmental services, from the user to the FES provider. The Forest Protection and Development Fund has actually promoted its important roles and trusted address in mobilizing social resources for forest protection and development, contributing to the policy implementation of forestry socialization.

Currently, 478 hydropower companies, 151 clean water supply companies, 239 industrial companies and 76 tourism companies have signed contracts on authorized payments for forest environmental services with the Central Fund and provincial funds, reaching 16,746 billion VND [2]. On average, from 2013 up to 2020 the collection from FES is about 1,600 billion VND/year. This is a great resource, contributing to better forest protection and income improvement for local people who directly protect forests, most of them are ethnic minority households and poor households; playing the main role in implementing the socialization of forestry and poverty reduction.

Thirdly, the awareness of environmental service providers has been improved strongly.

Forest owners who do not understand what forest environmental services are, now have realized their responsibilities for providing and paying for environmental services that are to clarify areas, scope and boundaries of forests for providing and paying for environmental services and payments for environmental services must be corresponding to payments for environmental services to be received, it means that it is necessary to clarify responsibilities in association with rights. From there, the capacity and efficiency of forest management, use and protection are improved, contributing to the implementation of forestry development strategies. According to the survey of the authors on people's understanding level of environmental services, the majority of respondents is interested in

the environment and understands the importance of forests and other ecosystems to their life (92.66% of respondents believe that forests play a role in land protection, soil erosion and flood prevention; 84.56% of respondents think it is necessary to make payments for environmental services to be provided; and 81.47% of respondents are willing to pay additional amounts for better environmental services). This is the basis for moving towards the marketization of payments for environmental services in Vietnam in the coming time.

Fourthly, the number of market participants has grown remarkably.

Thanks to the implementation of payment programs for forest environment services nationwide since 2011 and other State policies, the number of buyers and sellers in the environmental service market (or the market of forest environmental services) has increased significantly.

In the period 2011-2016, there were only 471 buyers and 141,932 sellers in the whole country, then in 2020, there were 887 buyers (an increase of 188.3% compared to the period 2011-2016) and 179,891 sellers (an increase of 126.7 % compared to the period 2011-2016) [2].

Fifthly, the number of transactions has increased and the revenue from environmental service transactions has also increased significantly.

In the period 2011-2016 , the number of transactions was 471 contracts, and the number of transactions increased by 197%, equivalent to 928 contracts in 2020 [2].

In 2020, revenue from transactions of environmental goods and services is 2,820 billions VND (an increase of 996.4% compared to 2011) [2].

The total expenditure for forest owners also increased year by year. The total expenditure for environmental service providers from 2011 to 2020 was 13,764 billions VND.

All impressive figures as mentioned above express that the performance results of payments for forest environmental services in Vietnam in recent years have obtained positive achievements for the formation and development of the forest environmental service market in particular and environmental services in Vietnam in general in the next years.

3.2.2. Some limitations

Although Vietnam is the first country in Southeast Asia to issue the National program on payments for environmental services, the Government, ministries and agencies at all levels have paid great attention to this field since the 2000s, the process of marketization of payments for environmental services in Vietnam still faces many problems so far. Specifically:

Firstly, the legal framework for operating payments for forest environmental services in Vietnam is still short and weak.

Current regulations related to payments for forest environmental services are only guidelines. There are a few circulars on guiding the implementation but insufficient for participants to implement the payments for environmental services; for example, ownership rights, environmental service prices and so on, have not been specifically guided. The formation of a payment market for environmental services requires the development of a full legal institutional framework. The unclear determination of the ownership of natural resources of individuals causes difficulties in preparing payment contracts for environmental services because natural resources, especially land resources, are owned by the State, and

individuals do not have property rights to these resources. A comprehensive and consistent legal basis and database on land and forest use rights is incomplete and has not been established. One of the major contents of signing payment contracts for environmental services is that the seller shall have the right to sell goods provided; it means that the seller shall have property rights. In Vietnam, this is a difficult problem because the land is owned by the State. Therefore, the State should enact appropriate mechanisms to allocate long-term land use rights to people.

Secondly, the payment level is still low and Vietnam doesn't really have a true-PES

The payment mechanism for environmental services in Vietnam is still not qualified to be an actual payment mechanism for environmental services when it still lacks a market-based payment system and the payment is still short of mandatory criteria. Researches on payments for environmental services in Vietnam show that both buyers and sellers do not voluntarily participate in payment contracts for environmental services and the payment is not qualified (according to 5 criteria of a true PES as proposed by Wunder). In practice, the payment for environmental services in Vietnam can be seen as a “performance-based salary system for rangers” or as an “unconditional small-scale welfare subsidy”. In addition, environmental service providers (forest growers and protectors) are only paid an amount corresponding to compensation for labor opportunities, not for the value of services provided from forest areas.

The current level of payment for environmental services specified in Decree No. 147/2016/ND-CP is being integrated with electricity and water bills (specifically, 36 VND/kWh for electricity and 52 VND/m³ for water). Based on calculations by experts, this payment level is much lower than the value of services provided by the environment. Therefore, to operate the payment market for environmental services, it is necessary to develop a market-oriented price list for environmental services. In addition, the payment level for environmental services per hectare is determined on the basis of the total amount of payment for environmental services received from buyers divided by the total forest area for providing services. Based on this calculation method, places where forest areas are high will receive lower payments and places where forest areas are low will receive higher payments. A higher payment will generate greater driving forces for forest protection in low-forest cover areas; however, low payments will promote the forest conversion in high-forest cover areas. In addition, buyers of environmental services receive very little benefit from payments for environmental services because they have to pay the same fee regardless of the actual condition of the area.

The payment mechanism for environmental services does not clearly identify buyers, sellers and intermediaries, and there is no significant information exchange among these major groups. Especially, there is no response between service users and service providers. This is the disruption of information of subjects in the market.

Thirdly, people's understanding level of environmental services is still limited, and many population groups are not really willing to pay for the environmental services that they are receiving.

Although the payment for forest environment services has been applied across the country since 2010, the understanding of this service is very low, most of the relevant ministries and branches have not been trained to be familiar and raised the awareness about the payment for environmental services. Only a few communities in pilot areas under programs and projects on payments for environmental services, especially officers related to forest management, have been trained to be familiar with this activity. The majority of communities in pilot areas are ethnic minorities, they have been trained but their awareness of paying for environmental services is not really high. There is also a majority of the population that does not know or even hear about payments for environmental services.

People's understanding level of payments for environmental services is clearly expressed in the summary table of survey results (Table 3.2) as follows:

Table 3.2. People's understanding level of payments for environmental services

Questions	Answers					
	Ever heard	Never heard				No answer
Have you ever heard of the concept of payments for environmental services?	57.53%	40.15%				2.32%
How do you know understand about payments for environmental services?	Pay an amount to solve environmental pollution	Pay an amount to protect the environment	Pay an amount for benefits provided by the environment	Pay an amount for causing environmental pollution and degradation	Pay an amount for environmental pollution treatment, waste collection and treatment	Others
	52.12%	67.57%	44.02%	29.73%	45.95%	0.39%
Have you ever heard about Decree No. 99/2010/N D-CP (or Decree No. 147/2016/N D-CP) on	Ever heard	Never heard				No answer
	37.45%	61.78%				0.77%

Questions	Answers					
payments for environmental services						
Do you know that in each Kwh of electricity and m ³ of water, and entrance ticket, they have already included an amount of payment for environmental services?	Yes	No				No answer
	50.97%	48.61%				0.42%

Source: Summary of questionnaires by the authors

The survey results (Table 3.2) show that up to 40.15% of the respondents (the total number of issued questionnaires is 300, and the total number of votes collected is 259) stated that they have never heard of the concept of payments for environmental services, 61.78% of respondents have never heard or known about Decree No. 99/2010/ND-CP on payments for environmental services. This is a clear explanation for the fact that only 44.02% of the respondents think that environmental payment is to pay an amount of money for benefits provided by the environment, while the majority of people understand that payment for environmental services is to pay an amount of money to remedy pollution and protect the environment. Even up to 48.61% of respondents do not know that they are paying an amount of money for environmental services they are using (included in their water and electricity bills) every month.

The knowledge and understanding of market participants and people are still lacking and information access capacity is weak. To form and develop a market of payments for environmental services, it is essential to improve people's awareness because they are the participants in the market of payment for environmental services. To operate the market for payment of environmental services, the most important requirement is that economic subjects in such market must be fully informed. One of the reasons that direct payments have not been implemented (just in the form of pilot) is due to lack of information and negotiation skills in payment contracts on environmental services of environmental service providers.

Therefore, they are easily to be constrained by parties using environmental services when carrying out direct transactions.

All parties including sellers, buyers and intermediaries do not have a thorough understanding of requirements and contracts, and people’s understanding of payments for environmental services is still lacking, and people’s environmental information access is still limited. This makes environmental service providers (mainly residents in disadvantaged areas) face many difficulties when negotiating terms and conditions of contracts with users of environmental services. The summary of the survey results based on questionnaires shows that the majority of people are aware of the importance of the environment; however, people's understanding of environmental services and payments for environmental services is still restricted (refer to Table 3.3).

Table 3.3. People’s understanding about the importance of the environment

Unit: %

Question	Answer						
Which benefits (services) does the environment provide to you and your family	Provide foods, clean water, and raw materials	Act as a waste storage place	Mitigate natural disasters, climate regulation, watershed protection	Assure the soil improvement, soil nutrient regulation	Provide entertainment, aesthetic, cultural, and educational services	Guarantee the biodiversity conservation	Others
	82.63	48.26	77.61	67.18	50.58	58.30	2.70
In your opinion, what role does the forest play in the community?	Provide wood, timbers and other forest products other than wood	Absorb and store carbon	Protect and prevent soil erosion, floods	Store and supply water sources for daily life and production	Keep the climate fresher and cooler	Provide giving-birth places, natural breeds and foods	Provide tourism products
	78.38	79.54	92.66	73.75	81.85	65.64	64.09

Source: Surveys by the authors

It can be seen that most people (over 60% of the respondents) are well aware of the role of the environment in general and the forest in particular in their life. However, when in-depth questions are proposed in regard to payments for environmental services, a high rate (around 40.15% of the respondents) had never heard of the payment for environmental services, many respondents said that payments for environmental services are amounts to remedy environmental pollution or pollution treatment and waste treatment services (52.12% of the respondents). These figures show that people’s understanding of payments for environmental services is insufficient.

Furthermore, surveys of population groups in two big cities including Hanoi and Ho Chi Minh City and some other provinces across the country show that most people are aware of the importance of environment and environmental protection but they do not understand exactly about environmental services. Many people believe that payments for environmental services are amounts paid for environmental damage and pollution (accounting for 52.12% of the respondents); or for pollution treatment and waste collection and treatment (accounting for 45.95% of the respondents). Many people consider that benefits from the environment such as climate regulation, regulation of water sources, biodiversity preservation and so on are obvious ones, they don't have to make payments for these services. Some residents are not willing to pay additional amounts to benefit services provided by the environment (10.42% of the respondents are not willing to make an additional payment for benefits provided by the environment). Table 3.4 shows in detail people's willingness to make payments and their perspectives on subjects who have to pay for environmental services:

Table 3.4. People's willingness of payment and their understanding of subjects in charge of payments for environmental services

Unit: %

Question	Answer					
	Yes	No				Others
Are you willing to pay an additional amount to take advantage of more benefits from the environment?	81.47	10.42				7.43 (still thinking)
In your opinion, who should pay for benefits provided by the environment?	Everyone	State authorities and agencies	Tourism companies	Hydropower companies, clean water production companies	Industrial production facilities	Others
	82.63	21.62	33.98	27.41	25.10	0.77

Source: Surveys by the authors

The survey results show that most people know that they are the ones who have to pay for environmental services (accounting for 82.63%), but only about 30% of the respondents think that tourism companies, hydropower plants, clean water supply plants and industrial production facilities are also subjects that have to make payments for environmental services. This expresses that people still don't really fully understand payments for environmental services.

Fourthly, the State's role has not been clearly defined and still characterized by administrative natures

The State of Vietnam currently still takes the dominant role in terms of payments for environmental services through setting fixed prices for forest environmental services and operations of Forest Protection and Development Funds. The implementation of payment transactions for environmental services is imperative and administrative orders. Vietnam's economy has been transitioning to the market mechanism for more than 30 years; however, the subsidy mechanism still exists in many sectors, including environmental services. In this sector, some transactions of forest environmental services have been marketed since the early 2000s, but it is still at the early stage. This means that the State is still the main provider of environmental services and goods and is also the main buyer of such services and goods; while people can use environmental services without paying fees in many cases, or they have to pay fees but not equivalent to the actual value of environmental services and goods. Once all goods exchange relations among countries are carried out on the basis of market principles, Vietnam will not maintain this situation any longer. In other words, the development of a global unified market requires Vietnam to urgently shift the payment mechanism for environmental services from the State to the society. However, due to the serious influence of previous mechanisms on Vietnamese people's thinking and actions, this will be a big difficulty in the process of marketizing environmental services in Vietnam.

In practical terms, not only in Vietnam but in all countries, if the State is still a major subject in charge of implementing payments for environmental services, the efficiency of forest protection and uses will be low. Because the State's payment implementation is often carried out on a large scale with many targets, leading to a spread distribution of resources, and programs are not designed in detail to make a difference among localities as well as different types of environmental services, as a result, the efficiency is low. Therefore, the payment for environmental services transferred from the State to the society is an inevitable trend and also a long-term process.

4. Discussion and Conclusion

The first, a legal framework is essential to clearly regulate market participants such as services to be provided, service users, service providers and relevant parties.

The second, a payment mechanism must be developed in accordance with the national management regime; however, it also must be flexible to generate opportunities for local communities and people to participate. This is considered a basic condition for sharing benefits provided by environmental services and a key to form and develop the market of payments for environmental services.

The third, in the early stages of formation of the market of payments for environmental services, it is impossible to conduct it simultaneously in all sectors; on the contrary, it must be carried out gradually and step by step. It is required to choose a sector with potential conditions of goods, supply and demand, and human resources, then implementing the marketization and then spreading to other sectors.

The fourth, it is essential to legalize property rights for entities providing environmental services. One of the conditions for the implementation of PES is that participants providing environmental services must have their property rights; for example,

there should be a mechanism to assign long-term land use rights to people, especially local people in difficult areas. For successful performance, it is necessary to raise the understanding and awareness of relevant parties in terms of indispensable roles of providing environmental services.

The fifth, regardless of the payment mechanism for environmental services, countries still highly appreciate the State's role in regulating PES models. The State always plays an important role in formulating legal and policy frameworks, assuring the technical and financial support through integrated programs, improving processes related to policy performance; supervising the transaction process of environmental services; developing policies to support PES, and making investments in ecological investigation programs and researches, economic evaluation of ecosystem services and so on. However, in the market mechanism, the State should only play a macro-regulatory and supervisory role in terms of payments for environmental services.

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AIR POLLUTION IN VIETNAM: IMPACT FROM THE ENVIRONMENT

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Abstract

One of the greatest scourges of our time is air pollution, not only because of its impact on climate change but also its impact on public health and the economy. socioeconomic. The only way to solve this problem is through public awareness along with the multidisciplinary approach of scientific experts, the relevant local ministries and agencies must soon detect the cause and promptly solve it. the emergence of this threat and suggest sustainable solutions.

Keywords: *air pollution, environment, health, public health, gas emission*

1. Introduction

According to the 2021 National Status Report, Vietnam has made an important development step, achieving impressive socio-economic achievements, although the end of 2020 and 2021 are heavily affected by the COVID-19 pandemic. -19 globally, but Vietnam is still in the group of countries with high economic growth in the world. In which, our country's economy in 2020, economic growth will reach 2.91%, in 2021 economic growth will reach 2.58% (Vietnam Economic Institute, 2022). However, in addition to economic development, an important challenge for Vietnam today is how to manage rapid and sustainable economic development while combining it with preventing negative impacts. extremes of environmental degradation and climate change. Besides that, Environmental protection work in Vietnam has achieved certain results in the control and prevention of environmental pollution. However, the situation of environmental pollution continues to be complicated in some areas such as: air pollution in some big cities, industrial parks, production and business areas.

The study provides a picture of the current status and evolution of environmental components that increase emissions in the air under the pressure of economic development, industrialization and urbanization.

2. Method

The article describes the current state of Vietnam's environment in the 2016-2020 period, assesses an overview of Vietnam's environmental situation, from socio-economic development activities, causes and main sources of impacts on the environment. impact on atmospheric emissions. Thereby, identifying challenging issues in the management and

protection of the environment and proposing solutions to implement effectively and sustainably in the coming years.

The article is built based on the model of Motivation - Pressure - Status - Impact - Response. (Country Status Report, 2021).

The driving force is socio-economic development activities, population growth, urbanization speed, structural shift of economic sectors in urban and rural areas, changes in service delivery forms. services, commerce, etc., these forces together with climate change, natural disasters and environmental incidents.

Pressure changes the quality of the environment.

Current status: assessed including changes in quality of environmental components: air, arising status. The quality of environmental components is assessed by comparing the actual results of the environmental status through environmental parameters with current environmental technical regulations, and at the same time comparing between years in the period. period 2016 - 2020 and compare with the previous period to assess the evolution of environmental quality.

Impact on community health, socio-economic development activities. The analysis of the current situation and shortcomings in the management and protection of the environment is the basis for content development.

Response: includes solutions to prevent and minimize air pollution, and effectively manage environmental quality in line with sustainable development goals in the next period.

The information and data used in the article are synthesized from official sources, in which, socio-economic data: from statistical yearbook reports; data related to the environment and climate change: from the Ministry of Natural Resources and Environment, a number of ministries, branches and reports of 63 provinces and cities directly under the Central Government.

3. Results

3.1. Environment in Vietnam: pressure on air pollution

3.1.1. Socio-economic development

Population and urbanization

Vietnam is going through one of the fastest urban transitions in the world. It is the main driver of economic growth. According to the report of the Ministry of Construction, by the end of June 2021, the coverage rate of urban zoning planning compared to construction land area in urban areas across the country will reach about 53%; in which, 2 special urban areas (Hanoi, Ho Chi Minh City) and 19 grade-I cities reach about 80-90%; in urban areas of grades II, III and IV, about 40-50%. The Resolution of the 13th Party Congress has set a target that the urbanization rate of our country will reach 45% by 2025 and about 50% by 2030. The increased urbanization rate creates favorable conditions for socio-economic development, promotes the transformation of economic structure and labor structure towards industrialization and modernization.

Urbanization means concentration of population and industrial development, contributing to economic growth. Total population growth is not high, but people are moving rapidly to urban centers and leaving agriculture for industry and services (World Bank 2011a).

Besides the positive aspects, according to the National Status Report in 2021, the urbanization process in Vietnam also creates many challenging problems such as: controlling urban development and building unsynchronized infrastructure according to the planning; inefficient use of land resources; the speed of migration to urban areas increases faster than the rate of urbanization and socio-economic growth, creating great pressure, causing overload in the use of infrastructure; traffic jams, flooding; especially the issue of environmental pollution and the impacts of climate change. Urban development in our country is uneven among regions and there are many disparities between different regions in terms of geographical characteristics. The increase in population causes the number of circulating personal vehicles to increase accordingly; Many old and outdated vehicles are still used and released into the environment a large amount of dust and emissions.

Another feature of urban development and urbanization is the concentration of industrial activities, industrial parks with different types of production and services. The sharp increase in industrial production leads to an increase in soil, water, air pollution, and disease burden. In addition, ecosystems in many urban areas are broken down to serve socio-economic development, such as leveling lakes and ponds, reducing green areas and parks to serve infrastructure development. Urban development means an increase in the number of roads, means of transport, buildings and utilities serving urban areas, thereby reducing air circulation leading to accumulation of toxic wastes, causing environmental pollution. urban air pollution, especially dust pollution.

Industrial development

Asia Pacific Energy Research Center (2006), strong industrialization contributed to a strong economy during two decades of growth fueled by vigorous exploitation of natural resources. In 2008, the share of industry in gross domestic product (GDP) reached 40% while agriculture's share fell to 22%. Vietnam's industrial growth has driven an increase in annual energy consumption and corresponding emissions (Figure 1).

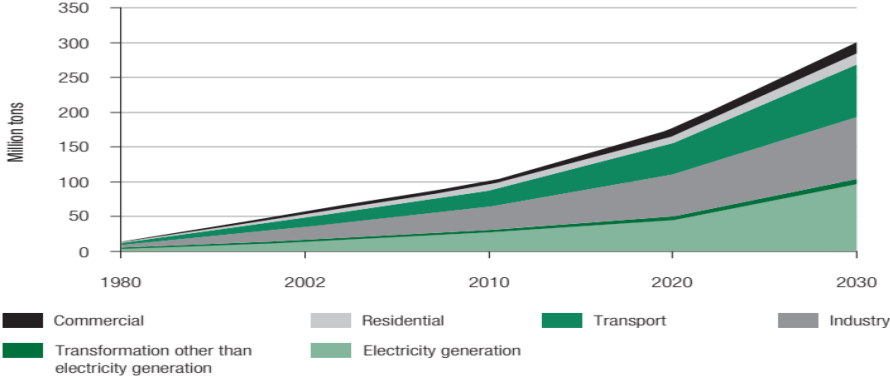


Figure 1. Carbon Dioxide Emissions in Vietnam by Sector, 1980–2030

Source: Asia Pacific Energy Research Centre. 2006. APEC Energy Demand and Supply Outlook 2006. Tokyo

In 2008, energy consumption growth was 11.3%, a consistent trend over the past decade (Asia Pacific Energy Research Center 2011). Energy consumption mainly consists of oil and coal, and 28,479 kilotons of oil equivalent. Due to the growth trend in total energy use and the heavy dominance of fossil fuels, national greenhouse gas emissions, 177 tonnes of carbon dioxide equivalent in 2005, are expected to triple by 2030. (World Bank 2011).

According to the Statistical Yearbook 2020, industry is an important contributor, accounting for a large proportion in the economic structure. In the 2016-2020 period, industrial production accounts for more than 30% of the country's GDP, continuously growing at a relatively high rate, averaging 8.2% per year. The processing and manufacturing industry continues to affirm as the bright spot of the industrial sector with an average growth rate of 10.6% per year in the 2016-2020 period.

The structure of industries has changed positively, increasing the proportion of the processing and manufacturing industry and decreasing the proportion of the mining industry. A number of industries have had strong development, especially electronics, textiles, footwear, food processing... Many private enterprises and industrial groups formed and developed in the country have potential. Good force operates in the fields of manufacturing and assembling cars, food processing, iron and steel, metals. Currently, although the number of enterprises with high technology level is increasing, however, there is still quite a distance compared to some other countries in the region. Therefore, in order to produce goods, it is necessary to consume more raw materials and energy, generate more waste, and put pressure on the environment.

Industrial Park

Ministry of Planning and Investment - Report on establishment and development of industrial parks and economic zones in 2020 By the end of 2020, there are 369 industrial parks established nationwide (including 329 industrial parks). Industrial parks are located outside economic zones, 34 industrial parks are located in coastal economic zones, 06 industrial parks are located in border gate economic zones) with a total area of about 114 thousand ha. Of which, 284 industrial parks have been put into operation, an increase of 72 industrial parks compared to 2015. In general, the number of industrial parks put into operation tends to increase over the years, of which the largest increase is in the years 2018 and 2019.

According to the Government's report on environmental protection in 2020, 90.69% of operating industrial parks have concentrated water treatment works, of which 90.9% have installed monitoring systems. automatic wastewater. Some localities have focused on selecting and attracting environmentally friendly, advanced technology projects with high investment in environmental protection. However, many projects and facilities are currently investing and operating in industrial zones with the risk of causing environmental pollution such as metallurgy, mineral extraction, ship demolition, paper and pulp production. Paper, textile, dyeing, tanning, petrochemical refining, thermal power, steel production, chemicals, chemical fertilizers,... This is a big challenge for the control of waste sources causing environmental pollution.

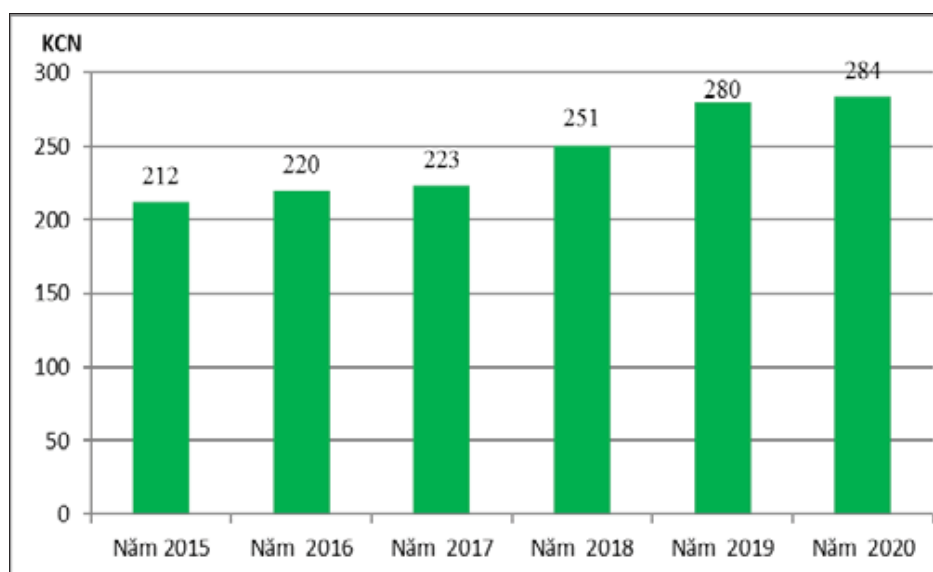


Figure 2. Number of cars nationwide in the period 2016 - 2020

Source: Website of the Vietnam Register of Administration - General traffic in the country (2016 - 2020)

Motor vehicles using gasoline and diesel fuel give rise to many air pollutants such as CO, volatile organic matter (VOC), SO₂, NO_x, dust... Currently, the increase in road motor vehicles, especially cars and motorbikes, along with the unsatisfactory quality of the roads, the low quality of fuel used is one of the main causes of air pollution.

In order to control environmental pollution from traffic activities, the Ministry of Transport has promoted environmental protection through inspection and certification of environmental protection for means of transport. According to the report on environmental protection in 2020 of the Ministry of Transport, by the end of 2020, the emissions have been tested for 1,736,188 gasoline engine cars and 1,749,387 diesel cars are being tested. circulate.

+ Craft villages

According to the report on environmental protection in 2020 of the Ministry of Agriculture and Rural Development, the whole country currently has 4,575 craft villages, of which 1,951 are recognized trade villages.

Table 1. Number of recognized craft villages by 2020

No.	Group of craft villages	Quantity	Percentage
1	Group of craft villages producing bamboo and rattan products, ceramics, glass, textiles, yarn, embroidery, knitting, small mechanics, sculpture	935	47.9
2	Group of craft villages processing and preserving agricultural, forestry and fishery products	640	32.8
3	Other groups of craft villages	376	19.3

Source: Report on environmental protection in 2020 of the Ministry of Agriculture and Rural Development

Environmental protection in craft villages has not been paid due attention, very few craft villages have solid waste collection and treatment systems. According to the report on environmental protection of the Ministry of Agriculture and Rural Development in 2020; the percentage of craft villages with industrial solid waste collection points reached 20.9%.

Table 2. Amount of waste generated from craft villages

No	Craft villages, traditional craft villages	Amount of waste treated			
		Solid waste (ton/day)	Rate of treatment (%)	Wastewater (m3/day)	Treated rate (%)
1	Processing and preserving agricultural, forestry and aquatic products	4.21	81.0	7,000	45
2	Production of handicrafts	3.6	79.5	1,800	55.3
3	Handling and processing raw materials for the production of rural industries	4-4.5	42.5	-	-
4	Producing wooden furniture, bamboo and rattan, ceramics, glass, textiles...	2-5	-	-	-

Source: Official Dispatch No. 2250/BNN-KHCN dated March 27, 2020 of the Ministry of Agriculture and Rural Development

The source of air pollution in craft villages is mainly from the use of coal as fuel (commonly low-quality coal), and the use of chemicals in production technology lines. In which, the group of craft villages that emit the largest amount of pollution are recycling (metal, plastic), recycling and processing, surface treatment, spray painting, product surface polishing, firing, drying, etc. bleaching, forge flue gas... generates dust and emissions such as SO₂, NO₂, acid and alkali vapors. Typically, Trung Van plastic recycling craft village (Hanoi), Dai Bai bronze casting craft village (Bac Ninh province), Binh Yen aluminum recycling craft village (Nam Dinh province).

✚ Construction development

According to data from the Ministry of Construction, the average growth rate of the construction industry in the period 2016 - 2020 is 8.5 - 8.7%/year. Construction activities, traffic, technical infrastructure, transportation of materials, construction waste... take place in many places, especially big cities. In the field of building materials production, cement production is one of the industries with the highest risk of environmental pollution, in which the main source of pollution is dust arising from the process of calcining and grinding cement. . Exhaust gas flow at cement production facilities varies depending on the technology and operating mode; According to an estimate on 10 large cement production facilities across the country, the emission volume is about 10.8 million m³/h. According to Decree No. 40/2019/ND-CP of the Government, clinker production facilities belong to the list of types of industrial production that are at risk of causing environmental pollution and need special control and supervision measures. For activities such as transporting materials, dumping construction waste, although there are regulations on environmental protection, the

implementation is still inadequate. Construction materials are scattered during transportation, causing very serious dust pollution, affecting the surrounding air environment. Construction solid waste is discharged in large quantities, over a large area, if not treated, in the long run, it will change the soil and soil properties, potentially affecting the growth of plants, and at the same time. adversely affect landscape ecology. Although there are regulations on environmental protection, the implementation is still inadequate. Construction materials are scattered during transportation, causing very serious dust pollution, affecting the surrounding air environment. Construction solid waste is discharged in large quantities, over a large area, if not treated, in the long run, it will change the soil and soil properties, potentially affecting the growth of plants, and at the same time. adversely affect landscape ecology. Although there are regulations on environmental protection, the implementation is still inadequate. Construction materials are scattered during transportation, causing very serious dust pollution, affecting the surrounding air environment. Construction solid waste is discharged in large quantities, over a large area, if not treated, in the long run, it will change the soil and soil properties, potentially affecting the growth of plants, and at the same time. adversely affect landscape ecology.

Transport development

Our country's transport infrastructure has developed quite rapidly, especially the road transport system with many key projects put into operation and put into use. However, the level of transport infrastructure development has not yet met the needs of socio-economic development; high transportation costs; connectivity between regions as well as connections between expressways is still limited; Urban transport has not been developed, public passenger transport in urban areas is still limited, traffic jams still occur in big cities such as Hanoi, Ho Chi Minh City... Besides, the quality of the infrastructure is low. The low traffic level, along with the development and construction of residential areas and industrial zones along national highways have led to air pollution. (National Status Report, 2021).

Accompanied by a high rate of urbanization and the mechanical increase of population in urban areas is a rapid increase in the number of motorized vehicles. According to data from the Vietnam Register, by the end of 2020, there are 4,180,478 cars and tens of millions of motorbikes and motorbikes in circulation nationwide.

Motor vehicles using gasoline and diesel fuel give rise to many air pollutants such as CO, volatile organic matter (VOC), SO₂, NO_x, dust... Currently, the increase in road motor vehicles, especially cars and motorbikes, along with the unsatisfactory quality of the roads, the low quality of fuel used is one of the main causes of air pollution.

In order to control environmental pollution from traffic activities, the Ministry of Transport has promoted environmental protection through inspection and certification of environmental protection for means of transport. According to the report on environmental protection in 2020 of the Ministry of Transport, by the end of 2020, the emissions have been tested for 1,736,188 gasoline engine cars and 1,749,387 diesel cars are being tested. circulate.

✚ Energy development

In Vietnam, energy sources are quite abundant (fossil fuels, hydroelectricity, biomass, wind energy, solar energy...); however, the current power supply is mainly based on hydroelectricity and coal-fired power. Large hydroelectric power plants are concentrated mainly in the North due to the mountainous terrain and hydrological advantages. Most coal-fired power plants are also built in the North. According to the revised Power Plan VII, by 2020, the total electricity capacity to be put into use will be 60,000 MW, 96,500 MW by 2025 and 129,500 MW by 2030. In the 2016 - 2030 period, the average annual total capacity of the power source to be completed and put into operation is 7,000 MW. For thermal power plants, each type of technology will generate different types of waste. The amount of waste generated depends on the type of fuel used and production technology. In which, coal-fired power emits a large amount of dust and SO, NO; FO oil-fired thermal power plants emit mainly SO₂, NO₂ gas; gas thermal power - mixed gas turbine emits mainly NO_x gas.

✚ Medical activities

According to the report on environmental protection in 2020 of the Ministry of Health, the whole country has about 13,674 medical facilities, of which there are about 1,253 hospitals. The total amount of hazardous medical solid waste generated is about 23,925 tons/year. The increase rate of medical solid waste depends on the number of hospital beds, the implementation of medical techniques and the people's access to medical services (about 9.3%/year). The amount of medical solid waste increased in most localities, stemming from a number of reasons such as: an increase in the number of medical facilities and an increase in the number of hospital beds; increase disposable medical products. Some localities have a large number of central and provincial hospitals with a large number of beds, corresponding to a high amount of waste generated.

Medical solid waste is mostly collected and treated by incineration, however, some incinerators do not operate to meet the requirements for environmental protection, causing emissions to pollute the environment.

3.1.2. Dust

According to the report of the General Department of Environment for the period 2016 - 2020, air pollution continues to be one of the hot issues, always receiving the attention of many countries around the world. In Vietnam, air pollution is mainly dust pollution in big cities, urban areas and industrial areas. In particular, fine dust pollution in some big cities such as Hanoi and Ho Chi Minh City still occurs frequently. In the Northern region, pollution levels tend to increase from 2017 to 2019 (the highest in 2019) but by 2020 it has decreased more.

3.2. Environmental quality in big cities

In the 2016-2020 period, although the air quality is different each year, dust pollution often occurs in big cities, urban areas, craft villages and rural areas.

3.2.1. Dust

According to the national status report 2021, compiled from monitoring data of the Vietnam Environment Administration for the period 2016-2020. It shows that in urban areas,

the outstanding problem for the air environment around industrial zones is still dust pollution. The parameter value of total dust in the air in many industrial zones has exceeded the threshold of QCVN 05:2013/BTNMT. Comparison of data shows that the value of the total dust parameter in the air around the industrial zones in the North is much higher than that of the industrial zone in the South, while the value of the parameter of the total dust in the air around the industrial zones is significantly higher. There is not much difference between central and southern industries. The reason may be due to the structural characteristics of the type of production, technology, fuel, and location of different regions. In the North, near industrial zones, there are also many thermal power plants, Large-scale cement production consumes a lot of fossil fuels, which leads to large dust emissions. In addition, compared with other regions, the North still exists some old industrial zones with outdated technology, generating more pollutants. Many industrial parks in the North are also located near urban areas and major traffic axes, so the value of the total dust parameter in the air around these industrial parks is also affected by the construction of urban infrastructure and traffic. transportation.

In industries, mining activities, power generation, and cement generate much larger amounts of dust than in other industries. The most polluted areas are usually about 1.5 - 3 km from the chimneys of these factories. In construction materials mining areas, the TSP parameter value often exceeds the threshold of QCVN 05:2013/BTNMT many times; The reason is that the stages of mining, crushing, transportation... have released a large amount of dust into the environment.

3.2.2. Values of SO₂ and NO₂ parameters

According to the national status report 2021, compiled from monitoring data of the Vietnam Environment Administration for the period 2016-2020. The measured SO₂ parameter values around the northern industrial parks are much higher than those in the southern provinces, in the northern provinces there are many types of industries that use a lot of fuel such as heat and fuel. electricity, leading to large SO₂ emissions.

In contrast to the SO₂ parameter, the NO₂ parameter value around the southern industrial zones is higher than the northern industrial zones. The reason may be due to the concentration of industries in the South such as chemicals, metal products, electronics... However, in most regions, the values of both SO₂ parameters and NO₂ is still within the threshold of QCVN 05:2013/BTNMT.

3.2.3. Air quality in craft villages and rural areas

- The atmosphere of the craft village

Air pollution in craft villages compared to the previous period has generally not been controlled. In some craft villages, there is an increasing trend. The main reason is that the fuel used in popular craft villages is low-quality coal, outdated production technology, and not yet invested in waste treatment. Air pollution in craft villages is mainly dust, toxic gas, metal vapor, odor and noise, depending on the nature, scale and products of each type of industry. In some craft villages, odor pollution is still a prominent problem. Odor pollution occurring in craft villages varies widely in type and extent, depending on the production

characteristics of the craft village. In the agricultural and food processing craft villages such as Phuc Lam slaughter village (Bac Giang), Duong Lieu agricultural product processing village (Hanoi), Odor pollution due to the decomposition of organic matter in the production waste gives rise to a rotten, unpleasant odor and causes odor pollution over a large area. In some craft villages such as Chang Son and Bang Huu carpentry villages (Thach That, Hanoi), Phu Nghia and Truong Yen rattan and bamboo craft villages (Chuong My, Hanoi), Phu Yen leather and footwear villages (Phu Xuyen, Ha Noi). Internal odor pollution arises mainly from the use of organic solvents in the process of painting and polishing products. However, the problem of pollution occurs from time to time, not continuously. (Country status report 2021). Odor pollution arises mainly from the use of organic solvents in the process of painting and polishing products. However, the problem of pollution occurs from time to time, not continuously. (Country status report 2021). Odor pollution arises mainly from the use of organic solvents in the process of painting and polishing products. However, the problem of pollution occurs from time to time, not continuously. (Country status report 2021).

- Rural air environment

The air quality in rural areas is still quite good, in many areas there are no signs of pollution. The values of typical parameters for the surrounding air environment are mostly within the threshold of QCVN 05:2013/BTNMT. However, some rural areas are affected by the activities of craft villages, industrial sites interspersed in residential areas, landfilling and burning of biological solid waste as well as infrastructure development as in some rural areas. Provinces such as Bac Ninh, Vinh Phuc, Quang Ninh, Dak Nong, Gia Lai, Ba Ria - Vung Tau, Hau Giang, Ben Tre... have shown signs of local air pollution. Besides, after each crop, there is a large amount of by-products arising from crops, but only a part is recycled and reused, the rest is often burned in the field, causing air pollution. local (haze phenomenon).

3.3. Impact of environmental pollution

Environmental pollution has been causing many negative impacts on public health, economic losses as well as social problems. The degree of influence of each object depends on many factors such as health status, concentration, type of pollutant and time of exposure to the polluted environment. In addition to economic losses due to disease burden, environmental pollution also affects production activities (focusing on fisheries, agriculture, tourism, etc.) and damages due to cost of quality improvement. environment.

3.3.1. Impact on public health

The Global Burden of Disease Report (IMHE, 2017) has pointed out the risk factors for death and disability in Vietnam, in which air pollution ranks 6th, up 1 place compared to 2007., behind causes such as high blood pressure, blood sugar, smoking and alcohol use. According to the latest update in 2019, air pollution has increased 1 place to 5th in the ranking of the risk of death and disease in Vietnam (IMHE, 2019).

Air pollution, especially fine dust pollution, is becoming a problem for developing countries like Vietnam. There has been much research around fine dust as well as the ill effects of fine dust pollution. Exposure to high levels of dust in the air, especially PM2.5, increases the risk of diseases such as acute lower respiratory tract infections, stroke, heart

attack, chronic obstructive pulmonary disease, and chronic obstructive pulmonary disease. lung cancer. For the age group 65 and older, the disease burden from fine dust is myocardial infarction, and chronic obstructive pulmonary disease. Meanwhile, fine dust is the cause of lower respiratory infections with the age group under 01 and 05 years old.

Exhaust gas from traffic and industrial activities contains many toxic components such as CO, NO₂... which can cause cancer or irritation, some other toxins can also be absorbed into the blood, causing serious effects on human health. human health. Exposure to NO₂ gas will damage the lining of the lungs, increase the risk of respiratory diseases, and aggravate the symptoms of bronchitis in children with asthma. SO₂ gas is a gas that is a strong respiratory irritant, affecting lung function, causing pneumonia, chronic bronchitis, chronic disease, increased sensitivity to people with asthma... When inhaled SO₂ gas (even at low concentrations) can cause spasm of the rectus bronchial muscles. In addition, workers in some industries such as mining, construction, and production of building materials are often at risk of occupational diseases such as lung dust.

3.3.2. Socio-economic effects

According to a report of the World Bank (2016), the global economic losses due to air pollution each year are in the trillions of USD, of which the loss of labor capacity is caused by premature death and related diseases. to air pollution is about 225 billion USD. For Vietnam, air pollution in Vietnam has caused damage up to 5-7% of GDP annually. Besides, according to research by Fulbright University Vietnam, air pollution in our country has caused economic losses of about 9.86-12.45 billion USD in 2013 and increased significantly in recent years. In Hanoi alone, it is estimated that the cost of medical examination and treatment for respiratory diseases and economic losses due to sick leave for inner-city residents is 1,500 VND/person/day. With about 3.5 million people in the inner city, the total economic loss due to respiratory diseases is about 2000 billion VND/year (Ministry of Natural Resources and Environment, 2019). At the same time, according to the survey results of the research team from the National Economics University at the seminar "Economic losses of air pollution and pollution reduction policies" in 2020, from the perspective of At the current economic level, air pollution is due to the current structure of Vietnam's economic growth model, which is still based on resource intensiveness and foreign direct investment (FDI). In the process of exploiting resources, our economy brings low added value, limited energy efficiency, leading to pollution is inevitable. In addition, the FDI sector in our country in recent years has often concentrated in industries such as processing and manufacturing with low technology content, making use of manual labor and causing environmental pollution. Air pollution is due to the current structure of Vietnam's economic growth model which is still based on resource intensiveness and foreign direct investment (FDI). In the process of exploiting resources, our economy brings low added value, limited energy efficiency, leading to pollution is inevitable. In addition, the FDI sector in our country in recent years has often concentrated in industries such as processing and manufacturing with low technology content, making use of manual labor and causing environmental pollution. Air pollution is due to the current structure of

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4. Discussion and Conclusion

4.1. Proposed environmental protection in the following years

4.1.1. Building and perfecting the system of policies and laws

In the following years, the Party and State continue to promulgate many important policies for environmental protection in order to create favorable conditions for environmental protection in the locality, in which focusing on environmental issues. environment such as technical regulations on the local environment to ensure conformity with the socio-economic development situation, natural conditions and requirements for environmental management and protection of each locality; regulations on fees and charges for solid waste collection and management; urban and rural environmental issues; inspect and handle establishments causing environmental pollution; local green growth and sustainable development.

Continue to invest in supporting projects on environmental protection such as waste collection and treatment; improve infrastructure, to limit emissions to the environment from industrial parks, craft villages or from means of transport.

4.1.2. Environmental pollution control

Must be actively implemented through mechanisms, policies and inspection and examination activities. Inspection and testing are carried out on a regular basis; implementing public transparency in order to detect and promptly handle problems related to causing environmental pollution.

Strictly control large waste sources; strengthen measures to prevent the risk of environmental incidents; proactively monitor objects and projects with potential risks of causing environmental pollution and environmental incidents

4.1.3. Scientific research activities

The Ministry of Natural Resources and Environment continues to call for scientific researchers to conduct research at all levels to research science and technology topics in the field of environment, focusing on research research and transfer technology for waste treatment, clean production, energy saving, environmental friendliness, green economic development models; coordinate with relevant ministries and branches to support research activities and technology transfer projects.

4.1.4. Application of technology in waste treatment

The Government and Ministry of Natural Resources and Environment actively coordinate with relevant ministries, branches and localities in selecting solid waste treatment technology suitable to practical conditions of Vietnam in the direction of reducing the waste

rate, increasing the rate of waste being recycled and reused. Invest in local waste treatment plants, put garbage treatment plants into operation; develop and implement programs and plans for waste separation at source.

4.1.5. Mobilizing the participation of the community

Promote the implementation of communication programs on green growth, low-waste, low-carbon economic development, circular economy in the direction of content innovation, diversifying forms of communication suitable to each audience, regions; promote the socialization of training and communication activities on the environment.

Implement a strong communication program to form a broad movement of the entire population to participate in environmental protection, especially in sorting waste at source, limiting the use of plastic and non-degradable plastic bags, and using Once, protect the wild species.

Discovering, setting an example, creating a movement, replicating good and good environmental examples, regions, models, and ways of doing things; promoting positive factors, bright spots, typical areas, areas and fields of the environment in order to create positive changes, gradually reducing or narrowing polluting areas, types and objects, adverse impact on the environment.

4.2. Conclusion

In the period 2016 - 2020, Vietnam's economy maintains a high growth rate, which means that a large amount of waste has been generated to the environment, negatively affecting the economic situation of the region and the environment. has had a very serious impact on environmental components. The relevant Ministries and sectors have synchronously implemented many important and effective solutions to step by step control the pollution increase rate, overcome problems and environmental hot spots. Although many of the above positive results have been achieved, the situation of environmental pollution continues to be complicated on the environmental components of which the most significant is air pollution. Therefore, in order to do well in environmental protection in the coming time, it requires drastic direction, the participation of the whole political system with very high determination from the central to local levels.

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FACTORS AFFECTING THE SUSTAINABLE DEVELOPMENT OF RENEWABLE ENERGY: CASE STUDY ON SOLAR POWER IN DA NANG CITY

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Abstract

Vietnam is currently one of the fastest-growing economies in the world. Along with the development of the economy, Vietnam's electricity consumption demand has increased significantly in the recent decade. According to EVN, the average annual growth rate of electricity consumption is about 11%. According to data about the climate of Da Nang city from RETScreen software provided by NASA: Da Nang is located in a tropical climate zone, with an average temperature of about 26°C and a relatively high number of sunny hours a year around 2000 - 2600 hours/year, has a high solar heat radiation potential of about 4.87 kWh/m²/day. This is favorable for exploiting solar power to serve industries in Da Nang city. Solar power will partially replace electricity and other forms of fossil energy such as coal, oil, gas, etc., to reduce production and operating costs and use energy economically and efficiently. The study has identified the factors that affect the sustainable development of solar power in Da Nang; the results of this study help relevant agencies business owners to apply and replicate the application. Solutions to save energy using solar energy sources in

Da Nang city and a valuable reference document for provinces across the country to study and apply.

Keywords: *Solar power, Renewable energy, Danang, Vietnam*

1. Introduction

Energy-intensive companies can make a positive contribution to increasing solar energy usage if business owners actively participate in the work of replacing energy sources and using power by the electricity. application of the power of the face of the public host [2].

The identification of industrial fields with significant potential for solar energy application to meet business requirements is an inevitable trend in line with the Government's development policy to promote the development of solar energy. Rooftop solar power projects help reduce the load on the grid. Moreover, when installing solar power systems at factories, businesses not only save operating costs when they are self-sufficient in some of their electricity consumption needs, but also can sell to the national grid. family. Therefore, the potential application of solar energy for industries needs to be replicated nationwide

Da Nang is a political-economic center of Central Vietnam, according to a report by the General Statistics Office [3], in January 2018, Da Nang leads in industrial growth with a growth rate of 48, 7%. Along with the rapid growth of industries in the city, the demand for electricity is increasing rapidly, leading to an increase in investment capital to develop the power system to meet the reliability of power supply for industrial parks. Karma. The economical and efficient use of energy as well as the exploitation of solar energy to reduce the amount of electricity consumed from the national grid and fossil energy sources are essential to contribute to the goal of of the whole country on keeping the environment clean and reducing greenhouse gas emissions as committed

2. Method

Renewable energy is a broad, scientific concept that is currently being conceptualized in many different ways. A physical science approach, whereby renewable energy is understood as energy sources or methods of energy extraction that, if measured by human standards, are limitless. Infinite has two meanings: (i) energy exists so much that it cannot become exhausted because of human use (eg solar energy); (ii) short-term and continuous self-renewable energy (e.g. biomass) in processes that continue for a long time on earth. **renewable energy** approach, no matter how it is considered, shows that these are non-fossilized, renewable forms of energy, including: small hydroelectric sources, marine energy (generation electricity by waves, tides, ocean currents), wind energy, solar energy, geothermal energy; biomass energy and biofuels.

Regarding the theoretical models related to consumer behavioral intention, there are many theories, typically: Technology approach theory and model (TAM) was developed by FDDavis (1989) based on the theory. “Theory of Reasoned Action”, proposed by Ajzen.

Many researchers have developed components from this TAM model into new technology acceptance theory (TAM2). According to this technology acceptance theory, customers' desire to use technology depends on factors such as: (i) perceived ease of use; (ii) perceived ease of use. There are 3 factors that need to be taken into account constituting the TAM technology acceptance model, including: (i) Perceive Usefulness (PU); (ii) Perceive Easy of Use (PEU) and (iii) Attitude towards use

However, depending on the characteristics of the technology, many researchers have added some features in the use of different technologies (Adams, Nelson, Todd (1992); Venkatesh, Davis (2000). In high-tech services, in addition to the factors in the theory of technology acceptance, there are other characteristics, such as: the risk caused by the use of technology, the perceived cost... like Venkatesh (2000) , Venkatesh, Morris, Davis, Davis (2003), or Workman's (2007), Venkatesh, Bala, (2008),...

On the basis of previous studies, this study continues to use the technology acceptance model based on the concepts in the extended Davis (1989) TAM model to solve the behavior in the intention to use technology. solar energy technology in Da Nang city. The study has included specific variables affecting the application of this service based on the concepts of this TAM model, including perceived usefulness, perceived ease of use, perceived cost perceived risk. In there:

Usefulness: is the degree to which you believe that using solar technology in Danang will improve job performance.

Perceived ease of use: is the degree to which it is believed that using solar power technology in Danang will take no effort.

Perceived risk: is the risk that households perceive when using solar power technology in Da Nang.

Perceived convenience: is the convenience that households feel when using solar power technology in Da Nang.

Policies on the use of solar power: are the government's incentive policies when using solar power technology in Da Nang.

Perceived cost: is the cost that households perceive when using solar power technology in Da Nang.

Trust: is the belief in the use of solar power technology in Da Nang

Intent to use: expressing intention and interest in using solar power technology

3. Results

3.1. Current status of solar energy development

3.1.1. Solar energy, potential and technology to exploit solar energy

Solar energy is electromagnetic radiation produced by the sun. It is the cleanest, most abundant source of renewable energy available for use on earth and is estimated at 3.8 million EJ, more than 10,000 times the consumption of fossil fuels and nuclear fuel. consumed in 2002. Solar energy that keeps the earth's surface at a temperature warm enough to support human life can be converted into useful forms of energy through thermal conversion, photosynthesis electrically or through high-temperature centralized receivers. Solar energy has long been captured through collectors and used for heating purposes very efficiently. The total installed capacity of solar thermal energy systems in the world increased from 62 GWth (89x10⁶ m²) in 2000 to 472 GWth (675x10⁶ m²) in 2017, corresponding to an increase in heat production from 51 TWh. in 2000 to 388 TWh in 2017 [6].

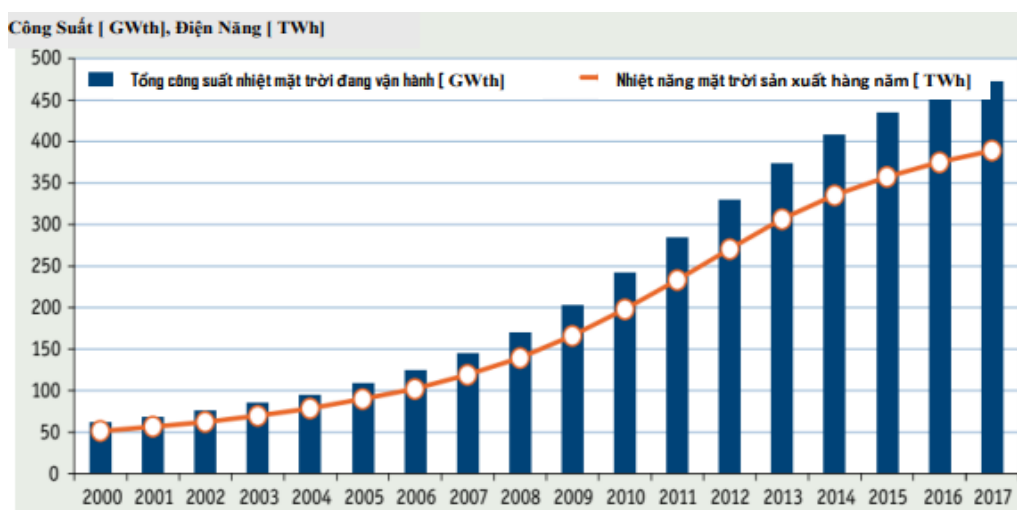


Figure 1. Installed capacity of solar thermal systems in the world and annual thermal energy 2000 – 2017

Source: Solar thermal worldwide 2018 [6]

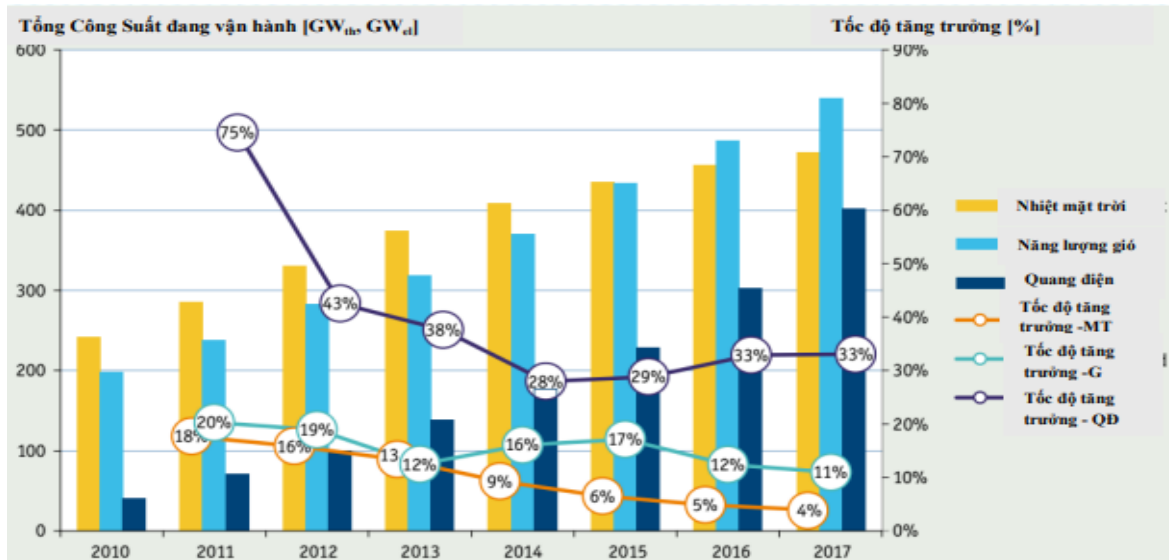


Figure 2. Installed capacity of wind and solar energy systems in the world and growth rate from 2010 to 2017

Source: AEE INTEC, Global Wind Energy Council (GWEC), SolarPower Europe, REN21 - Global Status Report 2011 - 2018

Solar radiation can also be converted directly into electrical energy through the use of photovoltaic cells [7]. The above data shows that the development rate of solar battery systems is much faster than that of solar thermal and wind energy systems.

3.1.2. Solar potential in Vietnam

Vietnam is one of the countries rich in solar energy potential. Scientists estimate the average solar radiation intensity about 5 kWh/m²/day (1,825kWh/m²/year) [8]. Solar energy in Vietnam is available all year round, is quite stable and widely distributed across different regions of the country.

Table 1. Solar radiation data in Vietnam

Region	Sunshine hour of the year	Solar radiation intensity (kWh/m ² /day)	Evaluate
Northeast	1600-1750	3,3-4,1	Medium
Northwest	1750-1800	4,1-4,9	Medium
North Central	1700-2000	4,6-5,2	Good
Central Highlands and South Central	2000-2600	4,9-5,7	Very good
Southern	2200-2500	4,3-4,9	Very good
National average	1700-2500	4,6	Good

The provinces from Da Nang on average have about 2,000-2,600 hours of sunshine, the amount of solar radiation increased by 20% compared to the northern provinces. Therefore, for localities in the South Central and South Vietnam, the source of solar radiation is a great resource to exploit and use. Solar energy can be used to successfully develop the solar energy industry, including solar photovoltaic (PV) as well as solar thermal (ST) applications for the production of heat for hot water. services for commercial, industrial and civil purposes. A

recent study by the German development cooperation agency in May 2015 [10] estimated that in two decades, rooftop solar PV systems could reach capacities from (2,000 -5,000 USD).) MW and solar power plants using solar cells can reach a capacity of 20,000 MW. Although the potential of solar thermal radiation in Vietnam is very high, in fact, the implementation of new solar energy applications is in the first stage, only a few projects with small capacity have been inaugurated and put into operation. into mining. According to statistics as of May 15, 2019, Vietnam has a total installed capacity of 866.5 MW including 10 solar power plants and 1800 rooftop solar power plants.

Table 2. Solar power plants put into operation

No.	Project	Province	Total installed capacity (MW)	Annual power output (GWh)	Test run
1	TCC Phong Điền	Hue	35	60	05/10/2018
2	TCC Krông Pa	Gia Lai	49	103	04/11/2018
3	BP Solar 1	Ninh Thuan	37,5	74	20/01/2019
4	Vĩnh Tân	Binh Thuan	6,2	10,5	30/1/2019
5	BP Solar 1	Ninh Thuan	100	74	20/01/2019
6	Srepok 1 and Quang Minh	Dak Lak	19,2	150	09/03/2019
7	Mộ Đức	Quảng Ngãi	204	35	26/04/2019
8	Trung Nam	Ninh Thuận	330	450	27/04/2019
9	BIM	Ninh Thuận	20,5	600	27/04/2019
10	Đắk Mi	Bình Thuận	30,12		13/05/2019

Source: Vu Quang Dang, energy expert, May 2019

In particular, after the Prime Minister issued Decision No. 11/2017/QĐ-TTg dated April 11, 2017 on the mechanism to encourage the development of solar power projects in Vietnam, many solar power plant projects According to data from Electricity of Vietnam (EVN), after 2 years of implementation, up to now, there have been 365 registered and supplemented solar power projects. added to the plan with the total expected capacity 29,000 MWp. Currently, there are 141 projects added to the plan with a total capacity of over 14.00 MWp, of which 95 projects have signed power purchase agreements with EVN. As for roof-mounted solar power, after 2 years, only 1,800 customers (offices, businesses, households...) have joined offices, businesses, households, and accumulated electricity output to the grid. is 3.97 million kWh. This capacity is very modest compared to the potential.

As for rooftop solar power, although the rooftop solar power potential is assessed to reach a capacity of (2,000 -5,000) MW, according to EVN data [11], by the end of February 2019, only There are 1800 rooftop solar power projects deployed across the country, with a total installed capacity of 30 MWp. Some typical grid-connected rooftop solar power projects for commercial and industrial purposes with a capacity of over 100 kWp have been deployed and put into operation.

Currently, the deployment and installation of equipment using solar thermal energy is quite popular [10]. About 30,000 to 40,000 domestic solar hot water systems are installed annually for small-scale residential and commercial purposes, totaling an estimated 100,000 systems operating nationwide, corresponding to installed capacity is about 280 MWth with an annual capacity of 340 GWh. Up to now, only a few large-scale commercial and industrial solar thermal systems have been mentioned in the reports.

3.1.3. Current status of solar energy use in Da Nang city

Currently, the deployment of solar energy exploitation applications in Da Nang is at the beginning stage, most of the solar energy exploitation systems are heating for hot water for domestic and commercial purposes, only one several systems for industrial purposes

The deployment and installation of rooftop solar battery systems has only just begun, according to data from Da Nang Power Company provided by July 2018, a total of only 29 agencies and businesses. Businesses and households have registered to sell rooftop solar power to Da Nang Power Company with a relatively small installed capacity of 192.79 kWp. In addition to the systems registered to sell electricity to Da Nang Power Company, a small number of rooftop solar PVs with larger capacity are installed to produce electricity to serve the needs of the units.

After issuing Official Letter 1532/EVN-KD dated March 27, 2019 of the Electricity of Vietnam on guiding the implementation of rooftop solar power projects, Central Power Corporation (CPC)) held a seminar "Developing rooftop solar power" on April 19, 2019, DSED organized a training program "Developing rooftop solar power in Da Nang towards efficient and sustainable energy use". sustainable" on April 25, 2019, and especially on May 16, 2019 Vietnamese television station in Da Nang city VTV8 organizes a live TV program following the current news with the theme "Use electricity to get more money" , the awareness of people and businesses about rooftop solar power increased very quickly, by the end of May 2019, there were 157 households and businesses in Da Nang installed rooftop solar power. with a capacity of 1,028 kWp. With the rapid development of rooftop solar power, people and businesses in Da Nang aim to use energy efficiently and sustainably.

3.2. Research model and hypotheses

On the basis of theory and empirical studies as mentioned above, the research model of factors affecting the intention to use solar power in Da Nang City is as follows:

The proposed hypotheses to be tested in this study are as follows:

H1: Perceived usefulness of solar power technology has a positive (+) impact on intention to use solar energy.

H2: Perceived ease of use of solar power technology has a positive (+) effect on intention to use solar energy.

H3: Perceived risk of solar power technology has a negative (-) impact on intention to use solar energy.

H4: Perceived convenience of solar power technology has a positive (+) impact on intention to use solar energy.

H5: The policy on the use of solar power has a positive (+) impact on the intention to use solar power.

H6: Perceived cost has a negative effect (-) on intention to use solar power.

H7: Trust has a positive effect (+) on intention to use solar energy.

3.3. Research Methods

The methodology in this study consists of two steps: preliminary research and formal research. Preliminary research using group discussion skills to calibrate the model and design the questionnaire. The formal study used closed-ended questionnaires modified during the preliminary study to collect and analyze data to test models and hypotheses. All research data will be supported by SPSS software.

3.3.1. The scale

To measure research concepts, the author uses a 5-point Likert scale with 1: completely disagree to 5 completely agree for 26 observed variables.

H1: Perceived usefulness is measured by 4 observed variables, including: Using solar power as a renewable and inexhaustible source of energy, using solar power as a renewable energy source less polluting the environment, using solar power saves costs in the long run, using solar power helps to be more active in daily life and production.

H2: Perception of the ease of use of solar **power technology** measured by 3 observed variables, including: Easy installation and maintenance of solar power equipment, using solar power is easy to use, given that solar power equipment is easy to operate.

H3: Perceived risk is measured by 6 observed variables, including: Products and services are not the same as guaranteed under warranty, the quality of solar panels is not as expected. Expectations about longevity, poor quality, slow payback, solar panels can produce harmful substances into the environment, the use and sale of solar energy depends on the government. According to the State's policy, the life of solar panels is reduced compared to the transaction.

H4: Perceived convenience is measured by 4 observed variables, including: Solar energy can be used anywhere, solar energy is active in daily life and production, installation Installing solar power is easy to implement, not technically difficult, and the production and use of solar power matches the time frame of high demand.

H5: The policy on the use of solar power is measured by 3 observed variables, including: The government needs to facilitate the deployment of solar power technology application, financial support for the development of solar energy. installed in Da Nang on the development of solar power, and it is necessary to issue regulations on the development of solar power in Da Nang

H6: Perceived cost is measured by 3 observed variables, including: Cost of installing solar power system in line with income. Cost is the most important factor when installing solar power technology, the cost of installing solar power technology is competitive compared to other energy sources.

H7: Trust is measured by 3 observed variables, including: complete trust in the consulting/providing services of consultants on solar power technology, complete confidence

in the provision of solar energy technology. power output from excess solar power (if any), fully believe in the mechanism and policy of investment in energy infrastructure.

3.3.2. Survey sample and study site

According to Bentler & Chou (1987), the minimum number of samples for an estimator is 5 samples. In this study, there are 29 observed variables, so the required number of samples is 145 (Nguyen Dinh Tho, 2011). However, to ensure representativeness of the population, this study will survey 279 samples. The study sample was selected by non-probability quota sampling method with a sample size of 279.

Scale test results

The scale is evaluated through the following methods: reliability assessment, exploratory factor analysis. Evaluating the scale through Cronbach's Alpha coefficient allows assessing the reliability of establishing a composite variable on the basis of many single variables. To calculate Cronbach's Alpha for a scale, there must be at least 3 measurement variables. Cronbach's Alpha coefficient has a variable value in the range [0,1] and the total correlation coefficients are all greater than 0.3.

In the results of testing the reliability of the observed variable, the correlation coefficient of the perceived usefulness variable is 0.721; of perceived ease of use margin is 0.927; of the perceived risk variable is 0.987; of the perceived variable of convenience is 0.828; of the policy margin on the use of solar energy is 0.802; of the perceived cost of solar power system investment is 0.620; of the perceived variable of trust in buying, selling and using solar energy is 0.858; of intention margin for the use of solar energy in Da Nang is 0.831.

Thus, the observed variables are not uniformly required and no variables are excluded and the component variables in the study all have a fairly high confidence coefficient.

Exploratory analysis results

Exploratory factor analysis is used to test the validity of the scale's concepts. Observable variables with factor loading weights less than 0.4 will be excluded (Clack & Watson, 1995). In this study, the method of extracting the coefficients of the main components (Principal components) is used with the factor rotation is Varimax and the index represents the amount of variation explained by the factor greater than 1 (Eigenvalue > 1). (Ngoc & Trong, 2005). A total extracted variance value greater than or equal to 0.5 will be accepted (Hair et al., 1998).

In exploratory analysis, the analysis results draw out 5 factors. KMO coefficient = 0.913 with significance level of 0.000. Research results have given 5 factors with factor weighting coefficients greater than 0.4. At levels of Engenvalue greater than 1, 5 factors have been extracted with extracted variance of 71,666%. This means that 5 factors explain 71,666% of the variability of the data. Besides, most of the variables have factor loading coefficients greater than 0.4. Thus, the scales reach convergence value.

There are 5 factors drawn including: (i) Risks caused by using solar power equipment (RIST); (ii) Convenience and confidence when using solar power equipment (TRUSCONV); (iii) Ease of use of solar power equipment (EAS); (iv) Government utility and policy towards solar power (GOVUTIL); (v) Cost of installing solar power equipment (COST).

From the results of EFA analysis, it shows that the scale is extracted into 5 corresponding factors, these factors have factor loading coefficients of 0.4 or more, so the scales have convergence. However, there are a number of scale components that all belong to different factors. Therefore, the scales are not unidirectional.

Results of regression analysis and hypothesis testing

The results of regression model estimation by OLS estimation method with dependent variable BI and independent variables RIST, TRUSCONV, EAS, GOVUTIL, COST, showed that the data set explained the variation of the dependent variable. The dependence on the independent variables of the model is quite good. From the R^2 Adjusted index, it shows that the data set has explained 65.5% of the influence of the independent variables on the dependent variable, the statistical index $F = 34,137$ at the significance level of 0.000 (Sig. = 0.000) with the assumptions of multiple regression being satisfied. In which, most of the explanatory variables have the expected sign and have statistical significance at 1% significance level. Factors with positive regression coefficients imply that, if other factors are constant, an increase of one unit of the independent variable will increase the intention to use solar technology by β units (where β is the regression coefficient). In contrast, for factors with negative sign (-) regression coefficient, an increase of 1 unit of the independent variable will reduce the use of solar technology by β unit (with β is the regression coefficient).

The results show that, 4 out of 5 factors of the model have a statistically significant influence on the intention to use solar power technology in Da Nang city. In which, the factor Perceived cost of installing solar power equipment has the greatest influence; Perceived usefulness and Government policy has the second biggest influence; Perception of convenience and confidence when using solar power technology has the third biggest influence; Perceived ease of use of solar technology has the smallest effect. The results of the analysis are shown in Table.

Perceived factor of convenience and trust when using solar power equipment ($\beta = 0.446$): This factor has a regression coefficient of $\beta = 0.446$. Thus, if other factors remain the same, when the perception of convenience and trust when using solar power equipment increases by 01 point on the 5-point Likert scale, the intention to use solar energy increases by 1 point. Da Nang's solar power in Da Nang increased to 0.446 points. Thus, if Da Nang is locally aware of the convenience and confidence in using solar power equipment, they will increase their intention to use this type of energy for Da Nang. The analysis results of the scale components in this factor are the lowest 1 and the highest 5. The average score ranges from 2.9913 to 3.9561 points on the 5-point Likert scale.

Perceived factor about the ease of use of solar power equipment ($\beta = 0.250$): This factor has a regression coefficient of $\beta = 0.250$. Thus, if other factors are held constant, when the perception of ease of use of solar power technology increases by 1 point on the 5-point Likert scale, the intention to use solar power technology increases by 1 point. of Da Nang in Da Nang increased to 0.250 points. Thus, if local people perceive the ease of use of solar power technology, they will increase their intention to use this type of energy. The analysis

results of the scale components in this factor are the lowest 2 and the highest 5. The average score ranges from 3.3313 to 3.5826 points on the 5-point Likert scale.

Factor perceived usefulness and government policy ($\beta = 0.479$): This factor has a regression coefficient of $\beta = 0.479$. Thus, if other factors are constant, when Da Nang perceives the usefulness and the government's policy on the use of solar energy increases by 1 point on the 5-point Likert scale, the intention to use solar energy increases by 1 point. Da Nang's solar power in Da Nang city increased to 0.479 points. It can be seen that if the locality perceives the usefulness and the Government's policy on using solar power technology, they will increase their intention to use this type of energy. The analysis results of the scale components in this factor are the lowest 1 and the highest 5. The average score of the scales is quite high, ranging from 4,5304 - 4,991 points on the 5-point Likert scale.

Perceived factor about the cost of installing solar power equipment: This factor has a regression coefficient of $\beta = 0.368$. Thus, if other factors remain constant, when Da Nang's perception of the installation cost of solar power technology increases by 1 point on the 5-point Likert scale, then the intention to use solar energy technology Da Nang's sun in Da Nang City increased to 0.368 points. The analysis results of the scale components in this factor are the lowest 2 and the highest 5. The average score of the scales is quite high, ranging from 2.7977 to 3,956 points on the 5-point Likert scale.

Regression analysis results show that only 4 out of 5 factors have an impact on **use of solar energy** in Da Nang city, that is: perceived usefulness and ease of use have the greatest impact; Perceived trust has the second biggest impact; perceived convenience in using solar power has the third biggest impact; ease of use in installation, maintenance, operation with minimal impact. In which, 4 factors have a positive impact on the intention to use solar power in Da Nang and have statistical significance at the Sig.= 0.000 significance level.

The research results of the topic are quite similar to the studies of the author (Davis, 1989). These studies all use technology acceptance model (TAM) as the base model. In the author's research (Davis, 1989), there are perceived usefulness and ease of use, Da Nang's trust factor and perceived risk factor mentioned similar to the research results. . In which, the perceived usefulness and ease of use and the trust factor of Da Nang have a positive influence on Da Nang's attitude in using solar power technology. In the author's study, the factors of perceived usefulness, perceived ease of use, convenience, trust of Da Nang and perceived risk are similar to the research results. The perceived usefulness, perceived ease of use, convenience, and trust factors of Da Nang all have a positive impact on the intention to use solar power technology. The risk perception factor was not statistically significant. Through relevant studies at home and abroad, the author can draw conclusions and research results that are quite consistent with the reality and the factors that affect the intention to use solar power technology. heaven in Vietnam in general and in Da Nang city in particular.

4. Discussion and Conclusion

First, promote the usefulness and ease of use of technology. Promote propaganda and dissemination of knowledge, documents, leaflets, brochures, organize seminars, training and

training on the usefulness and ease of use of solar power technology. First of all, propaganda for cadres, civil servants, public employees and business sectors in the city; Next are the people about the usefulness and ease of use of the technology of solar power. In addition, propagandize the importance, about the great economic, social and environmental protection of the development and use of renewable energy in the process of sustainable development, so that there are practical actions to contribute to the development and use of renewable energy.

Second, reduce risks in using solar power. In fact, there are many factories at home and abroad that manufacture solar panels. Therefore, for Da Nang who intend to invest in solar power (attic), choosing solar panels is a difficult problem for them, because there is not enough information to determine What are the good or bad quality products? Da Nang needs to pay attention to the following information: (i) Certificate of quality insurance issued by independent insurance companies. This is common practice in international trade, especially for high-tech products; (ii) Manufacturers of solar panels must be certified to meet international standards IEC (International Electrotechnical Commission) and UL standards (Underwriters Laboratories Inc.). IEC and UL standards differ greatly. IEC standards specify minimum equipment safety requirements. UL standards by contrast provide comprehensive specifications for product safety and application; (iii) Solar panels must have a design solution against potential inductive degradation - PID (Potential Induced Degradation); (iv) For each shipment of solar panels, upon delivery, the seller must provide the buyer with an ex-factory inspection report for each model indicating the product's serial number; (v) After the purchase - sale contract is signed, the seller must facilitate the buyer to visit/survey at the manufacturing plant at the right time to test the output and pack the products for release. solar battery.

Third, support the cost of investing in solar power equipment for Da Nang. The development of rooftop voltage energy has many obstacles, such as high investment costs; lack of information on product quality, construction unit, installation and operation and maintenance mode. In the coming time, authorities or management agencies need to step up propaganda work so that each Danang can understand the economic benefits as well as investment capital, the usefulness and ease of use of technology. and environmental friendliness. Since then, the State should have mechanisms and policies to support the investment costs of rooftop electric energy equipment for Da Nang and a number of other policies, specifically: Credit support policies; support each Da Nang to install 1 kWh roof voltage energy, support 3 million VND but not more than 9 million VND from the environmental protection fund; or exempting Da Nang from tax for the period not yet paying back; at the same time, establish a center to support operation, maintenance and consulting on rooftop voltage energy...

In addition, promulgating mechanisms and policies for preferential loans (low interest rates), simple and convenient loan procedures for all Da Nang; create conditions for domestic and foreign donors to support Da Nang to install roof voltage.

Fourth, there is a policy of buying - selling electricity for **Da Nang** using rooftop voltage energy. In the context that the power system is under a lot of pressure to ensure electricity supply, especially after 2020, when there is no new source of exploitation in the

whole country, the development of rooftop solar power for Da Nang is considered an important consideration. is one of the solutions contributing to reduce pressure on the Power industry; At the same time, this is also a favorable condition to accompany the country's economic development in the future.

With the goal of developing solar power to reach 1GWp by 2020, the Prime Minister issued Decision No. 2068/QĐ-TTg dated November 25, 2015 approving Vietnam's renewable energy development strategy to 2030, vision to 2050; Decision No. 11/2017/QĐ-TTg dated April 11, 2017 on the mechanism to encourage the development of solar power projects in Vietnam (Decision 11) and Decision No. 02/2019QĐ-TTg dated January 8 2019 of the Prime Minister on amendments and supplements to a number of articles of Decision No. 11; The Ministry of Industry and Trade issued Circular No. 16/2017/TT-BCT dated September 12, 2017 stipulating project development and sample power purchase agreement applicable to solar power projects (Circular 16) and Most recently , Circular No. 05/2019/TT-BCT was issued on March 11, 2019 on amending and supplementing a number of articles of Circular 16. In order to improve the mechanisms and policies of electricity purchase and sale between units. electricity with Da Nang investing in rooftop electric energy for living and doing business.

The application of the expanded technology acceptance theoretical model in explaining the intention to use new solar power technology stops at the survey level in Da Nang city, which is one of the localities in the world. selected to be the national center of renewable energy, and at the same time used the traditional regression analysis method to test the intention to use solar power technology in Da Nang for the research variables. The generality and persuasiveness of the study will be higher if the research model evaluates the impact shown from the intention to use the service to the actual installation investment. This is also a direction for further research.

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VIETNAM IN RESPONDING TO CLIMATE CHANGE: PERSPECTIVES, PRACTICES AND SOLUTIONS

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Abstract

The research focuses on the topic of Vietnam's response to climate change from the perspective of contemporary political theory, based on reliable and latest sources, using basic research methods of political science which are logic and history. The conference paper explores the following points: (1) The core perspectives and policies of the ruling Party (Vietnam Communist Party) and the Vietnamese Government through international commitments and the process of responding to climate change in the context of global political wills are “not enough” to respond to climate change and the world is still standing on “the verge of climate catastrophe”; (2) Practical implementation of activities, international cooperation and initial results on responding to climate change, as well as Vietnam's leading role in the global fight to respond to climate change; (3) Detecting some problems posed by Vietnam's response to climate change over the past few years and suggesting some solutions with the expectation of contributing to improving the effectiveness of climate change response in Vietnam in the future.

Keywords: *Climate change, climate change response, Vietnam's perspective*

1. Introduction

The article is written on the basis of political research arguments and theories; documents used in the research are collected from highly reliable official sources; this article is a product of individual research.

The objective is to clarify a) world's view and the current state of climate change response in the world; thereby contributing to identifying the challenges that the world is facing when responding to climate change; b) perspective and current state of Vietnam's climate change response; thereby suggesting solutions for Vietnam to responding to climate change in the coming time.

2. Method

The basic research methodology of the article is political jurisprudence; the evidence-based analysis, interpretation, and assessment of climate change responses; assessment of the current situation of climate change response in chronological order, thereby clarifying the progress of climate change response in Vietnam over the years.

3. Result

The article has answered the following research questions: The threats of climate change to humanity; The world's political views about climate change response? Perspectives and current state of Vietnam's climate change response? Effective solutions for Vietnam to responding to future climate change and other problems.

3.1. Vietnam's perspective on climate change response in the global political context

✚ Global political will is "not enough" to respond to climate change


Climate change is a global threat, no country can live in peace with the rapid shift in the climate system. US President Joe Biden called climate change an "existential threat to human existence". In December 2015, at the United Nations Climate Change Conference, more than 190 countries ratified the Paris Agreement on climate change. The Agreement's goal is to limit global temperature rise to 1.5 to 2 degrees Celsius. The Paris Agreement has been hailed as "an unprecedented victory on the environmental issue" (Phung, 2021). But difficulties and obstacles came from a number of countries in the process of implementing the Paris Agreement. Specifically, less than a year after the Paris Agreement was signed, US President Donald Trump officially announced the US withdrawal from the Paris Agreement; China is the world's largest carbon dioxide emitter, but China's current actions are considered "very inadequate" to achieve the target it has committed to (David Brown, 2021); and the status of many countries participating in the Paris Agreement has been more of an "empty commitment". United Nations climate envoy Christiana Figueres said that the implementation of the Paris Agreement on climate change still seems to be "stagnant" (Anh, 2020).

Facing the direct threat of climate change to human life, the United Nations has issued a statement calling on the international community to urgently scale up actions and strengthen cooperation to reduce the impacts of global warming; Pope Francis, Archbishop of Canterbury Justin Welby and Patriarch Bartholomew I issued a joint statement (September 7, 2021), stating, "We call on everyone, whatever their belief or worldview, to endeavour to listen to the cry of the earth and of people who are poor, examining their behaviour and pledging meaningful sacrifices for the sake of the earth" (Anh, 2021) at the same time an environmental movement was started because of the warning that climate change is negatively affecting the Earth. In particular, the Swedish environmental activist, Greta Thunberg (17 years old) crossed the Atlantic Ocean by sailing boat to convey the message of reducing carbon emissions.

Rome - the The Group of Twenty (G20) Summit. Although the Group of 20 meeting reached an agreement on climate, this agreement was assessed as "lacking significant breakthroughs on concrete commitments" (Trang (2021) because of its general commitment language such as "stepping down investment on coal power production as soon as possible"... The progress and agreement of the Summit showed that the G20 countries, although they have felt the "threat" and the "urgency" of responding to change climate, they do not have enough political responsibility and will to solve the problem (An, 2021).

Another important environmental event also took place during this time, which was the United Nations Climate Change Summit (COP26) on November 1, 2021, in Glasgow (Scotland, United Kingdom). Many argue that COP26 is the last chance we have to save humanity's destiny from the "climate catastrophe". After two weeks of intense negotiations, the Glasgow Climate Agreement was approved by 197 countries with wording compromises (such as the demand for "gradual elimination of coal" being revised down to "gradual reduction of coal"). Commenting on the Glasgow Climate Agreement, United Nations Secretary-General António Guterres affirmed that progress made by the Glasgow Climate Agreement was still

not enough "We are still on the verge of climate catastrophe" (Tien, 2021) and COP26 President Alok Sharma said: The Glasgow climate treaty is "not perfect" (Binh, 2021)

 *Vietnam's perspective on responding to climate change*

In a study on the impact of climate change on developing countries by World Bank, forecast from 2007 shows that Vietnam is one of the 10 countries most vulnerable to the impacts of climate change.

According to the forecast, "by the end of the 21st century, when the temperature increases by 3.4 degrees Celsius, the sea level increases by 1 meter, about 40% of the land area of the Mekong Delta will be permanently inundated, about 10% of the population will be directly affected because of land loss. The Red River Delta will have 240,000 hectares of agricultural land affected. For coastal areas, the biggest impacts of climate change are storms, tropical depressions and more intense droughts, floods and landslides" (Nham, 2021).

Table 1. Forecasted impacts of 1 meter sea level rise in Vietnam

	Total	Impact (absolute value)	Impact (%)
Area (km ²)	328.535	16.977	5,17
Population (millions of people)	78,137	8,437	10,8
GDP (billion USD)	154,787	15,805	10,21
Urban area (km ²)	5.904	634	10,74
Agricultural area (km ²)	192.816	13.773	7,14
Wetland (km ²)	46.179	13.241	28,67

Source: Do Nam Thang extracted from the study of Dasgupta et al. 2007 (Excerpt from Assoc. Prof. Dr. Nguyen The Chinh: Impact of climate change on our country: Current situation, new problems and solutions, updated on June 17, 2020, <http://hdl.vn/en/nghien-cuu---trao-doi/anh-huong-cua-bien-doi-khi-hau-doi-voi-nuoc-ta-thuc-trang-nhung-van-de-moi-dat-rava-giai-phap.html>).

Climate change affects many economic activities of the country such as: Affecting production activities of the agricultural sector (drought and saltwater intrusion reduce crop yields; negatively affecting livestock production, forestry, biodiversity, forest fires, wetland ecosystems, aquaculture); affecting transportation activities; affecting urban development, industrial zones and housing; affecting tourism and trade; affecting the industry in many ways (if the sea level rises by 1 meter, most of the coastal industrial zones will be flooded)

Climate change also affects people's lives, such as women's jobs, health, household economy and migration.

The ruling Party (Communist Party of Vietnam) and the Government of Vietnam are increasingly aware that climate change is not only a challenge for Vietnam, but also the biggest challenge for humanity. Vietnam considers responding to global climate change a political responsibility of all countries, especially the responsibility of developed countries and countries that emit a lot of greenhouse gases in the world.

Vietnamese Government has joined the signing of the Climate Convention on June 11, 1992 and the Kyoto Protocol on December 3, 1998; At the 21st Conference of the Parties

to the United Nations Framework Convention on Climate Change, December 2015 (COP21), Vietnam committed to actively implementing the national target program and strategy on responding to climate change in many areas; commit to strictly comply with the obligations under the United Nations Framework Convention on Climate Change and the Kyoto Protocol; committed to reducing greenhouse gas emissions by 8% by 2030 (Anh, 2015); Vietnam joined the signing of the Paris Agreement on climate change on April 22, 2016. At the online G20 Summit (November 22, 2020), the Prime Minister of Vietnam suggested that "the G20, with the cooperation of the United Nations, WB, IMF, WTO... should actively create new foundations for development, such as transforming the digital economy, circular economy, green growth ... to overcome challenges and narrow the development gap between countries" (Tuan, 2021). At the United Nations Climate Change Summit (COP26) in 2021, the Prime Minister of Vietnam affirmed: Climate change has really become the biggest challenge facing humanity, even threatening the perils of many countries and populations, forcing us to act forcefully and without delay on a global scale; Vietnam recommends that all countries make strong commitments to reduce greenhouse gas emissions; Vietnam believes that, to win the global battle with climate change, global solidarity is the only way (Tien Phong Newspaper, 2021). Although Vietnam is a developing country that has just begun industrialization over the past three decades, it will "build and implement robust GHG emission reduction measures with its own resources.", with the cooperation and support of the international community, especially developed countries, both in terms of finance and technology transfer" (Nhan Dan Electronic Newspaper, 2021); Vietnam is committed to implementing mechanisms under the Paris Agreement, to achieve net emissions of "zero" by 2050" (Nham, 2021). Vietnam has joined "more than 100 countries in the commitment to reduce global methane emissions by 2030; join 140 countries in the leaders' Glasgow declaration on forests and land use; join 48 countries in the global declaration on converting coal power to clean energy; together with 150 countries participating in the Global Adaptation Action Coalition" (Chinh, 2022).

Strong commitments demonstrating Vietnam's political determination at COP26 have been highly appreciated by the United Nations and many countries, which strongly supported and affirming their readiness to cooperate with Vietnam in implementing response measures to address climate change. Ms. Tatiana Valoya, General Director of the United Nations Office in Geneva, said: "Vietnam is a developing country, but it has demonstrated its leading role and is a role model in combating climate change" (Thuong, 2021). US President Joe Biden also highly appreciated Vietnam's active participation and strong commitment at COP26; The US pledges to promote cooperation with Vietnam to tackle climate change (Thanh, 2021).

Regarding the perspectives of the ruling Party, the Communist Party of Vietnam has set forth many guidelines and decisions to respond to climate change. The 11th National Party Congress (January 2011) advocated: Bringing environmental protection into strategies, master plans, development plans for sectors, fields, regions and investment programs and projects; new construction investment projects and works must strictly comply with environmental protection regulations; actively research, evaluate and forecast the impacts of climate change; effectively implement the national target program on responding to climate

change (Communist Party of Vietnam, 2011). At the 12th National Party Congress (January 2016), the policy on responding to climate change was planned in more detail, such as formulating, deploying, inspecting and supervising the implementation of programs and plans to respond to climate change; appropriate investment and effective use of international assistance for national key projects and programs to respond to climate change (Communist Party of Vietnam, 2016)

The XIII Party Congress (January 20, 2021), affirmed that climate change adaptation is an urgent requirement and huge challenges for Vietnam in the coming time (Communist Party of Vietnam, 2021); Adaptation to climate change and environmental protection is one of the determinants of Vietnam sustainable development. Since then, responding to climate change has been identified as one of the six key tasks of Vietnam, with the following requirements: Strengthening and improving environmental protection; proactively and actively implementing solutions to adapt to climate change; building a legal system, policy and mechanism to monitor climate change; developing green economy, low waste, reducing greenhouse gas emissions; encouraging the development of a circular economic model (Communist Party of Vietnam, 2021). The issue of proactive and effective adaptation to climate change; resolutely eliminating projects that cause environmental pollution, ensuring the quality of the living environment, and protecting biodiversity and ecosystems; building a green, circular and environmentally friendly economy (Communist Party of Vietnam, 2021), which is considered as one of the country's development orientations in the 2021-2030 period. The Party's view considers responding to climate change as the highest priority in national development policy decisions; is the highest ethical standard of all levels, industries, businesses and people (Tien Phong Newspaper, 2021).

3.2. Current status of response to climate change and solutions

🚩 Actions to respond to climate change

Vietnam has issued strategies, policies, programs and plans to respond to global climate change, such as: National strategy on climate change; Target program to respond to climate change and green growth for the period 2016-2020; Plan for the implementation of the Paris Agreement on climate change; greenhouse gas emission management scheme; National plan to adapt to climate change for the period of 2021-2030, with a vision to 2050...

At the same time, Vietnam has developed and passed laws on responding to climate change, such as the Law on Natural Disaster Prevention, the Law on Irrigation, the Law on Water Resources, the Law on Economical and Efficient Use of Energy, Environmental Protection law.

In terms of practical actions, Vietnam has developed and replicated climate change adaptation models based on ecosystems, based on community and based on nature.

The implementation of the National Strategy on Climate Change for the period 2011-2020 has achieved results, such as: The amount of greenhouse gas emissions in energy activities decreased by 12.9% compared to other normal development options; energy consumption per GDP decreased by 1.8%/year on average; the percentage of industrial enterprises aware of clean production increased from 28% in 2010 to 46.9% in 2020; forest coverage rate reached 42% in 2020 (Nham, 2021)

Effective implementation of Vietnam's commitments at international conferences on combating climate change, especially at COP26, requires Vietnam to change its climate change response model. Taking the grassroots level as the foundation in implementing the commitment to respond to climate change and all actions must be "based on nature and people-centered, being the subject and driver of sustainable development" (Nhan Dan Electronic Newspaper, 2021).

Currently, the Government of Vietnam is implementing the National Strategy on Green Growth for the period 2021-2030, with a vision to 2050. With the goal by 2030, the intensity of greenhouse gas emissions per GDP will be reduced by at least 15% compared to by 2014 and by 2050, the intensity of greenhouse gas emissions per GDP will decrease by at least 30% (Nham, 2021); implement the Action Plan for Sustainable Agricultural Development Adapting to Climate Change in the Mekong Delta to 2030, with a vision to 2045.

At the first meeting (January 13, 2022) of the National Steering Committee to implement Vietnam's commitments at COP26, the Prime Minister requested that in the first quarter of 2022, ministries and sectors must actively develop programs and plans with the main tasks of focusing on "handling 8 issues: Green energy transformation, clean energy; reduce greenhouse gas emissions; reduce methane emissions; develop electric cars; planting forests to absorb CO₂; construction materials and urban development suitable for green and sustainable development; communication to encourage all people and business community to participate; accelerate digital transformation" (Chinh, 2021); In the second quarter, it will organize the methodical, drastic and effective implementation of the proposed tasks.

The Ministry of Natural Resources and Environment, as the standing body of the National Steering Committee, focuses on building capacity for forecasting, warning, proactively preventing, combating and mitigating natural disasters, and adapting to climate change. climate change; develop and replicate climate change adaptation models; implement measures to prevent, combat and limit the impact of high tides, floods and saltwater intrusion; implement solutions to limit groundwater exploitation in order to reduce subsidence and salinity in coastal areas, especially in the Mekong Delta; reduce greenhouse gas emissions and enhance the ability of ecosystems to absorb greenhouse gases (Minh, 2021).

The Ministry of Planning and Investment develops a national action plan on green growth for the period 2021-2030, with a vision to 2050, which sets out orientations for building and implementing a circular economy model in industrial parks, ecological industrial clusters and sustainable craft villages.

The Government promulgates policies to encourage local governments to actively respond to climate change with many renewable energy projects such as wind power and solar power. In March 2019, the Serepok solar power project in Ea Wer commune, Buon Don district (Dak Lak) was inaugurated with an annual capacity of supplying the national electricity grid with about 150 million kWh, investment budget of about 300 billion VND; Wind energy in Dak Lak is also deployed along with the Central Highlands wind power project in Dlie Yang commune, Ea H'leo district with a capacity of 436MW, an investment of about 13,000 billion VND; From October 2020, Dak Nong province has invested in 6

wind power projects with a total capacity of 430 MW; Quang Tri province is determined to be an energy center in the central region with potential for renewable energy development (29); At the beginning of March 2022, the People's Committee of Da Nang city in collaboration with the Korea International Cooperation Agency (KOICA) held the kick-off ceremony of the project to build the Integrated Center for Controlling the Resilience of Green Urban and Urban Resilience. smart (Ensure Center). The Center's primary function is to enhance resilience to natural disasters; provide a comprehensive solution for integrated monitoring of natural disasters that Da Nang may face; detect early warnings, forecast trends in natural disasters and help Da Nang leaders direct and operate; provide information and notify people quickly and accurately, and proactively prevent it; helping to restore green urban areas based on the application of information technology in planning, planning and sustainable development of ecological urban areas and environmental protection (Bang and Trung, 2022)

Issues and solutions to respond to climate change

In general, over the past time, Vietnam has actively reduced natural disasters, adapted to climate change and achieved many positive results in responding to climate change. However, the reality shows that there are still many problems that require the ruling Party and the entire political system in Vietnam to strive to overcome.

First of all, how to successfully implement Vietnam's commitments at COP26, in the context that Vietnam is a country heavily affected by climate change and a developing country with a middle income;

Secondly, how to take full advantage of the support from other countries and international organizations on responding to climate change considering that national resources invested in climate change response are limited;

Thirdly, how to respond to climate change in the context of modern technology, especially when the team of experts and technicians in Vietnam still has limited knowledge about coping with climate change (especially at the local level).

Fourthly, what are the solutions that can contribute to reducing the impact of climate change and at the same time adapting to climate change effectively in the context of Vietnam's resources and current international support capacity?

The practice and the problems that Vietnam faced when responding to climate change in the past suggest some solutions to improve the effectiveness of climate change response in Vietnam in the future.

Firstly, establish effective communication so that the entire population and business community understand the risk of "catastrophic climate change" not only for the operation of a country but also for human health to proactively mitigating and adapting; being fully aware of the State's position and Vietnam's commitment at COP26 on responding to climate change, thereby creating a consensus of political determination throughout the political and social system.

During the meeting of the National Steering Committee to implement Vietnam's commitments at the Conference (COP26), the Prime Minister requested that "perception must be unified, thoughts must be understood, determination must be high, efforts must be made, act decisively and effectively, determine the central focus, finish what we start" (Huong, 2022).

Secondly, to review, adjust and amend the system of legal documents on climate change response to ensure synchronism and suitability with domestic requirements and international context; in planning and policy formulation, special attention should be paid to appropriate proactive response measures; create a legal basis for mobilizing the synergy of state and private resources, resources of the whole socio-political system, effectively mobilizing domestic and foreign resources; research agencies need to come up with demands and proposals for cooperation on climate change response in line with the country's development strategy and capabilities and the responsiveness of international partners, create a foundation for coordination with other countries, regional and international organizations.

Thirdly, promote the systematic training of experts and technicians on climate change at the central and local levels; receive modern technologies, develop modern technologies for climate change monitoring; increase investment in financial resources, facilities, and systems to respond to climate change (the Prime Minister's guiding ideology is climate finance, technology transfer and capability development play a very important role in the successful implementation of climate change response (Chinh, 2022) the cooperation of responsibilities among ministries, branches and localities to deal with issues of responding to climate change; create a mechanism to encourage business and private sectors to invest in climate change adaptation activities.

Fourthly, in order to reduce the impact of climate change and adapt to climate change in the current resource condition, it is necessary to limit the use of fossil fuels, increase the use of environment-friendly energy sources (wind volume...); save energy and efficiently exploit energy and resources; encourage production and daily activities, and housing models that minimize the impact of climate change and adapt to climate change; invest in and encourage the use of public transportation, gradually reduce the means of transport that cause a lot of environmental pollution; apply scientific achievements and products adapted to climate change such as clean production technology; "Strengthening cooperation with upstream countries and international organizations in the protection and effective use of water resources in the basins of transboundary rivers, especially the Mekong and Red Rivers" (Nhan Dan Electronic Newspaper, 2021).

The XIII Party Congress set out the requirements: "By 2030, basically achieve the goals of sustainable development in terms of resources, environment and response to climate change. The rate of establishments causing serious environmental pollution treated reaches 100%; the rate of hazardous waste destroyed and treated reaches 98%, of which the rate of treated medical waste alone reaches 100%; the percentage of industrial parks and export processing zones that have been put into operation with a centralized wastewater treatment plant meeting environmental standards reaches 100%; the rate of reuse and recycling of domestic solid waste is over 65% (Communist Party of Vietnam, 2021).

4. Conclusion

Combating climate change is an urgent fight to "save humanity, save our children and grandchildren", but this is a difficult fight that requires very high political responsibility of all countries, especially those with high emissions that cause the greenhouse effect.

From a political perspective, it shows that global politics will is "not enough" to respond to climate change, especially political will from developed countries, such as the US, UK and many countries in Europe and Asia.

Vietnam is one of the 10 countries most vulnerable to the impacts of climate change, and is a developing country, but has shown a strong political will through international commitments, through actively implementing many activities with encouraging results in response to climate change, and at the same time, Vietnam is also proving its leading role in the global fight to respond to climate change.

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CLIMATE CHANGE AND AGRICULTURE IN VIETNAM: A GENDER PERSPECTIVE

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Abstract

Agriculture plays a crucial role in the socio-economic development of Vietnam, but this sector is increasingly threatened by climate change impacts. Climate change adaptation is critical, particularly for natural resource-dependent farmers in Vietnam. The significant vulnerability of the rural poor and women groups to climate change impacts suggests the great need for gender-responsive adaptation based on gender-sensitive vulnerability to manage climate-induced risks in Vietnam. In agriculture sector, gender transformative adaptation can enhance food and nutrition security and bring other benefits such as increased socio-economic well-being and poverty reduction. It is necessary to increase the participation of women in the workforce and decision-making bodies on climate change, disaster risk management and emergency relief efforts. Women's awareness and engagement in responding to natural disaster events and climate change impacts in the agriculture sector should be enhanced to ensure food security in the future. In addition, studies on the gender-sensitive impacts of climate change and natural disaster events in the agriculture sector should be conducted to design appropriate gender-responsive adaptation measures in Vietnam.

Key words: *climate change, agriculture, gender equality*

1. Introduction

Agriculture is an essential driver of economic growth, employment, poverty reduction, and food security, particularly in rural areas and least developed countries. Climate change will supplement to many economic, social, and environmental challenges already being faced by agriculture. Climate change is expected to negatively affect crop, livestock, and fishery production systems and intensify food insecurity in most regions even though some countries may benefit from the changing climate conditions. Increased natural disasters and climate extremes produce different impacts on women and men due to differences between women and men in terms of relationships, roles, responsibilities, access to and control over resources, participation in planning and decision making to take adaptation measures. Climate change is a significant concern for the sustainable agriculture which calls for accelerating and upscaling actions to strengthen resilience and adaptive

capacity of farmers' livelihoods and agricultural system to climate variability and extremes, of which gender-responsive interventions play a vital role.

Vietnam contributes moderately to greenhouse gas emissions that cause climate change. Data from the World Bank shows that Vietnam's greenhouse gas emissions per capita is approximately 2.7 tons of carbon dioxide equivalent in 2018. However, Vietnam is one of the countries most exposed to the effects of climate change, particularly extreme climatic events. Agriculture plays a crucial role in the socio-economic development of Vietnam, contributing 12.36% to the national GDP and employing 29% of the national labor force in 2021 (GSO, 2021b), but this sector is increasingly threatened by climate change impacts. As a result, climate change adaptation is critical, particularly for natural resource-dependent farmers in Vietnam. The significant vulnerability of the rural poor and women groups to climate change impacts suggests the great need for gender-responsive adaptation to manage climate-induced risks in Vietnam. To address gender inequality, adaptation must therefore address gender-based vulnerability. With little attention paid to an increasingly female workforce, current gender inequities may worsen, jeopardizing rural lives and the viability of Vietnam's growth into global markets.

The paper presents a literature review on gender-responsive roles and responsibilities in agriculture in the context of climate change, analyses climate change and agriculture in Vietnam from a gender perspective and propose recommendations on gender-responsive interventions in the agriculture sector in the context of climate change in Vietnam.

2. Methodology

2.1. Literature review

Acknowledging the differences in relationships, roles and responsibilities between and among men and women in the society is a critical factor for policy analysis and intervention in agriculture sector in the context of climate change. Studies suggest that tasks that are divided by gender are motivated by the perception of "natural abilities". There are different responsibilities assigned by age in society, with older people doing more housework than younger people, regardless of gender. Women are thought to be better suited for certain tasks, while men are seen as naturally skilled in others. For example, society generally assumes that women are better at doing things like cleaning, cooking, taking care of children and elderly and trading small items, while men are better at thinking strategically. In agriculture sector, female farmers are mainly responsible for cultivation and animal husbandry, while male farmers are responsible for fishing and aquaculture.

Although gender division of labor restrict choices and opportunities for both women and men, the way in which these restrictions play out in practice often affects women more than men. This is due to underlying patriarchal norms that disadvantage women. For example, men have more space for self-expression than women. Gender differences in free time and mobility play a significant role in creating the unequal division of labor.

With regards to climate change, women's lower mobility, fewer opportunities for knowledge exchange and limited access to and control over resources (land and capita) has a significant impact on the intrinsic value of women themselves, and also their adaptation

potential. Gender-based division of labor and responsibilities extends to family finances, where women are responsible for everyday transactions, such as accounting, while men are responsible for making strategic purchases, investments, and business expansions. Men's control over household purchases limits women's self-determination, which can lead to fewer opportunities and weaker jurisdiction. This could also hamper climate change adaptation because women have less power to make decisions. As food producers, high dependency on land and natural resources for agricultural livelihood generation makes women more vulnerable to climate change impacts. Higher risks and greater uncertainty in agricultural production due to weather patterns change and increased incidence of extreme weather conditions such as droughts, heavy rainfalls and typhoons, will directly affect women's agricultural activities. Climate change adds to water insecurity which increases the work level of women involved in subsistence farming, as they spend more time and effort on land preparation, crop watering and protection from disease. When facing losses in agricultural activities, migration has become an emerging trend as a key coping strategy for people facing hardship and environmental changes in agriculture. Especially, male migration especially worsens the situation for women and children left behind; and women migrants often earn less than men and have less access to basic services. In rural areas, migration is seen as a consequence of a shortage of arable land, lack of employment, low incomes from rural non-farming jobs and rural poverty once their areas are affected by climate extreme events. But regarding the vital role of women in agriculture, migration of male farmers would cause more burdens for women.

Generally, the gender-sensitive labor division and social discrimination against women have put women in a more disadvantaged position as compared to men. The women's double burden (paid work and unpaid work) is also a serious obstacle preventing women's participation in economic opportunities. In addition, women are often disadvantaged in terms of their access to, and control over, resources and in the availability of associated economic opportunities. In the context of resource scarcity and weather extremes and climate change impacts, women are generally more vulnerable as compared to men which emphasis the need for gender-responsive adaptation to address gender inequalities.

2.2. Analytical method

A desk-based approach combined with statistical, descriptive, and comparative methods are applied to address the research question. The study uses secondary data and information which were collected from a variety of sources, including reports from Vietnam's Government Statistics Office, Vietnam's Ministry of Natural Resources and Environment (MONRE), books, journals, papers, and research reports of individuals and organizations related to the research topic.

3. Results

3.1. Women in the economy in Vietnam

3.1.1. Labor force participation

Viet Nam is well noted for the absence of restrictions on women's freedom of movement, decision to work, starting and running a business, owning property and assets,

and marriage related-barriers (e.g. exclusions on women from certain work once married). MOLISA (2020) reported that from 2011-2019, women accounted for at least 47.3 per cent of the new jobs created over this period, across a widening range of sectors. With jobs created for an estimated 1.51 million workers in 2019 alone, this amounts to new jobs for nearly 714,000 women (UN Women, 2021a). Labor force participation of women is remarkably high in Viet Nam compared to the global average. In 2019, 70.9 per cent of Viet Nam's working-age women were in the labor force while the corresponding rate at the global level was 47.2 per cent, and the rate for Asia and the Pacific even lower, at 43.9 per cent (UN Women, 2021a). Additionally, with an estimate of 45 per cent of labor income accruing to women, the Global Gender Gap Report 2020 noted that Viet Nam had 'one of the largest shares' globally (World Economic Forum (2020)). By 2021, Viet Nam ranked 26th out of 156 countries on the Economic Opportunity and Participation Sub-index (World Economic Forum, 2021). Generally, women's high labor force participation rate in Vietnam reflects the presence of enabling factors and attitudes for women to undertake paid work.

However, while the gender gap in labor force participation is narrower in Viet Nam than the global and regional average, it does still exist. In 2020, around 74.4 per cent of the population aged 15 and above participated in the labor force, but the labor force participation rate differs significantly between men (79.9 per cent) and women (69.0 per cent). The average labor force of the whole country was estimated at around 54.84 million people in 2020, of which 53.6 million people were employed and more than 1.2 million people were unemployed. Women (47.4 per cent) accounted for a lower proportion than men (52.6 per cent) in the labor force (GSO, 2021d). The proportion of the population in retirement age participating in the labor force was 42.7 per cent in 2019 (44 per cent for men compared to 42.1 per cent for women). This rate in rural areas was 1.5 times as high as in urban areas among both male and female (GSO, 2021a). Women participate in the labor force at a lower rate than men, and the reason for this gap is likely to be the uneven gender division of labor in family responsibilities in Viet Nam society (UN Women, 2021a). Despite their high labor market participation overall, women in Viet Nam still face unequal opportunity to engage in economic activity compared to men.

In addition, participation rates by gender offer only a partial picture of women's engagement in the economy. While the upsurge in women's waged employment in the recent period is a clear positive, participation does not equate to empowerment. For instance, participation rates do not reveal whether women are in full or part time work, whether they are working by choice, poverty or economic crisis, nor the conditions, pay or future of their work. A similar perspective can be applied to women's entrepreneurial activity, and the reasons behind the clustering of women in micro, small and medium enterprises. The quality and security of current and future jobs, the drivers and prospects of business activity, and women's leadership in the economy are better measures for understanding women's economic progress in Viet Nam (UN Women, 2021a).

3.1.2. Employment

Employment status by gender: Female employment accounted for 47.2 per cent of the total employed workers compared to 52.8 per cent for male employment in 2020. In

terms of employment structure, in 2020, wage workers (a job category typically considered more secure) were 43 per cent for female compared to 57 per cent for male; contributing family workers were 68 per cent for female and 32 per cent for male; cooperative members were 26 per cent for female and 74 per cent for male; women-headed organizations were 27 per cent compared to 73 per cent for men-headed organizations; and own-account workers were 47 per cent for female and 53 per cent for male (GSO, 2021d). In general, women mainly engage in contributing family workers and own-account workers; and the percentages of women-headed organizations and cooperative members are still low.

Informal sector: The country's sizeable informal economy plays an important role in creating easy access to income-generating opportunities for women and men, which contributes to a high level of economic activity and low unemployment in Vietnam. However, employment status has a strong impact on job quality and the economic risks faced by workers. Jobs in the informal economy are unprotected and informal workers can face significant poverty and occupational risk. Men are more likely to be in informal employment than women (the informal employment rate in 2019 was 67.2 per cent among women, and 78.9 per cent among men). However, women are over-represented among an especially disadvantaged category of informal workers, that of contributing family workers that is associated with particularly high risks of intensive work hours and none or irregular remuneration (UN Women, 2021a).

Vulnerable employment: Own-account workers and contributing family workers face greater economic risks. These two categories constitute vulnerable employment. Women face a greater likelihood of being in vulnerable employment than men. Women are more than twice as likely to be contributing family workers. In 2019, 5 million family workers (67 percent) in Vietnam were female. They represented almost 24.1 percent of rural female employment, as opposed to 13 percent of male rural employment (GSO, 2021a). In 2020, 68 per cent of contributing family workers in Viet Nam were female. The proportion of female own-account workers and contributing family workers (52.2 per cent) were higher than that of men (47.8 per cent) in 2020 (GSO, 2021d).

Unpaid work: In Viet Nam, the perception that women and girls should be responsible for unpaid care work is deeply embedded in society. Women on average spend twice as many hours as men working to produce 'services for own/family use'. These include activities such as cleaning, washing, cooking and shopping, and family care. In addition, almost all women spend at least some time in these activities on a weekly basis, while a much lower proportion of men do, and close to 20 per cent of men reported they do not spend any time in these activities at all. Among those individuals who engaged in such activities, women spent an average of 20.2 hours a week on them, and men an average of 10.7 hours. While only 9.2 per cent of men are unpaid family workers, the figure for women was twice as high, 19.4 per cent in 2019 (GSO, 2021a).

3.1.3. Unemployment

In Viet Nam's labor market before COVID-19, there was no significant gender-based difference in unemployment rates. In 2019, unemployment rates were 1.97 per cent for men

and 2.01 per cent for women (in rural areas, 1.53 per cent for men and 1.54 per cent for women) (GSO, 2021a). The high labor force participation rate and low unemployment rate obscure the relatively poor quality of employment among women. Employment status data mentioned above show that women make up the majority of unpaid family workers, especially in rural areas, where they also have limited access to services. This also partly explains the lower employment rates in rural and urban areas. One of the most visible effects of the Covid 19 on labor markets across the world, including Viet Nam, has been a reduction in working hours. Viet Nam's workers faced a severe reduction in working hours during the second quarter of 2020, especially women. In 2020, total weekly hours worked by women were 88.8 per cent of the total for the fourth quarter of 2019. Men, on the other hand, worked 91.2 per cent of the total weekly hours worked in the fourth quarter of 2019. Lower labor force participation was a determinant of the reduction in working hours in the second quarter, with larger numbers of women than men leaving the labor force, increasing Viet Nam's gender participation gap. Although women were relatively active in the labor market compared to other countries in the region, or those at the same income level as Viet Nam, a gender gap was still visible. Since the advent of COVID-19, labor force participation fell sharply for both women and men, but women experienced the greater fall (UN Women, 2021a). In 2020, the country had more than 1.2 million unemployed people; in which the number of unemployed women accounted for 56.1 per cent; and unemployment rates were 2 per cent for men and 3 per cent for women (GSO, 2021d). Thus, when the labor market has been impacted, female workers are more disadvantaged than men.

3.1.4. Pay gap

Persistent gender inequalities in income are found in almost all labor markets. The principle of equal pay for work of equal value is an important aspect of equality in the world of work, as emphasized by SDG 8.5. Viet Nam made a commitment to pursue this principle when it ratified ILO Convention No. 100, on Equal Remuneration. On average, women in Viet Nam earn less than men. In 2019, the weighted gender pay gap based on monthly wages was 13.7 per cent. This is relatively low compared to the latest global figure (20.5 per cent) (UN Women, 2021a).

Vietnamese women face a significant gendered income gap. Average income among women is lower than that of men in Vietnam. While the average income of an employee in 2019 was 5.6 million VND, this rate stood at is 6.5 million among men and 4.6 million among women. The average income of female workers in rural areas is especially low, at only 3.7 million VND compared to 5.7 million VND for men. The monthly average pay of female workers is nearly 30% lower than that of male workers (GSO, 2021a). In 2020, average monthly income from salaried workers was 6.6 million VND, of which men have higher average monthly income (6.92 million VND) than women (6.17 million VND) and the gender income gap was 10.9%. Men's income is higher than that of women in all economic sectors, professions and positions. For example, looking at the workers' income by occupational groups, in 2020, the unskilled/low-skilled labor (where women are over-represented) received the lowest income (4.4 million VND and

5.2 million VND for women and men, respectively) and the group of leaders (where men predominate) had the highest income (9.5 million VND and 10.8 million VND for women and men, respectively) (GSO, 2021d).

Gender gaps in income are a result of a range of gender differences. These include differences in the type and level of education and professional training, and types of employment, which are shaped by women's need to accommodate unpaid care work and stereotypes that cluster them into undervalued occupations or in part-time or informal employment because they need to balance work and family. These time and opportunity costs contribute substantively to income gaps between women and men, and they can restrict women's access to decent work (UN Women, 2021a). In Vietnam, the number of working hours per week of women is lower than that of men (the average number of working hours of the whole country was 41.9 hours per week; of which men worked 43.2 hours per week and women worked 40.4 hours per week) (GSO, 2021a) due to their significantly higher engagement in unpaid productive work at home. The percentage of trained male employees (26.9%) was higher than that for female employees (20.9%) in 2020 (GSO, 2021a).

3.2. Women in the agriculture sector in Vietnam

3.2.1. The role of agriculture in the Vietnam's economy

Viet Nam is one of the fastest growing economies in the world. The economic reform initiated in the late 1980s largely replaced the former centrally planned system with market mechanisms and promoted economic diversification and private sector development, and opened the economy to trade and international markets. Viet Nam has experienced considerable economic growth in the last 30 years, paving way to its development towards being a lower middle-income country in 2015. Access to basic infrastructure, including electricity, water and sanitation, has also significantly improved. Massive restructuring, especially public investment, state-owned enterprises and the banking sector, has taken place in recent years. Information and communication technology have developed rapidly, which is a key instrument for maintaining and promoting the competitiveness of the economy. Exports also constitute an increasingly significant contribution to Viet Nam's GDP, and certain sectors, such as industrial production, textile, electronics and seafood production, have been growing rapidly. This led to a rapid expansion of manufacturing and service industries, which quickly became the primary source of job creation. In addition, *Viet Nam has increasingly been integrated into global production and value chains, with female-intensive export-oriented light manufacturing being a major stimulus of GDP growth (UN Women 2021a).*

With 63 per cent of the Vietnam's population living in rural areas in 2021, the agriculture sector plays a vital role in the country's economy, contributing 12.36 per cent of the country's GDP in 2021 (GSO, 2021b). The agricultural sector is being restructured to shift away from low value and subsistence agriculture towards more knowledge-based agricultural technology, mechanization and value-added processing to produce and export high-standard food products. Viet Nam's economic transformation has led to a substantial labor market shift for both women and men. The accelerated economic growth is resulted

from labor shifting from agriculture towards manufacturing and services, private investment, a growing tourism sector, higher wages in non-agriculture sectors, and accelerating urbanization. Paid employment and higher earnings attracted a large share of workers away from agriculture, a shift that is on-going. The shift from agriculture to industry and services, which began in the 1980s, has continued to transform the labor market over the past decade. The proportion of workers in agriculture, forestry and fishery decreased from 62.2 percent (in 2000) to 49.5 percent (in 2010) and 33.1 percent (in 2020) (GSO, 2021d).

3.2.2. Gender-disaggregated employment in the agriculture sector in Vietnam

Although the proportion of labor in the agriculture, forestry and fishery sector is decreasing, it still accounts for 35.9% among employed women and 33.2% among employed men in 2019 (GSO, 2021a). Employed women are only marginally more likely than men to be working in agriculture, forestry and fishery. However, there is an important difference between the situation of men and women employed in this sector. The majority (85.9 per cent) of women in agricultural employment are primarily involved in subsistence agriculture while the corresponding share in male agricultural employment is 59.2 per cent. In rural area, 63.4% women working in agriculture, forestry and fishery compared to 57.5% male farmers (UN Women, 2021a).

The agricultural sector also has a predominance of part-time work and women are more likely to be working part-time than men. Around 25 per cent of the men and 39 per cent of women are part-time workers in agriculture, forestry and fishery compared to less than 6 per cent for both in other sectors. Furthermore, part-time workers are more likely to be contractual workers with less job security and social benefits (UN Women, 2021a). Despite their predominance in the agricultural sector, only 10 per cent of rural women are employed in the category ‘skilled agriculture, forestry and fishery workers’, compared to 15 per cent of rural men. In contrast, rural women are over-represented in the occupational category of unskilled labor (elementary workers) where they are 52 per cent of this occupational group. ‘Elementary workers’ is the occupational group that accounts for 51 per cent of all employed rural women compared to 43 per cent of rural men. The rate of employment of ethnic minority populations as skilled agriculture, forestry, and fishery workers is slightly higher at 17.7 per cent for ethnic minority men and 16.7 per cent for ethnic minority women largely due to their greater representation as workers in the agricultural sector as a whole. Ethnic minority populations are also predominantly employed in the category elementary occupations with the rate as high as 61.6 per cent for ethnic minority women (UN Women, 2021a).

3.2.3. Gender-sensitive access to technical trainings in the agriculture sector in Vietnam

Women groups have less access to the technical training that is needed as the agricultural economy becomes less labor intensive and more knowledge-based. The agriculture, forestry and fishery sector is associated with lower technical qualifications than other sectors of the economy and women workers are in an even more disadvantaged position compared to their male counterparts. For example, in 2019, rate of trained workers in the agriculture-forestry and fishery sector was 4 per cent (4.9 per cent for male and 3.1 per cent

for female). These rates for industry and construction were 18 per cent (20.7 per cent for male and 14.2 per cent for female) and for services were 44.7 percent (49.6 per cent for male and 39.9 per cent for female) (GSO, 2021a).

Rural women are more likely to have no technical qualifications compared to rural men and to urban women. Close to 90 per cent of rural women in the workforce have no qualification compared to just over 80 per cent of rural men. Ethnic minority groups are less likely to have technical qualifications, in particular women. Only 6.1 per cent of ethnic workers complete programs to acquire technical qualifications, just a third of the rate for the majority Kinh population. The rate of skilled ethnic minority women is even lower, at 5.7 per cent. Ethnic minority populations have a lower literacy rate, especially women, which is a constraint to participating in training. Ethnic minority women had a literacy rate of only 73 per cent, compared to 86 per cent for ethnic minority men. A greater portion of rural women have a professional college degree than rural men, but rural women are less likely than rural men to have vocational training of 3 months or more (UN Women, 2021a).

3.2.4. Gender-sensitive access to resources in the agriculture sector in Vietnam

Access to land: With 63 percent of the Vietnam's population still living in rural areas, land title is a crucial and essential form of property in Viet Nam. Land ownership and control is fundamental to livelihoods, and it endows individuals with an asset for collateral, independence and social security. For the past decade, Viet Nam has enacted provisions to improve the protection of women's land rights. Women's equal land rights are institutionalized in several laws, including the Land Law (2003, 2013), Marriage and Family Law (2014), Gender Equality Law (2006) and the Civil Code (2015), and a series of decrees and decisions guiding implementation. The Land Law (2003) decreed that all new land use rights certificates (LURCs) for married couples, 'must state the full names of both husband and wife'. A 2020 study with 2,567 Vietnamese men, found lower rates of sole land ownership overall, but a six-fold chasm between the proportion of female and male sole owners of land and/or residence, at 4.5 per cent and 28.2 per cent respectively. Even though these findings do not refer specifically to titling on LURCs, they reinforce the predominance of men in land/house ownership, and potentially also point to requisite change in land ownership patterns overall. Rural women's access to and control over land, a direct source of livelihood, is therefore contingent upon men (UN Women, 2021a).

Access to finance: Availability of access to preferential credit for women in poor rural areas has been provided over years in Vietnam. The Government of Vietnam provides to the rural poor, including women, access to credit through the Viet Nam Bank for Social Policies (VBSP) via the Farmers' Association, Women's Union, Veteran's Union, and Youth's Union. The Women's Union also provides some sources of preferential loans for members from poor and near-poor households. Approximately 2.5 million poor women are eligible for loans each year, making up 42% of the loans from VBSP (UN Women, 2021b). In addition, the Bank of Agriculture and Rural Development (AgriBank) is another important channel of credit provision for women. This financial policy is aligned with several targets set in the National Strategy on Gender Equality for 2011-2020, including 80% of women

laborers in poor rural areas or ethnic minority regions being able to access preferential credit through employment or poverty reduction programs.

3.3. Women in the agriculture sector in the context of climate change in Vietnam

3.3.1. Climate change in Vietnam

Vietnam is predicted to be particularly sensitive to global climate change and is considered as one of the ten countries most negatively impacted by climate change. In recent years, climate extremes continue to be recorded with higher intensity and frequency. Data over the past 60 years (1958-2018) shows that the annual average temperature of the whole country rose by about 0.89°C; rainfall decreased in the Northern regions from 1 per cent to 7 per cent while increased in the Southern regions from 6 per cent to 21 per cent; the number of strong typhoons was on the rise; the daily maximum and minimum temperatures increased; the number of hot days rose in most areas; droughts in the dry season occurred more frequently across the country; the number of cold and freezing cold days decreased; extreme rain increased; and average sea levels at coastal and island monitoring stations increased by 2.74 mm/year, particularly 3.0 mm/year during 1993 – 2018 (Socialist Republic of Vietnam, 2020).

Economic damage has resulted in an average annual loss of 1 to 1.5 percent of the country GDP over the past three decades (Socialist Republic of Vietnam, 2020). Over the period 2000-2019, Viet Nam was ranked 13th of 180 countries on the Global Climate Risk Index with average losses of 11 million USD (PPP) in 2000-2019 (Germanwatch, 2021). It is also argued that the impact of climate change on the ASEAN region, as a whole, is likely to be acute in Viet Nam, due to its ‘high dependence on agriculture... along with recent trends towards lower crop diversity, and the erosion of social safety nets’. With a need for agricultural restructuring for food and livelihood security, and for population settlements to be safeguarded, impacts are neither distant nor minor for Viet Nam, including for women (UN Women, 2021a).

Vietnam has developed and implemented many national laws, strategies, and action plans to promote a low-carbon development pathway, reduce vulnerability to the impacts of natural disasters and climate change, enhance green growth and sustainable development, notably the Law on Natural Disaster Prevention and Control (2013), the Law on Meteorology and Hydrology (2015), Law on Natural Resources and Environment of Sea and Islands (2015), the Law on Environmental Protection (2020), the Party’s Resolution 24/NQ-TW dated June 3, 2013 on climate change response, natural resource management and environmental protection, the Party’s Resolution No. 08/NQ-CP dated January 23, 2014 on Action Plan to implement the Resolution No. 24 -NQ/TW dated June 3, 2013 of the 11th Party Central Committee. Efforts and initiatives of climate change response in Vietnam have also been reflected in Vietnam's Agenda 21 on Sustainable Development (2004), the National Strategy and Plan on Disaster Management and Mitigation (2001-2020, 2021-2030), National Climate Change Strategy (2011-2020, fourth coming 2021-2030) and related Action Plans, National Strategy on Green Growth (2011-2020, 2021-2030) and related Action Plans, the National Target Program to Respond to Climate Change (2008,

2012-2015, 2016-2020), the Support Program to Respond to Climate Change (2010-2015, 2016-2020), the National Action Program on greenhouse gas emission Reduction (referred to as REDD+ Program) in the period 2011-2020, and the Community-Based Disaster Risk Management Program. Response to climate change has been included in the Socio-Economic Development Strategy (2011-2020, 2021-2030) and Nationally Determined Contribution (NDC).

3.3.2. Impact of climate change on women in the agriculture sector in Vietnam

Climate change, increased natural disasters and climate extremes produce different impacts on women and men. The poor, ethnic minority groups, people whose livelihoods depend on the climate, the elderly, women, children, and people with chronic illnesses have the highest level of vulnerability (Socialist Republic of Vietnam, 2020). Women, especially ethnic minority women, are highly vulnerable to climate change impact for several reasons (UN Women, 2021a).

First, because women dominate the agricultural sector, they are taking on a larger amount of workload in agricultural production as the sector becomes more vulnerable to the risks and impacts of natural disasters. Women are generally more likely to depend on small-scale and subsistence agriculture such as vegetable production and smallholder livestock that are vulnerable to disasters. Women's small and medium enterprises have low capital investment and focused on the retail and food sectors, which are more vulnerable to the impact of natural disasters. In addition, women are more likely to have perishables or small retail operations that suffer more losses during disasters.

Second, women have few assets to support them cope with shocks. Women, especially those from poor households and ethnic minorities, have fewer savings or other resources to encounter with the damage. It is worth noting that women had limited access to land and the necessary assets for financial security at such times. The lack of formal land tenure can limit women's access to post-disaster financial or in-kind assistance after disasters. Due to their lack of access to formal financial mechanisms, women are more likely to take out small, informal loans to meet family needs. This debt can be a burden for women when repeated natural disasters occur, as they do not have an income source to repay the loans. In addition, when disaster strikes, women not only face a loss of production to meet their family's food security needs, but also an increased amount of recovery workloads.

Third, women have greater responsibilities for household chores that become more difficult and time-consuming after climate events. Women have to take on more responsibility for daily tasks such as water collection which becomes much more difficult during floods or droughts. In the event of a tornado, flood, or other disaster requiring mobility, responsibility for family care (children and elderly relatives) may hinder women's access to shelter or health care. Over time, more frequent and severe climate change-induced floods and droughts will increase women's labor and limit the time available to diversify livelihood options. This is compounded by women's low access to agricultural extension, including knowledge of adaptive agricultural techniques and more resistant cultivars.

Fourth, women's relatively limited access to and control of household assets and resources limits women's options in diversifying their livelihood options to respond to climate change. Rural women are more likely to be involved in subsistence low-yielding agriculture, which is more vulnerable to disaster and climate change impacts. Without access to land, women are limited in accessing the financial resources needed to obtain higher quality new inputs, equipment or production technology. Due to their underrepresentation in technical training, women have less access to agricultural services that are important for building resilience and developing adaptation options. In addition, limited access to land and capital has limited women's options to invest in more climate-resilient livelihood options by diversifying their production to high-value crops or supplementing their income by small-scale processing enterprises or off-farm activities.

Fifth, women's situation related to climate change is aggravated by their lower adaptive capacity than men. Women face more challenges than men in planning and decision making, especially at the local level. In addition, socio-cultural norms often limit women's access to the information and skills needed to address climate-related hazards. Overall, women have unequal access to resources and capacity building opportunities to help them adapt to climate change impacts.

It can be seen that the increased frequency and severity of natural disasters and the impacts of climate change are posing new challenges to gender equality and women's empowerment in rural areas. Gender inequality is also a determinant of exposure to climate change risks as women and girls are more vulnerable to the impacts of extreme events. Acknowledging the differences between the conditions of men and women is important in addressing climate change issues, because these differences create differential climate change impacts on women and men. Generally, climate change impacts create additional burdens on women. Addressing the above gaps is significant in Viet Nam.

3.3.3. Integrating gender concerns in existing climate change policies in Vietnam

Viet Nam has strong commitments on gender equality and promotion of women's rights through implementation of international and national commitments on gender equality. Viet Nam has committed to a number of key international conventions related to the human rights of women, and children and gender equality, including the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), the Beijing Declaration on Women's Rights, International Covenant on Economic, Social and Cultural Rights, International Covenant on Civil and Political Rights, etc. Since the adoption of CEDAW in 1982, Viet Nam has undertaken significant efforts to bring about international recognition in promoting gender equality and protecting the rights of women and girls. In the context of climate change, the General Recommendation No. 37 on Gender-related dimensions of Disaster Risk Reduction was issued in 2018 pursuant to Article 21 of the CEDAW by the Committee on the Elimination of Discrimination against Women. This General Recommendation provides guidance to States parties and agencies on the implementation of their obligations under the Convention in relation to DRR and climate change. The General Recommendation No.37 is expected to leverage these efforts in the

area of climate change, especially as Viet Nam is one of countries in the world being most severely impacted by climate change.

Integrating gender concerns in climate change policies and actions bring about more efficient implementation, as this brings focus to the needs, challenges, and capacities of both men and women. Viet Nam has initiated efforts towards this goal, for example, the specific reference in Viet Nam's NDC (2020) on the gendered impacts of climate change. Likewise, gender issues have been incorporated in some climate change related plans and policies in the country. For example, the National Climate Change Adaptation Plan (NAP) for 2021-2030 contained the provision for "raising awareness and knowledge about climate change and disasters of administrations of various levels, social organizations and communities; building capacity and developing female human resources, and boosting gender equality in climate change adaptation".

4. Discussion and Conclusion

There are key barriers facing women in the economy and in agriculture sector in the context of climate change in Vietnam. In the economy, despite advances for women in the legal framework for labor and enterprises over the past years, in Viet Nam as elsewhere, the economy remains a gendered structure. Women in Vietnam are in a more disadvantaged position than men in the economy. Women participate in the labor force at a lower rate than men. Women on average spend twice as many hours as men working to produce 'services for own/family use'. Women mainly engage in contributing family workers and own-account workers; and the percentages of women-headed organizations and cooperative members are still low. Women are over-represented among an especially disadvantaged category of informal workers (contributing family workers that is associated with particularly high risks of intensive work hours and none or irregular remuneration). Women face a greater likelihood of being in vulnerable employment than men as the proportion of female own-account workers and contributing family workers are higher than that of men. When the labor market has been impacted (e, g. by Covid 19), female workers are more disadvantaged than men in terms of unemployment. In addition, men's income is higher than that of women in all economic sectors, professions and positions.

Agricultural sector employment remains characterized by limited earnings and few worker protections, within which women are particularly disadvantaged, making gender-mainstreaming extremely relevant to agricultural restructuring in Vietnam. More women work in agriculture, forestry and fishery than men. Women is engaged in more labor intensive agricultural activities as compared to men. Women have fewer opportunities to migrate to urban areas to find income-generating jobs due to their responsibilities in taking care of children and the elderly. Women groups have less access to the technical training. Rural women are over-represented in the occupational category of unskilled labor and also less likely than rural men to benefit from agricultural extension services and short-term training. The majority of land/house URCs and agricultural LURCs remained in the husband's name. Women have limited land ownership which constrains their access to credit and secure livelihoods.

Viet Nam has been performing well in terms of gender equality. In 2021, the World Economic Forum ranked Viet Nam 87 out of 156 countries in terms of overall performance in closing the gender gap, with a score of 0.701. This ranking contained separate scales for economic participation and opportunity (score of 0.765, rank 31), educational attainment (score of 0.982, rank 94), health and survival (score of 0.945, rank 152), and political empowerment (score of 0.113, rank 110) (World Economic Forum (2021). *The UNDP Gender Inequality Index measures indicators where Viet Nam has performed well and stably, namely maternal survival, educational parity at secondary level, and the share of working age women in the workforce.* With the Gender Development Index (GDI) value of 0.997 in 2019, Viet Nam ranks 65th out of 162 countries and is the highest among five country groups. However, Viet Nam is still facing gender inequality challenges: the country ranks in the bottom third globally in terms of sex ratio at birth (1.12), violence against women by intimate partners (34.45 percent) and women with accounts in financial institutions or with a mobile money service provider (30.45 percent). Disaggregated data show larger disparities within geographical locations and ethnic minority groups (UNDP, 2020).

Persistent gender gaps remain in rural Vietnam in terms of social discrimination against women, increased vulnerability and limited opportunities for women, unfavorable land ownership for women and low involvement of women in business development, governance and decision –making. In the context of climate change and natural disasters the gender gaps will likely increase, as for several reasons women and girls are more vulnerable to climate change impact. Climate change exacerbate gender inequalities, but gender inequalities also contribute to greater negative impacts from climate change. The overall burden and restrictions on rural women will likely increase as a result of continued gender inequality, increased production requirements, and climate change impacts.

The significant vulnerability of the rural poor and women groups to climate change suggests the great need for adaptation. Good adaptation provides options to manage climate-induced risks. To address gender inequality, adaptation must therefore address gender-based vulnerability. In agriculture sector, gender transformative adaptation can enhance food and nutrition security and bring other benefits such as increased socio-economic well-being and poverty reduction. The type of adaptation measures or interventions to be introduced should account for the characteristics of the rural poor and women groups. In particular, due to immense vulnerability to climate change of women, the rural poor, and ethnic minority groups, climate change actions necessitate consultations with these groups. Interventions would need to account for these groups' needs and conditions, and include activities that may provide these groups possible opportunities for adaptation. Finally, designs of climate change actions would need to incorporate the knowledge, skills, and practices of these groups for better likelihood of success.

In recent years, there has been an increased integration of gender equality as a cross-cutting consideration in climate change and natural disaster-related policies. Specifically, climate change is mentioned in the analysis of the National Strategy on Gender Equality 2011-2020 and 2021-2030, but not in detailed. The climate change adaptation and disaster

risk management are being male-dominated in Viet Nam. Therefore, there is a collective call to shift the focus to action planning to practically ensure women's engagement so that they can benefit from the preparedness and adaptation activities and from the opportunities arising from transitions in the agriculture and rural development.

Women's priorities are underrepresented in disaster risk reduction and adaptation planning because they are underrepresented in local government positions that are assigned to these decision-making bodies. Gender inequality, lack of training and lack of formal mechanisms to promote women's leadership lead to underrepresentation of women in decision-making bodies at all levels. Women's lower participation in community organizations hinders their participation in preparedness and adaptation activities. It is necessary to increase the participation of women in the workforce and decision-making bodies on climate change, disaster risk management and emergency relief efforts. Women's awareness and engagement in responding to natural disaster events and climate change impacts in the agriculture sector should be enhanced to ensure food security in the future. In addition, studies on the gender-sensitive impacts of climate change and natural disaster events in the agriculture sector should be conducted to design appropriate gender-responsive adaptation measures in Vietnam.

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**PART 5:
URBAN AND REGIONAL
DEVELOPMENT**

APPLICATION OF THE PLS-SEM MODEL TO RESEARCH THE IMPACT OF LAND ACQUISITION POLICY ON THE SATISFACTION AND LIFE OF PEOPLE IN THE SUBURBAN AREA IN HANOI CITY

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Abstract

This study focuses on examining the influence of land acquisition policy on the satisfaction and life of people in the suburban areas of Hanoi city through the linear structural model PLS-SEM. The research sample was collected from 430 people whose land was acquired in 03 districts of Hanoi city: Gia Lam district, Thuong Tin district, and Long Bien district. The analysis results show that there are four factors affecting people's satisfaction with the land acquisition policy, including Knowledge, Willingness, Living conditions before and after the acquisition, and Compensation Process. In which, Willingness factor has the strongest impact on satisfaction with land acquisition policy. The results also prove that Policy Satisfaction will have an impact on Life Satisfaction. Based on the analysis results, the article proposes solutions and recommendations to improve the State's land acquisition policy.

Keywords: *land acquisition policy, satisfaction, people's life, urban periphery.*

1. Introduction

In a country that is heavily dependent on the agricultural economy and the proportion of the population living in rural areas accounts for 65.4% (Results of the 2019 Census) like Vietnam, the land is always a hot and sensitive issue, especially in the process of land acquisition, there are more and more controversies and inadequacies. The process of industrialization and urbanization requires the conversion of a part of agricultural land to non-agricultural land (Tan et al., 2009). Moreover, the urban expansion will gradually create a wave of encroachment of land around the city (Wu et al., 2016). The greater the need for socio-economic development, the higher the demand for land use. Meanwhile, the land fund

is limited, when urban land cannot be met, the expansion to the periphery of the city is inevitable and the main driving force for the development of the peri-urban area is the available land fund that is suitable for low cost (de Wit, J.W., 2013).

The acquisition of land in peri-urban areas will have a stronger impact on people's lives and livelihoods than in urban areas because peri-urban areas are home to a lot of agricultural lands - the main production tool generating income to help them maintain their livelihoods daily. The loss of agricultural land and the narrowing of arable land for the construction of agricultural zones and residential areas have forced farmers to change occupations and also adapt to changing lives. Farmers are the main stakeholders during the implementation of the land acquisition policy, their attitude is the main factor affecting satisfaction (L. Cheng et al., 2018). Therefore, whether people can participate in the negotiation process when acquiring land or not and how will be an important factor affecting satisfaction with the State's policies and satisfaction with the State's policies. life. Because only when satisfied, will people have faith and support for the State's policies, contributing to solving the problem of delayed site clearance, and creating land funds for urban development. However, exploitation from the perspective of people's participation in the implementation of a land acquisition policy is still quite new in Vietnam.

In addition, identifying and knowledge the factors affecting people's satisfaction in the land acquisition process, and considering life satisfaction in many different aspects will become the basis to help the State have more perspectives on the current situation, thereby making appropriate policy decisions. And thanks to that, people will have a more positive view of the issues before, during, and after the expropriation, contributing to reducing disputes, complaints, and frustrations of people having their land recovered.

2. Method

2.1. Research model

The model includes the variables of Knowledge, Willingness, and Living conditions of people before and after the withdrawal, The process of implementing compensation after the recovery affects Satisfaction in the policy based on the Analytical Model factors affecting farmers' policy satisfaction (L.Cheng et al., 2018). The authors propose a new variable that policy satisfaction will affect people's life satisfaction after land acquisition.

Research hypothesis:

H1: Knowledge of policy has a positive relationship with satisfaction with policy.

H2: Willingness has a positive relationship with satisfaction in the policy

H3: People's living conditions before and after withdrawal have a positive relationship with satisfaction with the policy.

H4: The process of making compensation has a positive relationship with satisfaction in the policy

H5: Policy satisfaction has a positive relationship with life satisfaction.

2.2. Qualitative research

Qualitative research methods to build, calibrate the scale, and build survey questionnaires. The results of the study are the scale tables used in the official research presented in Table 1 below:

Table 1. Research scale table

Variable names	Code	Questions' Content
Knowledge (KN)	KN1	Policy Knowledge
	KN2	Propaganda of the local government
	KN3	Knowledge of policy goals
	KN4	Participation in policy implementation
	KN5	Policy making consultation meetings
Willingness (Wi)	Wi1	Willingness to participate in the land acquisition process
	Wi2	Civilian's concerns
	Wi3	Attachment to the current house
Living conditions before and after recovery (LC)	LC1	Satisfaction with the new quality of life
	LC2	Possibility to find a new stable job and higher income than before
	LC3	Living environment conditions, social relationships are better than before
	LC4	Conditions for accessing people's knowledge are more favorable than before
	LC5	Access to traffic, cultural works, public welfare is more favorable than before
	LC6	The conditions of cultural and spiritual life are better than before
Compensation Process (CP)	CP1	Level of satisfaction with compensation policy
	CP2	Compensation is paid high compared to the initial value
	CP3	Total compensation
	CP4	Compensation for house
	CP5	Compensation for land
Policy Satisfaction (SaP)	SaP1	Satisfaction with the implementation of the land acquisition policy
	SaP2	There is an agreement on land acquisition
	SaP3	The process (procedure) for land acquisition is very simple
	SaP4	Satisfaction with the attitude of local authorities when acquiring land
Life satisfaction (SaL)	SaL1	Satisfaction with the new quality of life
	SaL2	Satisfaction with the facilities at the new place
	SaL3	Satisfaction with the transportation system at the new place
	SaL4	Satisfaction with the quality of the environment at the new place

2.3. Quantitative research

Survey design

On the basis of closely following the research objectives, problems and research questions, the authors design the survey form into two main parts:

Part 1: General information about survey participants (including questions about living area, gender, age, education level, number of family members). The format for the answers in this section is multiple-choice questions. Selected answers are given according to the nature of each question.

Part 2: Assess the impact of land acquisition policy on people's satisfaction and life. The beginning of this section includes questions to understand the situation of land acquisition such as the area of land acquired, the amount of land that is compensated after acquisition. The answers to these questions are in self-completed format. Then there are questions about jobs, main source of income before and after acquisition (multiple choice answers) and whether land use has a great influence on people's jobs or not. The group used a 5-point Likert scale for survey participants to rate the statements given with the following levels: (1) Strongly disagree, (2) Disagree, (3) Neutral, (4) Agree and (5) Totally agree.

Sample size

Research by Comrey (1973) and Roger (2006) concludes that: “The sample size is at least 5 times the total number of observed variables”. In this study, the total number of observed variables used is 27, so the minimum sample size is $27 \times 5 = 135$. However, because the rate of agreeing to answer the survey is usually low, it is important to ensure the requirements. Regarding the minimum sample size, the research team distributed 500 survey questionnaires. However, taking into account the risks of sample filtering and incomplete questionnaires, in order to ensure the sample size for the research paper, the total number of questionnaires distributed was 500. After the survey, a total of 495 ballots were filled out. Through the cleaning process, only 430 eligible votes were retained for analysis. Specifically, in Gia Lam, there are 160 valid votes, Thuong Tin has 131 votes and Long Bien has 139 votes. The specific characteristics of the study sample are presented in Table 2 as follows

Table 2. Descriptive statistical results of the study sample

CRITERIA		FREQUENCY	RATIO (%)
GENDER	Male	176	40.9
	Female	249	57.9
	Other	5	1.2
ACCOMMODATION	Gia Lam	160	37.2
	Long Bien	139	32.3
	Thuong Tin	131	30.5
AGE	From 18 to 30 years old	29	6.7
	From 31 to 40 years old	54	12.6

CRITERIA		FREQUENCY	RATIO (%)
	From 41 to 50 years old	149	34.7
	From 51 to 60 years old	132	30.7
	Over 60 years old	66	15.3
EDUCATION	High school	195	45.3
	College	124	28.8
	University	81	18.8
	Master's degree	30	7.0
NUMBER OF FAMILY MEMBERS	From 1 to 3 people	101	23.5
	From 4 to 7 people	277	64.4
	From 8 to 10 people	50	11.6
	Over 10 people	2	0.5

3. Results

Cronbach's Alpha test

The results of the reliability test by Cronbach's Alpha coefficient from Table 3 for the components of the scale all have Cronbach's Alpha > 0.7 and no measurement variable has a correlation less than 0.3. Qualified.

Convergence value test results

The measurement and evaluation of the convergent value of the latent variables is based on the indicators of external factor loading (outer loading) and variance extracted (AVE - Average variance extracted). According to Hock & Ringle (2010), the scale reaches the convergent value if the AVE is 0.5 or higher. The analysis results in the table below show that the measured CR values range from 0.866 to 0.918 and the smallest AVE index is 0.565, the largest is 0.737, both are larger than the required value of 0.05, showing that the model has achieved convergent value.

Table 3. Convergence value test results

	Cronbach's Alpha	rho_A	Composite Reliability (CR)	Average Variance Extracted (AVE)
CP	0.807	0.808	0.866	0.565
KN	0.842	0.864	0.886	0.608
LC	0.884	0.887	0.912	0.632
SaL	0.881	0.883	0.918	0.737
SaP	0.874	0.875	0.914	0.726
Wi	0.776	0.797	0.868	0.688

Hair et al. (2016) believe that the external loading coefficient needs to be greater than or equal to 0.708 for the observed variable to be of good quality. Looking at the results from the table of loading factors of the factors above, it can be seen that the scale components all have load coefficients > 0.708, so the scale components for each factor are consistent with the remaining indicators and are measured. retained in the model.

Discriminant validity test results

According to Henseler et al (2015), if the HTMT index is below 0.9, the discriminant value is guaranteed. From the table of discriminant test results, it can be seen that the HTMT index is all less than 0.9, so the discriminant value can be assessed.

Table 4. Discriminant validity test results

	CP	KN	LC	SaL	SaP	Wi
CP						
KN	0.219					
LC	0.351	0.359				
SaL	0.291	0.148	0.414			
SaP	0.507	0.392	0.534	0.597		
Wi	0.441	0.237	0.360	0.350	0.626	

Check the fit of the model

To measure the fit of the research model, it is necessary to consider the SRMR index (the difference between the actual data part and the predicted model part). According to Hu and Bentler (1999), the SRMR index must be less than 0.08 or 0.1. Also, Henseler and fortifications. (2015) also suggested that the SRMR index is the "level conformity" index of the PLS-SEM model that can be used to avoid parameter bias in the model. In the result table, the SRMR index is < 0.08, so the research model is suitable.

Table 5. Model fit test

	Saturated Model	Estimated Model
SRMR	0.051	0.056
d_ ULS	0.992	1.178
d_ G	0.334	0.340
Chi-Square	847.477	860.028
NFI	0.851	0.849

Hypothesis test results

PLS-SEM estimates the model path for each Bootstrap template. The PLS-SEM results for all bootstrap samples provide the mean and standard error values for each of the pathway model coefficients. The information of the T-test and P-value represents the statistical significance of the relationship of the path model. The total number of samples is 430 samples and the test results are as follows:

Table 6. Impact coefficient test results

	Original Sample	T Statistics	P-values	Result
CP-> SaP	0.199	4.792	0.000	Accept
Wi -> SaP	0.343	7.644	0.000	Accept
KN -> SaP	0.165	4.110	0.000	Accept
LC -> SaP	0.259	5.249	0.000	Accept
SaP -> SaL	0.526	11.314	0.000	Accept

The results of the impact coefficient test can show that the impact of the variables CP, Wi, KN, LC on the intermediate variable SaP is as follows: The strongest impact is the variable Willingness with the path coefficient (impact factor) is 0.343; followed by the variable Living conditions before and after recovery with $\beta = 0.259$; The third strongest variable is the Process of Compensation ($\beta = 0.199$) and the last is the Knowledge variable with the weakest impact ($\beta = 0.165$). Thus, it can be affirmed that the research hypotheses H1, H2, H3, and H4 are accepted and no hypothesis is rejected. This also explains that all factors CP, Wi, KN, and LC have an impact on Satisfaction in policy (SaP).

The results also show that there is a strong and positive correlation between the variable Satisfaction in policy (SaP) impact the variable Life Satisfaction (SaL), specifically:

$$\text{SaP} \rightarrow \text{SaL} \text{ with coefficient } \beta = 0.526$$

From the results of the analysis of the linear structural model (SEM) and the tests, it is shown that the research hypotheses from H1 to H4 and H5 are accepted. All factors Knowledge, Willingness, Living conditions before and after withdrawal, Compensation process has a positive impact on Satisfaction with the policy. Policy satisfaction will impact Life satisfaction after withdrawal.

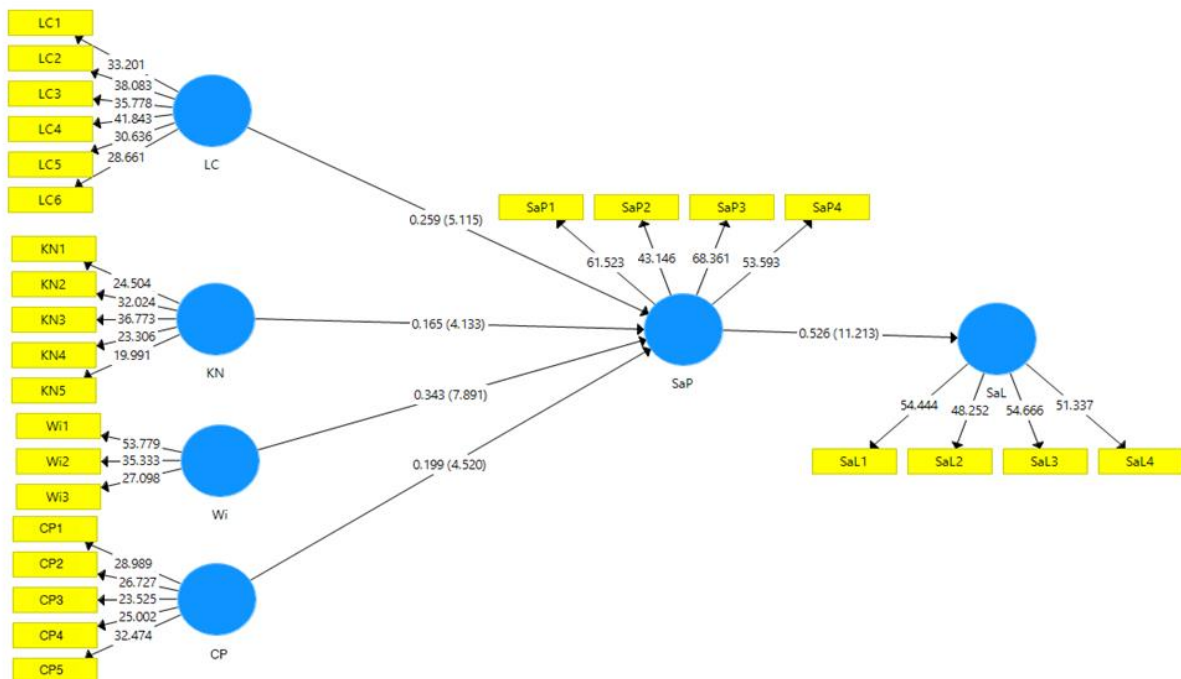


Figure 2. Linear Structural Analysis Model (SEM)

R-Square Test:

Table 7. R-Square evaluation results

	R-Square	Accuracy in forecasting
SaL	0.277	Average
SaP	0.446	High

The closer the R-Square value is to 1, the more accurate the prediction is. However, determining how much R-Square is difficult and depends on the research environment and research model. In the above table, the forecast accuracy of SaP to SaL is at an average level with the value R-Square = 0.277 and with the value R-Square = 0.446, the accuracy in the forecast of the independent variables KN, Wi, LC, CP to variable SaP is high.

Multi-group analysis results

Table 8. Results of multi-group analysis between Gia Lam and Long Bien

	Path Coefficients-diff (Gialam - Longbien)	p-Value new (Gialam vs Longbien)
CP-> SaP	-0.107	0.221
KN -> SaP	-0.003	0.980
LC -> SaP	-0.125	0.328
SaP -> SaL	-0.058	0.617
Wi -> SaP	0.221	0.034

The results of PLS - MGA between Gialam and Longbien groups show that the relationships between CP and SaP, KN and SaP, LC and SaP, SaP and SaL have p-Values greater than 0.05, respectively, so there is no difference between the two groups. There is a difference in the impact of Wi on SaP because p-Value new is $0.034 < 0.05$, so the way in which Willingness affects Policy Satisfaction is significantly different in Gialam than in Longbien. After evaluating the new p-Value considering the Path Coefficients-diff difference from Wi to SaP is $0.221 > 0$, this shows that Wi has a weaker effect on SaP in Longbien than Gialam.

Table 9. Results of multi-group analysis between Gia Lam and Thuong Tin

	Path Coefficients-diff (Gialam - Thuongtin)	p-Value new (Gialam vs Thuongtin)
CP-> SaP	-0.125	0.228
KN -> SaP	0.041	0.666
LC -> SaP	-0.121	0.282
SaP -> SaL	-0.002	0.976
Wi -> SaP	0.246	0.023

In the analysis of PLS - MGA results between two groups Gialam and Thuongtin, it showed that the groups CP and SaP, KN and SaP, LC and SaP, SaP and SaL, respectively, had p-Values greater than 0.05, so there was no difference between these two groups.

In the impact relationship between Wi and SaP, there is a p-Value of 0.023, less than 0.05, so there is a significant difference in the impact of Wi on SaP between Gialam and Thuongtin. After evaluating the new p-Value, it was found that there is a difference in the relationship between Wi and SaP, we consider that the difference in the normalized impact coefficients (Path Coefficients-diff) from Wi to SaP is $0.246 > 0$, this means Willingness effect on Policy Satisfaction is stronger in Gialam than Thuongtin.

Table 10. Results of multi-group analysis between Long Bien and Thuong Tin

	Path Coefficients-diff (Longbien vs Thuongtin)	p-Value new (Longbien vs Thuongtin)
CP-> SaP	0.565	0.871
KN -> SaP	0.331	0.662
LC -> SaP	0.474	0.948
SaP -> SaL	0.308	0.615
Wi -> SaP	0.417	0.834

In the multi-group analysis between Longbien and Thuongtin, it shows that the groups CP and SaP, KN and SaP, LC and SaP, SaP and SaL, Wi and SaP respectively have p-Value new greater than 0.05, so it can be concluded that the effects between Knowledge, Willingness, Living Conditions before and after withdrawal and Compensation Process on Policy Satisfaction and between Policy Satisfaction and Life Satisfaction is not difference.

4. Discussion and Conclusion

4.1. Discussion

Firstly, for people's satisfaction with the policy

Research results have shown four factors affecting people's satisfaction with land acquisition policy, including Knowledge, Willingness, Living conditions before and after the acquisition, and the Process compensation.

Among these factors, Willingness is the most important factor affecting people's satisfaction with land acquisition policy (coefficient 0.343); that is, people are willing to participate in land acquisition policy. The land return shows high satisfaction with the policy. The knowledge of land acquisition policy is the second most crucial factor with a coefficient of 0.259, followed by the Compensation process with a coefficient of 0.199, and finally, Living conditions before and after the acquisition with a coefficient of 0.166

Second, for people's satisfaction with life after recovery.

Compensation level and resettlement support are two factors that significantly affect people's satisfaction with life after recovery. After the land is taken, people will be compensated for land, house, or money, sometimes two out of three. Satisfaction with compensation level and resettlement sites significantly affect satisfaction with life after acquisition.

Some proposals and recommendations

Firstly, for the policy on compensation and support levels after the State's land acquisition.

The State needs to review, amend and supplement legal documents on compensation and resettlement support levels.

Continue to amend and supplement the contents, order, conditions, and procedures for applying specific land valuation methods or calculating compensation prices when the State recovers land (direct comparison, deduction, income, surplus, land price adjustment coefficient).

Focus on implementing solutions to ensure transparency and develop a healthy and stable transfer market parallel with strict regulations and penalties for law violations.

Second, policies support people whose land has been recovered to ensure a stable life and long-term livelihood.

The State's support policy should be reviewed and revised to increase the level of support for job training and job change for those whose agricultural land has been recovered to ensure stable life and long-term livelihood. More specific regulations on the level of support appropriate to people according to the area's characteristics and occupation of the person whose land is recovered.

Third, the organization of compensation and support for people when the State recovers land.

Strictly implement, ensure transparency and fairness for all households whose land is recovered during the implementation process, and collect people's opinions in formulating compensation and support plans. Hold policy-making consultation meetings in a marketable, responsible manner, requiring full, well-founded explanations in both legal and practical terms for unreasonable, unacceptable opinions.

The State and local authorities need to supplement appropriate methods of propaganda and education so that all people can understand and grasp more clearly the policy of resettlement, support, and resettlement. Regularly organize training courses and staff training for staff doing recovery, compensation, and support tasks.

Fourth, about the people's living conditions after the land is recovered.

For people whose lives, jobs, and livelihoods are affected, the State needs to pay attention and have timely solutions to support adequately, solve employment problems, and create favorable conditions for people to live and work. Convenient in accessing people's knowledge, traffic, cultural works, and public welfare. Particular attention should be paid to the people's living environment to ensure the unpolluted environment of factories in the vicinity of resettlement areas. In addition, it is necessary to listen to and promptly deal with suggestions and reflections to ensure the physical and mental quality of local people.

4.2. Conclusion

The study has shown four factors affecting people's satisfaction with the land acquisition policy: Knowledge, Willingness, Living conditions before and after the acquisition, and Compensation process. Through the analysis methods of the PLS-SEM model, the study has shown the influence of the factors and the relationship between the variables together and tested the model. Accordingly, four factors affecting people's satisfaction with land acquisition policy all have a positive impact, and the factor that has the most substantial impact on people's satisfaction with the policy is Willingness.

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DETERMINANTS OF RESIDENTIAL LAND PRICES: AN EMPIRICAL STUDY IN VIETNAM

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Abstract

The study aims to determine the impact of factors on residential land prices in the period from 2020 to 2021. The study investigates 250 officials, real estate investors, credit officers, and real estate agents on factors affecting residential land prices. The research results have shown 12 groups with 47 factors affecting land prices. The rate impact rate of the factor groups ranges from 1.58% to 31.34%. The COVID-19 pandemic factor group has the strongest impact on residential prices, followed by groups of factors: real estate brokerage; urbanization, industry, and handicrafts; upgrading administrative and planning units; real estate market; economical factors; infrastructure; environment; legal elements; social factors, location factors, individual factors. To harmonize the interests of the State, investors, and land users when valuing land, it is necessary to pay attention to the factors that strongly affect the land price first, followed by the factors that have a smaller impact.

Keywords: *Bac Ninh, COVID-19 pandemic, determinants, residential land prices.*

1. Introduction

According to the provisions of Vietnamese law, the land belongs to the entire people and is managed by the State on behalf of the owner. Individuals and organizations, collectives referred to as land users, are not entitled to land ownership, only have land-use rights. Land users are entitled to exercise their rights and obligations as prescribed. Therefore, land price is understood as the value of land use rights of an area unit at a specific time and a specific location. Land price is one of the bases for calculating land use levy, land rent, taxes, fees, charges, and other financial obligations related to land such as purchase and sale of land use rights, land lease, mortgage, capital contribution, etc (National Assembly of the Socialist Republic of Vietnam, 2013). Residential land prices in particular and land prices, in general, are affected by many different factors that influence land prices, and the extent to which they affect land also varies for different types of land and at specific locations and at certain times. So far, there have been many studies on the factors affecting land prices to different degrees. Some studies focused on assessing the factors affecting agricultural land prices or non-agricultural land prices (Dirgasov et al., 2017; Downing, 1973; Hultkrantz, 1991; Le, 2017). Several studies evaluated the impact of one or more factors on land prices. Studies pointed out groups of factors affecting land prices including location and characteristics of land plots, supply, and demand of the real estate market, and economic, social, environmental, security, and order factors. self, legal, etc. Even so, other factors have

not been assessed for impact, including the COVID-19 Pandemic, real estate brokerage practices, industrial development, handicrafts, etc. Therefore, assessing the impact of factors affecting land prices to answer the questions: *What factors are affected by land prices besides traditional factors? What is their impact and impact rate on land prices? What are the recommendations related to land prices to harmonize the interests of the State, investors, and other people in the process of land management and use?*

The study focused on factors affecting land prices during the period of the COVID-19 Pandemic (the 2020 - 2021 period). The research model was tested in Bac Ninh city, Vietnam because residential land prices were simultaneously affected by many factors, including urbanization, industrial development, handicrafts, the COVID-19 Pandemic, etc. In particular, Bac Ninh city is also the political, economic, and cultural center of Bac Ninh province with a population of over 247702 people. It also has many industrial parks and industrial clusters in its area and adjacent to it. This is also a factor affecting the price of residential land. However, until now, there has been no research on its impact as well as the impact of other factors in the context of the COVID-19 Pandemic. The main content of this paper includes a literature review, research methods, results and discussion, conclusions, and policy implications.

2. Literature Review

According to the provisions of Vietnamese law, residential land is a land for the construction of houses, construction of works in service of life; gardens and pond land attached to houses in the same land plot in a residential area (including the case of gardens and ponds attached to separate houses) has been recognized as residential land. In Vietnam, there are four main types of residential land prices, including land prices in the land price framework, land prices in the land price list, specific land prices, and market prices. Residential land prices in the land price framework decided by the Government are applied nationwide for all types of land. The land price belongs to the land price list issued by the Provincial People's Committee every 5 years and is applied when determining fees, charges, fines for administrative violations on land, etc. Specific residential land prices are also decided by the People's Committees of provinces and are applied in specific cases such as calculating compensation for land when the State recovers, determining the starting price for the land auction, land use levy, etc. prescribed land rent, etc. The land price in the market is the land price agreed upon by the parties to a civil land transaction when signing the contract. Land prices are affected by many different factors. Factors affecting land price are elements that would increase or would decrease the land price of a particular land parcel or change the land price in a particular area. Factors affecting land prices are classified according to the characteristics of the factors. Land prices are affected by specific groups of factors at defined locations and at specific times.

Research by Hai & Huong (2017) showed 4 groups of factors affecting land prices including location, area, the width of the frontage of the land plot, and security factors. The location of the parcel of land includes its distance to the center, the supermarket, school, hospital, amusement park, sports hall, etc. Research by Phan et al. (2017) also pointed out four groups of factors affecting land prices, namely neighborhood, individual, economic, and social factors. The studies of Ho & et al. (2020) indicated the influence of 6-factor groups

on residential land prices, including infrastructure, individual, economic, location, social, and legal factors. According to Nguyen (2017), many factors also affected land prices, including urbanization. Urbanization is associated with an increase in the urban population over time and the upgrading of technical and social infrastructure and also increases the price of residential land. According to (Huang & Du, 2020) in urban areas, high-speed railways increased land prices in suburban areas of the city due to convenient transportation, so the demand for land in suburbs increases, causing land prices to increase. Besides, economic, financial, environmental, and demographic factors also affected residential land prices (Kheir & Portnov, 2016; Mitsuta et al., 2012; Scott, 1983).

The above studies showed some main groups of factors affecting land prices, including the location of the land plot, the group social factors, the group of legal factors, the group of economic factors, the group of personal factors particular, and the group of infrastructure elements, etc. Each factor group usually had 3 to 6 specific factors. However, the names of groups and the number and names of factors might differ due to the classification of the authors and due to the specific conditions of each study area, and also due to different study times. Even so, no studies have yet assessed the impact of factors on land prices during the COVID-19 Pandemic including COVID-19 pandemic factors. Therefore, this gap needs to be addressed.

3. Method

Secondary data on natural, socio-economic conditions in the 2020-2021 period were collected at state agencies in Bac Ninh city. Primary data on factors affecting residential land prices were collected in 2 steps in April 2022. Step 1 surveyed by randomly printed questionnaires of 250 people including officials directly related to residential land prices, real estate investors, and real estate agents. The content of the questionnaire included basic information about survey respondents, and 39 hypothetical factors affecting residential land prices inherited from previous studies.

Each factor had 2 corresponding options (affecting and not affecting the price of residential land) for respondents to choose one of the two. In addition, respondents were asked to add other factors that might affect the price of residential land in their opinion. The data processing results showed that 52 factors might affect the land price, of which 13 factors were added to 39 factors. Even so, only 47 factors had an evaluation percentage greater than 50% of the total number of respondents and were selected to conduct the assessment, the remaining 5 factors had a percentage less than 50%. were disqualified. The selected factors were classified according to their characteristics into 12 groups. Each group was considered as a latent factor or independent variable and had 3 to 6 factors. The factors belonging to the groups were called observed variables (Table 1). Some additional factors that might affect residential land prices include the magnitude of the impact of the COVID-19 pandemic, its prevention and control measures, and its repeatability; industrial development, handicrafts; orientation of the land plot; factors related to real estate brokerage, and upgrading of administrative units and land use planning (Table 1). The model of the hypothetical factors affecting the price of residential land was shown in Figure 1.

Table 1. Groups of factors affecting residential land prices

Group of factors	Group of factors	Group of factors
H1. Group of COVID-19 pandemic factors	Construction planning	Loan amount
The impact level of the pandemic	Planning and plan of land-use	Land finance
Measures to prevent and fight the epidemic	H6. Group of infrastructure factors	Buyer's income level
A cycle of the pandemic repeats	Transportation system	H10. Group of particular factors
H2. Group of factors of urbanization, industry, handicrafts	Energy power supply system	Area of the land plot
Urbanization	Water supply and drainage system	The shape of the land plot
Industrial development	Communication systems	Width of facade
Handicraft development	System of educational and medical facilities	Length of the parcel of land
H3. Group of real estate market factors	System of cultural, physical training and sports facilities	The direction of the land plot
Real estate supply	H7. Group of social factors	H11. Group of legal factors
Real estate demand	People's understanding and observance of the law	The legal status of the land plot
Forecast of real estate supply and demand	Security	Restrictions on construction planning
H4. Group of factors of land plot location	Social Order	Restrictions on land use rights
Distance to the city center	H8. Environmental factors group	H12. Group of factors of real estate brokerage
Distance to markets and supermarkets	Smoke and dust	Real estate brokerage methods
Distance to schools	Noise	Professional qualifications of brokers
Distance to medical facilities	Waste collection and treatment	The broker's sense of compliance with the law
Distance to entertainment facilities	H9. Group of economic factors	
Distance to fitness and sports centers	The income-generating ability of the land plot	
H5. Group of administration and planning factors	Loan interest rate	
Administrative unit upgrade plan	Loan procedure	

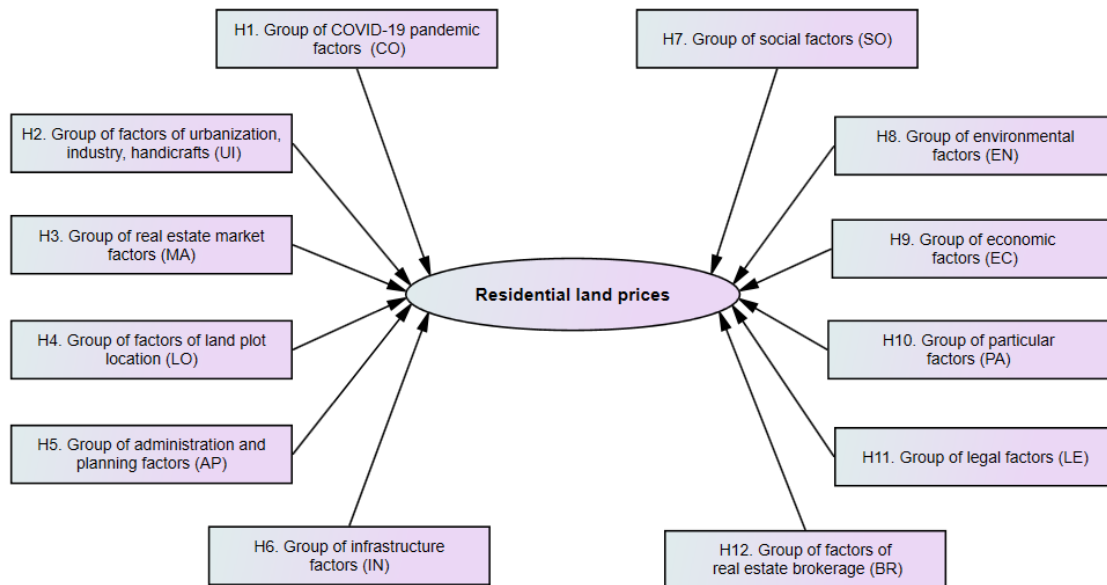


Figure 1. Hypothetical model of factors affecting residential land prices

The equation evaluating the factors affecting residential land prices was shown in formula 1.

$$Y = \beta_0 + \beta_1 * CO + \beta_2 * UI + \beta_3 * MA + \beta_4 * LO + \beta_5 * AP + \beta_6 * IN + \beta_7 * SO + \beta_8 * EN + \beta_9 * EC + \beta_{10} * PA + \beta_{11} * LE + \beta_{12} * BR + \varepsilon \quad (1)$$

Where Y: The dependent variable represents the price of residential land; β_0 : Constant; β_1 ; β_2 ; β_3 ; β_4 ; β_5 ; β_6 ; β_7 ; β_8 ; β_9 ; β_{10} ; β_{11} ; β_{12} : The regression coefficients of the independent variables are the following groups of factors: COVID-19 pandemic; urbanization, industry, handicrafts; real estate market; the location of the parcel of land; administration and planning; Infrastructure; social factors; environment; economic factors; particular factors; juridical; and real estate brokers. CO; UI; MA; LO; AP; IN; SO; EN; EC; PA; LE; BR: Independent variables, respectively COVID-19 pandemic; urbanization, industry, handicrafts; real estate market; the location of the parcel of land; administration and planning; Infrastructure; social factors; environment; economic factors; particular factors; juridical; and real estate brokers. ε : impact value of unknown factors.

To have data for testing the hypothetical research model, Step 2 conducted a survey using pre-printed questionnaires of those who had responded to the survey in Step 1. The content of the questionnaire included 47 elements that had been selected in Step 1. Each factor had 5 corresponding ratings according to the Likert scale (very impactful – 5 points, quite impactful – 4 points, little impact – 3 points, very little impact – 2 points, no impact) – 1 point) (Likert, 1932) for respondents to choose 1 out of 5 levels for each factor. In addition, respondents were also asked to write down their analysis comments on the impact of factors on residential land prices. The number of survey samples was determined based on the requirements of the exploratory factor analysis (EFA) with at least 5 observations for 1 measurement variable (Hoang & Nguyen, 2005). Therefore, with 47 measuring variables belonging to 12 groups of influencing factors, the sample size was 235. For multivariable

regression analysis, the minimum sample size to be achieved is $50 + 8 \cdot p$ (p is the number of variables - $p = 12$) (Tabachnick & Fidell, 1996), and the minimum number of survey samples was 146. To ensure both the requirements of exploratory factor analysis and multivariate regression analysis with higher reliability, investigative research 2nd time all 250 people had responded to the survey in Step 1. The impact level of each factor on land prices is determined according to the value of the impact index according to 5 levels (Very impactful - *the impact index* $\geq 4,20$; quite impactful - *the impact index* $3,40 \div 4,19$; medium impactful - *the impact index* $2,60 - 3,39$; little impactful - *the impact index* $1,80 \div 2,59$; not impactful - *the impact index* $< 1,80$) (Likert, 1932). The impact index of each factor is determined according to formula 2.

$$G_i = \frac{1}{n} * \sum_{i=1}^q \sum_{j=1}^n x_{ij} \quad (2)$$

Where G_i is impact index of the i factor; n : number of respondents; q : number of impact factors; x_{ij} : the j^{th} respondent's score for factor i . The impact index of k^{th} factor group is determined according to formula 3.

$$Gav_k = \frac{1}{p} * \sum_{k=1}^m \sum_{z=1}^p G_{kz} \quad (3)$$

Where Gav_k is average impact index of k^{th} factor group; m : number of factor groups; p : number of factors of group k ; G_{kz} : the impact index of the z^{th} factor in the k^{th} group. The general impact level on land prices is determined by formula 4.

$$Gav = \frac{1}{m} * \sum_k^m Gav_k \quad (4)$$

Where Gav is the average impact index of all the factor groups (*general impact level on land prices*); m : number of factor groups; Gav_k : average impact index of the k^{th} factor group.

The testing of the reliability of the scale by Cronbach's Alpha coefficient was to measure the internal consistency of variables in the same group. The scale can be used when the Cronbach Alpha coefficient is greater than or equal to 0.6 and the variables have a total correlation coefficient greater than 0.3 (Hoang & Nguyen, 2008; Hair et al., 2009). The exploratory factor analysis (EFA) is used to shorten many measurement variables into a set of variables (factors) to make them more meaningful but still contain most of the information of the original set of variables. The EFA was assessed through KMO appropriate coefficient, Bartlett test, Eigenvalues coefficient, total explanatory variance, and load factor. Variables are only accepted when KMO is in the range from 0.5 to 1.0 and its weight factors in other factors are less than 0.35 (Igbaria et al., 1995). According to Hair et al. (2009), with a sample size of about 250, weights of 0.35 should be chosen, so for a sample size of 250, in this study, a load weight must be greater than 0.35. Besides, the scale is only accepted when the total variance explained is greater than 50%; Bartlett's coefficient with Sig significance level less than 0.05 to ensure the factors are correlated with each other; Eigenvalue coefficients must be greater than 1 to ensure the groups of factors are different.

4. Results

According to Table 2, the factors affecting the price of residential land had variable impact indexes with a large range from 1.65 to 4.76 (from low impact to very high impact). The average impact indicators of the groups also varied from 2.45 to 4.41 (from low impact to very impact). The group of COVID-19 pandemic factors had the strongest impact on residential land prices due to the application of social distancing measures, so the land market was frozen, with very few successful transactions. Real estate brokers could not do in-person brokerage and switched to online brokerage. Therefore, providing real estate information was also difficult. Therefore, the price of land during the gap period tended to decrease significantly (down to 20% compared to the price before the pandemic). The survey results also showed that the group of real estate brokerage factors with a strong impact occupied the second position (impact index 4.33). In particular, administrative and planning factors also had a strong impact on land prices (impact index 4.18). Specifically, according to the plan by 2022, Bac Ninh city will become a city directly under the central government, so investment in socio-economic development takes place strongly to facilitate production and improve the living standards of people. This had pushed demand for land to increase during the end of the Pandemic and in areas with low levels of social distancing. Besides, the process of urbanization and development of industry and handicrafts had led to an increase in the mechanical population and also increased the demand for housing, leading to an increase in the demand for residential land. The remaining groups of factors also affected the price of residential land with the impact index from 3.70 to 1.92. The group of social factors that had the smallest impact on land prices was due to the good understanding and observance of the law by the people and good security and order.

Table 2. Impact indexes and impact levels of factors

Group of factors	impact index	Impact level	Medium impact index	Medium impact level	Group of factors	impact index	Impact level	Medium impact index	Medium impact level
H1. Group of COVID-19 pandemic factors	4.41	VI	4.41	VI	H7. Group of social factors	1.92	LI	1.92	LI
The impact level of the pandemic	4.51	VI			People's understanding and observance of the law	1.67	LI		
Measures to prevent and fight the epidemic	4.76	VI			Security	1.74	LI		
The cycle of the pandemic repeats	3.96	QI			Social Order	2.35	LI		
H2. Group of factors of urbanization, industry, handicrafts	3.99	QI	3.99	QI	H8. Environmental factors group	3.41	QI	3.41	QI
Urbanization	4.03	QI			Smoke and dust	4.97	VI		
Industrial development	4.32	VI			Noise	2.42	LI		
Handicraft development	3.61	QI			Waste collection and treatment	2.85	MI		
H3. Group of real estate market factors	3.70	QI	3.70	QI	H9. Group of economic factors	3.51	QI	3.51	QI
Real estate supply	3.56	QI			The income-generating ability of the land plot	3.54	QI		
Real estate demand	3.51	QI			Loan interest rate	3.61	QI		
Forecast of real estate supply and demand	4.03	QI			Loan procedure	3.94	QI		
H4. Group of factors of land plot location	2.59	LI	2.59	LI	Loan amount	4.39	VI		
Distance to the city center	2.43	LI			Land finance	2.54	LI		
Distance to markets and supermarkets	2.54	LI			Buyer's income level	3.06	MI		
Distance to schools	2.21	LI			H10. Group of particular factors	2.45	LI	2.45	LI
Distance to medical facilities	2.43	LI			Area of the land plot	2.64	MI		
Distance to entertainment facilities	3.04	MI			The shape of the land plot	2.09	LI		

Group of factors	impact index	Impact level	Medium impact index	Medium impact level	Group of factors	impact index	Impact level	Medium impact index	Medium impact level
Distance to fitness and sports centers	2.86	MI			Width of facade	1.65	LI		
H5. Group of administration and planning factors	4.18	QI	4.18	QI	Length of the parcel of land	2.01	LI		
Administrative unit upgrade plan	4.03	QI			The direction of the land plot	3.87	QI		
Construction planning	4.28	VI			H11. Group of legal factors	3.76	QI	3.76	QI
Planning and plan of land-use	4.22	VI			The legal status of the land plot	3.22	MI		
H6. Group of infrastructure factors	3.62	QI	3.62	QI	Restrictions on construction planning	3.98	QI		
Transportation system	3.92	QI			Restrictions on land use rights	4.07	QI		
Energy power supply system	3.33	MI			H12. Group of factors of real estate brokerage	4.33	VI	4.33	VI
Water supply and drainage system	4.01	QI			Real estate brokerage methods	4.26	VI		
Communication systems	3.29	MI			Professional qualifications of brokers	4.28	VI		
System of educational and medical facilities	3.11	MI			The broker's sense of compliance with the law	4.45	VI		
System of cultural, physical training and sports facilities	4.04	QI							

The results of evaluating the reliability of the scale through Cronbach's Alpha coefficient for 12 groups of factors showed that Cronbach's Alpha coefficient ranges from 0.704 to 0.901. The total variable correlation coefficient was greater than 0.3 (Table 3). Thus, the scale used to evaluate the factors affecting the price of residential land is reliable and suitable for further analysis. The suitability test of EFA was carried out through the KMO suitability coefficient. Research results had determined $KMO = 0.742$ and satisfying the condition $0.5 < KMO < 1$, so exploratory factor analysis was appropriate with actual data. Besides, the results of the Barlett test for the Sig value. Were equal to 0.00 and less than 0.05 (Table 4). This proved that the measured variables were linearly correlated with the representative factor.

Table 3. Results of reliability analysis of the scale

Variables	Total variable correlation	Variables	Total variable correlation
H1. Group of COVID-19 pandemic factors (CO – Alpha=0,791)		H7. Group of social factors (SO – Alpha=0,882)	
The impact level of the pandemic (CO1)	0.784	People's understanding and observance of the law (SO1)	0.847
Measures to prevent and fight Epidemic (CO2)	0.677	Security (SO2)	0.764
The cycle of the pandemic repeats (CO3)	0.831	Social Order (SO3)	0.712
H2. Group of factors of urbanization, industry, handicrafts (UI – Alpha=0,884)		H8. Group of environmental factors (EN – Alpha=0,785)	
Urbanization (UI1)	0.675	Smoke and dust (EN1)	0.874
Industrial development (UI2)	0.782	Noise (EN2)	0.671
Handicrafts development (UI3)	0.843	Waste collection and treatment (EN3)	0.748
H3. Group of real estate market factors (MA – Alpha=0,896)		H9. Group of economic factors (EC – Alpha=0,793)	
Real estate supply (MA1)	0.674	The income-generating ability of the land plot (EC1)	0.784
Real estate demand (MA2)	0.778	Loan interest rate (EC2)	0.881
Forecast of real estate supply and demand (MA3)	0.846	Loan procedure (EC3)	0.736
H4. Group of factors of land plot location (LO – Alpha=0,704)		Loan amount (EC4)	0.718
Distance to the city center (LO1)	0.674	Land finance (EC5)	0.678
Distance to markets and supermarkets (LO2)	0.783	Buyer's income level (EC6)	0.847
Distance to schools (LO3)	0.674	H10. Group of particular factors (PA – Alpha=0,832)	
Distance to medical facilities (LO4)	0.884	Area of the land plot (PA1)	0.784
Distance to entertainment facilities (LO5)	0.749	The shape of the land plot (PA2)	0.678
Distance to fitness and sports centers (LO6)	0.791	Width of the facade (PA3)	0.717

Variables	Total variable correlation	Variables	Total variable correlation
H5. Group of administration and planning factors (AP – Alpha=0,901)		Length of the parcel of land (PA4)	0.846
Administrative unit upgrade plan (AP1)	4.03	The direction of the land plot (PA5)	0.761
Construction planning (AP2)	4.28	H11. Group of legal factors (LE – Alpha=0,806)	
Planning and plan of land use (AP3)	4.22	The legal status of the land plot (LE1)	0.769
H6. Group of infrastructure factors (IN – Alpha=0,872)		Restrictions on construction planning (LE2)	0.674
Transportation system (IN1)	0.674	Restrictions on land use rights (LE3)	0.720
Energy power supply system (IN2)	0.864	H12. Group of factors of real estate brokerage (BR – Alpha=0,865)	
Water supply and drainage system (IN3)	0.761	Real estate brokerage methods (BR1)	0.698
Communication systems (IN4)	0.672	Professional qualifications of brokers (BR2)	0.741
System of educational and medical facilities (IN5)	0.784	The broker's sense of compliance with the law (BR3)	0.846
System of cultural, physical training, and sports facilities (IN6)	0.811		

Table 4. Results of KMO Test and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.742
Bartlett's Test of Sphericity	Approx. Chi-Square	764.614
	Df	183
	Sig.	0.000

The load factor coefficients of the components were all greater than 0.60 (Table 5), so the EFA analysis had practical significance, the independent variables ensured the accuracy and were included in the regression analysis model to determine level impacts.

Table 5. Weight of rotation matrix

Weights	Factors	Weights	Groups	Factors	Weights	Groups	Factors	Trọng số	Groups	Factors	Weights
1	CO1	0.631		LO4	0.739	7	SO1	0.874	10	PA1	0.711
	CO2	0.784		LO5	0.742		SO2	0.684		PA2	0.679
	CO3	0.679		LO6	0.661		SO3	0.738		PA3	0.724
2	UI1	0.887	5	AP1	0.873	8	EN1	0.781		PA4	0.782
	UI2	0.746		AP2	0.817		EN2	0.648		PA5	0.608
	UI3	0.689		AP3	0.618		EN3	0.705		LE1	0.644
3	MA1	0.784	6	IN1	0.876	9	EC1	0.762	11	LE2	0.741
	MA2	0.841		IN2	0.794		EC2	0.801		LE3	0.817
	MA3	0.779		IN3	0.846		EC3	0.775		BR1	0.833
4	LO1	0.679		IN4	0.663		EC4	0.636	12	BR2	0.667
	LO2	0.748		IN5	0.718		EC5	0.749		BR3	0.780
	LO3	0.691		IN6	0.689		EC6	0.881			

The results of multivariable regression analysis in Table 6 pointed out the coefficient Sig. equal to 0.00 was less than the significance level $\alpha = 1\%$, so the regression model was significant, and the independent variables had an impact on the dependent variable Y. The adjusted R^2 value of 0.869 indicated the scale affected 86.9% of the change of the dependent variable (residential land price), the remaining 13.1% was due to variables outside the model and random error. Besides, the Durbin Watson coefficient had a value of 1.783, ranging from 1.5 to 2.5, so no first-order sequence autocorrelation occurred (Table 6). The magnification of variance (VIF) of all variables included in the model was less than 2, so the research model did not have multicollinearity. In addition, the variables included in the study were statistically significant (Sig. is 0 and less than 0.05). From the standardized regression coefficient (Table 6), the study had determined the regression equation of the following form:

$$Y = 0.947*CO + 0.351*UI + 0.169*MA + 0.071*LO + 0.270*AP + 0.121*IN + 0.083*SO + 0.110*EN + 0.146*EC + 0.048*PA + 0.108*LE + 0.598*BR + 3.527 \quad (6)$$

Table 6. Results of multivariable regression analysis

Independent variables	Standardized regression coefficients	t	Multicollinear Statistics		Impact rates	Impact order
			Error (Sig.)	VIF		
CO	0.947	4.672	0	1.673	31.34	1
UI	0.351	5.439	0	1.983	11.63	3
MA	0.169	3.530	0	1.775	5.58	5
LO	0.071	5.472	0	1.703	2.36	11
AP	0.270	5.931	0	1.652	8.94	4
IN	0.121	4.474	0	1.951	4.01	7
SO	0.083	3.573	0	1.664	2.75	10
EN	0.110	4.118	0	1.872	3.64	8
EC	0.146	3.507	0	1.620	4.82	6
PA	0.048	5.579	0	1.752	1.58	12
LE	0.108	4.673	0	1.693	3.57	9
BR	0.598	4.032	0	1.562	19.78	2
β_0	3.527					
Sig. F = 0,000; Coefficient $R^2 = 0,902$; Corrected R^2 coefficient = 0,869; Durbin-Watson = 1,783						

The results in Table 2 and Table 5 showed that residential land prices were affected by 57 factors belonging to 12 groups of factors. Compared with the results of previous studies, this study showed more factors and groups of factors. Groups of factors that were different from the previous ones include the group of COVID-19 pandemic factors; a group

of real estate brokerage elements; groups of factors of urbanization, industry, and handicrafts; a group of administrative and planning elements. Some groups had the same name, but their factors might also be similar to, and different from those pointed out in previous studies, including real estate market factors; a group of economic factors; a particular group of factors. The research results also showed that the impact rates of factors on land prices were also different and also different from the impact rates of the groups of factors that had been shown in previous studies. The COVID-19 pandemic factor group and the real estate brokerage factor group were both new factors and had the highest impact rate (Table 6). Moreover, their factors also had a strong impact on land prices (Table 2). This was the difference compared with the research results of (Tra et al., 2020) because the infrastructure factor had the largest impact rate. Nguyen's research (2017) showed that the distance to political centers, schools, hospitals, etc had the strongest impact on land prices. According to Phan et al (2017), regional factors had the strongest impact. The main reasons were because the studies had been carried out in different locations, with different natural, and socio-economic conditions and different epidemic situations.

The rate of impact of 12 groups of factors on land prices ranged from 31.34% to 1.58% (Table 6). The group of COVID-19 pandemic factors had the largest impact rate, followed by the group of real estate brokerage factors, the group of factors of urbanization, industry, handicrafts, and other groups of factors. The group of individual factors including the area of the land plot, the shape of the land plot, the width of the facade, etc. had the smallest impact ratio because the land plots had the same area, shape, and width as the facade met the requirements and the needs of land users.

5. Discussion and Conclusion

The price of residential land in the study area was simultaneously affected by 47 factors belonging to 12 groups of factors. The groups of factors that had the strongest impact on residential land prices were the group of factors related to the COVID-19 pandemic, the group of real estate brokerage factors, and the group of factors of urbanization, industry, and handicrafts with impact rates respectively from 31.34% to 11.63%. 09 groups of factors also had a smaller impact rate (from 8.94% to 1.58%). The degree of impact on land prices of each factor in the groups of factors ranged from low impact to very strong level (impact index ranges from 1.65 to 4.76). For residential land prices to be more consistent with the interests of the State, real estate investors, land users, credit institutions, and other organizations and individuals related to land, when determining land prices need to pay attention to the level of impact and rate of impact of factors on land prices. It is necessary to pay attention to the groups of factors that have the strongest impact on land prices, followed by groups of factors with a smaller impact rate. In particular, when making financial policies on land, the State needs to pay attention to the epidemic factor and measures to prevent it to have solutions to ensure appropriate budget revenue and achieve the set plan. The research methods in this report can be used as a reference when researching issues related to residential land prices in other areas.

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FINANCE FOR SMART CITIES IN VIETNAM

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Abstract

Smart city infrastructure in Vietnam is transforming into a more efficient and dynamic way with digital technologies and services with the aim of enhancing and improving the quality of life of citizens. However, project implementation requires the Government of Vietnam to attract new investment capital in addition to traditional public finance. Therefore, Public-Private Partnership (PPP) is considered the most appropriate solution and become a global trend to solve the financial difficulties for smart cities today. The application of PPP forms for smart city projects in Vietnam has not yet fully met the criteria and is only on the rise so far. With the current smart city sector, the Government prioritizes mobilizing capital resources from private enterprises, including PPP in Vietnam. Hence, this newspaper will forecast and propose some PPP financial instruments, emphasizing the opportunities and challenges involved. In particular, recommend the use of 3 reasonable alternatives including Financing Projects (PF), Revenue Sharing (RS), and Social Impact Bonds (SIB) are suitable sources of funding for smart city projects in Vietnam. This is a qualitative secondary study based on the data and information provided by the official websites and previous studies along with national analysis and international experience to draw further conclusions.

Keywords: *Finance, Smart City (SC), Public-Private Partnership (PPP), Project Finance (PF), Revenue Sharing (RS), Social Impact Bonds (SIB), Viet Nam.*

1. Introduction

Historically, the city appeared to have become a place of trade for the surrounding agricultural production areas and industrial production had pulled people from rural areas to work, creating conditions for the emergence of urban areas more and more day by day. Industrialization and electrification have led to the trend of urbanization. The content of the

urbanization trend is the expansion of the city, expressed as a percentage of the urban population or urban area over the total population or area of an area or area. It can also be calculated as the ratio of the increase of those two factors over time. If calculated in the first way, it is also called the degree of urbanization, and in a second way, it is called the urbanization rate. Thanks to urban areas, industrial production, services, culture, science... develop, people's income is enhanced. As analyzed, a high urbanization rate is a sign of the country's prosperity. Therefore, urbanization is considered a very important and urgent issue for Vietnam. Research shows that the urbanization rate in 2020 will increase to 39.3%, an increase of more than 9% compared to 2010 (GSO); The degree of urbanization is increasing rapidly and constantly increasing and it is forecasted that by 2030, 4.9 billion people, equivalent to 60% of the world's population (United Nations) live in urban areas, creating favorable conditions for urban living. socio-economic development, promote the transformation of economic structure and labor structure towards industrialization and modernization; The target of the urbanization rate is to reach 45% by 2025 and about 50% by 2030 (Resolution of the XIII Party Congress). Urban space has been expanded, forming a number of major growth positives in large cities, especially in two special urban areas, Hanoi and Ho Chi Minh City. The urban technical infrastructure is focused on investing in asynchronous and gradually modernized direction, urban social infrastructure is diversified, scaled up and service quality improved. The quality of life in urban areas has been gradually improved, and the urban economy has grown at a high rate.

However, urbanization, urban development, and urban economic development in our country still have many limitations. Urbanization is uneven among regions and regions; the urbanization rate is still low compared to the average rate of countries in the ASEAN region and the world average. The process of urbanization develops in width mainly with low density and dispersion, causing waste of land, limiting economic accumulation. While urbanization in Vietnam is happening more and more strongly, so building a smart eco-city is becoming more and more urgent, an inevitable trend in the context of increasingly severe climate change. . This is also the development trend of modern cities in the world to meet the needs of residents and investors.

The smart city is a conceptual urban development model that means building a city based on information and communication technology (ICT). There are different definitions of a smart city depending on the level of urban economics and policy, but a simple definition is the use of ICTs to improve competition and quality of life in cities. pursue urban sustainability (Myeong 2018). In more general terms, a smart city is a city based on the "Internet of Things" technology platform; daily processes are managed through the latest technologies in the world. The creation of cities Intelligence has become an important solution to promote national development and social progress. Human society has entered the era of intelligence supported by information technology. Cities around the world are capable of adopting new digital tools. The use of digital tools is expected to provide solutions to urban challenges and play an important role in promoting smart city construction. Smart cities have basically completed digitization and networking, and are moving towards intelligence. The development of smart cities cannot be separated from the core idea of

sustainable development towards people. The smart city is home to civilized, law-abiding, and honest citizens.

In the past 5 years, the trend of smart city development is still a hot topic and has received investment attention from economies in the region. The Covid-19 pandemic has not only failed to restrain the smart city trend, but even accelerated the development of this process. Cities are considering smart cities and digital transformation as a key factor in helping cities quickly recover from the pandemic. However, smart city development is a new issue not only for Vietnam but also for previous countries, requiring us to constantly learn, exchange, and draw practical experiences both domestically and internationally. economy for implementation. In fact, the implementation of smart cities is only fragmentary and there is no tool to assess the development situation of smart city projects as well as compare the correlation between cities. In the situation that the need for investment capital for the technical infrastructure of Vietnam in general and each locality, in particular, is very large, while the state budget is limited, the capital of donors is increasingly narrow. investment model in the form of Public-Private Partnership (PPP) and Project Finance as a tool to mobilize resources from the private sector both at home and abroad for infrastructure investment in the current situation. now on.

In the following sections, we first review the literature regarding the concept of PPP and regarding the various existing definitions of Smart Cities. Second, we analyze the state-of-the-art performance of current PPP applications for Smart Cities initiatives and present some case studies. We then explore some of the selected PPP financial instruments applicable to projects, namely: PF, Revenue Share (RS), and Social Impact Bonds (SIB). . For each category, we present a case study analysis and indicate applicability, weaknesses, and strengths. Finally, we discuss the potential of proposed PPP financing mechanisms to overcome the inherent limitations of traditional funding for innovation and draw conclusions.

2. Method

Our team has tried our best to look at different aspects of the problem, going from the general context to each problem, so that we can come to the right conclusion and reasonable solution to the problem topic. , and at the same time study individual issues to consider the overall picture of the research topic. This study includes an overview of Vietnamese cities in general, and PPP models for smart cities in Vietnam in particular, through which there may be advantages and disadvantages: identifying barriers in different levels, including levels of policy/institutional, operational and financial support. Essential issues are analyzed and discussed from the perspectives of stakeholders in the preparation and implementation of PPP projects, including policymakers, public institutions, and investors. individuals and financial companies. And the suitability of the methods according to the specific type and main characteristics of smart city projects. This study focuses on PPP, so other aspects of this model are also analyzed, the most important of which is Project Finance (PF); Revenue Share (RS), and Social Impact Bonds (SIB). The conceptual model of the study is presented in the following figure:

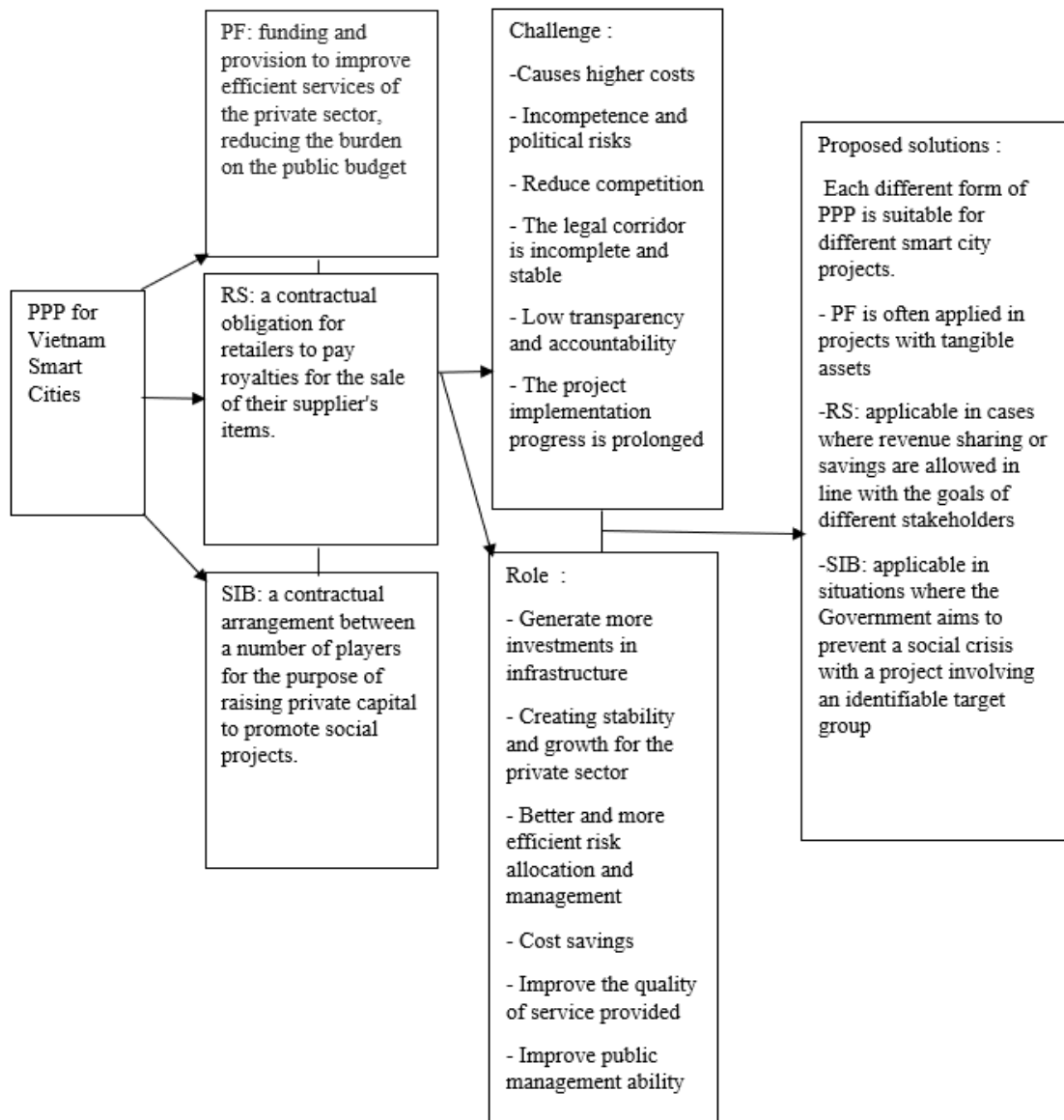


Figure 1. Conceptual research model

Although the research team has tried to gather as much information as possible to understand urbanization policies and practices (or practices) in Vietnam and has taken great care to present this data objectively, However, this study still has limitations. Public finance is a complex and very sensitive field. Urban managers have no incentive to share financial information with outsiders: because the benefits are not directly visible, the potential risks are great. Thus, there are clearly significant data gaps that, when filled, could change the team's findings and recommendations. At the same time, cross-country comparisons are often misinterpreted as proposals to replicate practices in one country that may not be appropriate in another, due to different historical and economic contexts as well as environmental conditions. political, social, and institutional arenas are dissimilar. We should not see the similarities and differences between Vietnam and European countries as “best and worst practices”, but as a source of discussion and reflection in the hope that experiences elsewhere will be useful. can help us better understand our own situation, as well as give us ideas that can be adapted to our needs and abilities.

3. Results

3.1. Urbanization in Vietnam

Urbanization is an inevitable trend of each country in the world, including Vietnam. Urbanization contributes to accelerating economic growth, economic restructuring, and labor structure, changing population distribution. Urban areas are not only a place to create jobs and income for workers but also to consume large and diverse goods products, which use high-quality workforce and technical facilities. Modern infrastructure has attracted strong investment in the country and abroad.

According to the aggregate Department of Urban Development from 63 provinces and cities, the national urban system has a positive change in volume and substance. In 1990 the whole country had about 500 urban areas until 2000 of this figure reached 649. The Urban Network to 2009 has 752 urban areas, of which 02 urban areas are especially in Hanoi and Ho Chi Minh City, 09 urban grade I, 12 urban grade II, 45 urban grade III, 41 urban grade IV, and 643 urban-type V.

In 2010, 772 urban areas increased to 862 urban centers in 2020 including 2 special graphs in Hanoi city and Ho Chi Minh City, 23 Type I urban centers, 32 urban grade II, 48 cities III, 90 Type IV, and 668 urban centers are mainly towns in the province or town. The rate of urbanization in 2020 to 39.3%, increased by more than 9% compared to 2010.

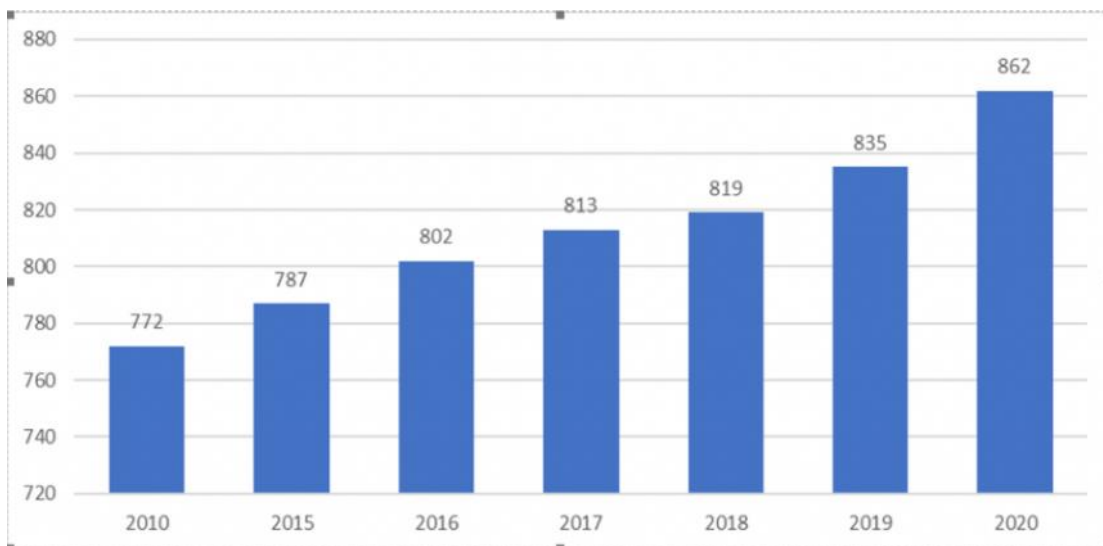


Figure 1. Urban in the period 2010 - 2020

Source: Ministry of Construction

The Ministry of Construction said that by the end of June 2021, the urban system nationwide has 867 urban areas. In particular, there are 2 special cities, 22 types of grade I, 32 urban grade II, 48 urban grade III, 89 urban grade IV, and 674 cities V type of national urbanization estimated at about 40.4%.

However, the urbanization process is uneven between regions and locals. Production in rural areas is stalled due to labor moves to the city. In urban areas subject to unemployment, overload for infrastructure, environmental pollution, social security does not guarantee and occurs social evils.

Referring to the important orientation of the Party and the State in urban development, it can be seen that the Government of Vietnam is very interested in urban planning and development. The Prime Minister has approved and implemented many projects and programs for the period 2021 - 2030 such as a sustainable intelligent urban development plan (Decision No. 950 / QD-TTG dated August 1, 2018); The project of developing Vietnamese cities to respond to climate change (Decision No. 438 / QD-TTG dated 25/3/2021); Plan to raise the national urban type (Decision 241 / QD-TTG dated February 24, 2021). Soon, the Politburo will issue a resolution on "Urbanization, Urban Development, and Urban Economic Development in Vietnam until 2030, Vision to 2045". This will be the highest level in urban development.

In the context of Covid-19 and climate change continues to be a major challenge for the model and the development of urban areas in the world in general and for Vietnam in particular. The cities of Vietnam need to choose the appropriate development model, in a sustainable, intelligent, and resistant to disaster, epidemic, climate change adaptation, reducing commune inequality Assembly, reorganizing urban space in the direction of green and sustainable growth, converting the model of economic development in urban areas, promoting digital conversion and intelligent urban development, sustainably and embraces and embraces Especially strengthening the linkage and support between cities in the urban network.

Developing a comprehensive infrastructure system is one of Vietnam's key tasks to serve the goal of sustainable development and strengthening the country's competitiveness in the direction of synchronously and modernly meeting the requirements of Socio-economic development, especially during the Covid-19 epidemic period.

However, the state budget investment capital is limited to challenge the ability to meet the investment needs. In this context, PPP is considered a suitable financial mechanism to maximize resources for intelligent urban development infrastructure investment in Vietnam.

3.2. The development of Smart Cities in Vietnam

3.2.1. Development orientation of Smart Cities in Vietnam

The development of Smart Cities has become a practical choice in urban areas to improve the quality of life and competitiveness. In particular, in the war against Pandemic Covid-19 recently, the Smart City (SC) has helped urban economies quickly recover.

In 2021, the project of urbanization, urban development, and urban economic development in Vietnam to 2030, vision to 2045 has been submitted to the Politburo to consider promulgating resolutions. Some other important tasks have been completed, including Summarizing the implementation and proposal of amending and supplementing Resolution No. 1210/2016 / UBTVQH13 on May 25, 2016, of the National Assembly Standing Committee in urban classification; Develop a Decree to replace Decree No. 11/2013 / ND-CP dated January 14, 2013, on urban development investment management; Completing the national urban classification plan for the period 2021 - 2030 and the project of developing Vietnamese cities to respond to climate change in the period 2021-2030; Develop a national urban development strategy until 2030, vision to 2050; Implementing laws to manage urban development; Implementation of national urban and rural systems in

the period 2021-2030, vision 2050; Amending and supplementing legal regulations on cutting, simplifying administrative procedures.

The Ministry of Construction is urgently developing the basic criteria of SC to apply all urban areas and urban areas in accordance with Vietnam; Building legal platforms, standards, and standards for SC; Building inter-database (digitization) on land, planning, transportation, population, and other urban space data; Develop SC planning, application of geographic information systems (GIS); Development of SC infrastructure system; Manage and operate SC.

Deploying the Sustainable SC Development Project in Vietnam in the period of 2018 - 2025 and orientation to 2030 needs to build a system of database management systems on GIS; Research to develop SC development pilot program; Deploying activities of SC ASEAN Network (ASCN) promotes information sharing activities and experience as well as establishing cooperative relationships and partners. In particular, the Investment Law Project by the Public Partner (PPP Law) is constantly being completed, edited, and supplemented.

3.2.2. PPP Law

The Investment Law by the Public Partnership (PPP Law) is passed by the XIV National Assembly at the 9th session (takes effect from January 1, 2021). Pursuant to the PPP Law, the Government issued Decree No. 35/2021 / ND-CP dated 29/3/2021 detailing and guiding the implementation of PPP Law. Besides, the Government issued Decree No. 31/2021 / ND-CP dated March 26, 2021, detailing and guiding the implementation of a number of articles of the Investment Law in 2020, including edited content Change and supplement a number of articles of the Government's Decree No. 25/2020 / ND-CP of February 28, 2020, detailing the implementation of a number of articles of the Bidding Law on investor selection.

The issuance of the above documents, along with the implementation of other relevant documents in the past, has created a high, synchronous, and stable legal framework for investment attraction of private sectors Participation in implementing projects on socio-economic infrastructure development, public service provision, especially projects for construction of transport infrastructure, energy, urban infrastructure, water treatment discharge, waste,...; At the same time, improving transparency, competition, economic efficiency in choosing investors to implement investment projects with land use and efficiency of land resources.

However, the implementation of investment legal documents on investment according to the method of PPP and bidding for selecting investors surviving some limitations. Documents on bidding for selecting investors in a number of specialized areas have not been promptly issued; The formulation and approval, announcing the list of land use investment projects at the request provisions of Decree No. 25/2020 / ND-CP has not been actively conducted, promptly, effective and said ensure the Ministry with the Planning and List of the State Project to recover land ... leading to awkwardness and problems in determining the form of investor selection and carrying out procedures for approving investment policies. Some ministries, branches, and localities have not really drastically implemented the network of bidding through the network according to the roadmap specified

in Resolution No. 01/ NQ-CP dated January 1, 2021, of the Government; The organization of propaganda and awareness-raising for the community is not effective, leading to high and unified consensus in the way of understanding and organizing the implementation of the investment project model according to the partner method Private and bidding activities selected investors of projects with land use and projects in the field of specialized and socialization. In addition, many specific procedures in the process of implementing the PPP project are also adjusted by different laws such as the State Budget Law (for the use of state budget capital participating in PPP projects), Investment Law Public (Public investment capital in PPP project), Enterprise Law (Operation of Project Enterprises), Construction Law (Appraisal, Approval of Design, Estimation), Public Debt Management Law (ODA loan use in PPP project) ...; Many overlapping regulations between laws together lead to difficulties implemented in practice. The contents specified in these relevant laws are developed towards the Public Project or Pure Private Investment, which has not been considered to invest in PPP investment; Procedures and procedures are also separately implemented, not guaranteed to harmonize the PPP project implementation process.

In order to continue to improve and promote the implementation of policies and laws on investment according to the method of PPP and bidding for selecting investors, the Prime Minister requested Ministers, heads of ministerial-level agencies and heads Overview of the Government, Chairman of the People's Committees of provinces and cities directly under the Central Government, related organizations focusing on directing the synchronization and efficiency of tasks assigned by the Government in Article 93 of Decree No. 35/2021 / ND-CP and Point b, Clause 7, Article 108 of Decree No. 31/2021 / ND-CP.

3.2.3. Some projects have been implementing SC development by PPP

🚧 North-South Highway Project of Nha Trang-Cam Lam route (Khanh Hoa)

The project to build a number of high-speed roads on the North-South route in the East of the 2017-2020 period by PPP investment method signed the BOT contract on May 6, 2021, between the Ministry of Transport, Son Hai Group Limited Liability Company, and Construction Investment Company Limited Nha Trang-Cam Lam Highway. This project was built as a spine axis of the national highway system to avoid the connection of the connection too small when circulating into the highway will be overloaded. Nha Trang-Cam Lam Highway is about 50km long with the first point at Km5+783, in Dien Tho commune, Dien Khanh district, the endpoint at km54 in Cam Thinh Tay commune, Cam Ranh city (Khanh Hoa province). The total investment capital of the project is about VND 5,524 billion, including investor capital to mobilize about VND 2,556 billion (in which the equity of the investor accounts for 20%) and the state capital is about VND 2,967 billion. The time to build a 2-year project, operation exploitation of payback is about 16 years 4 months.

🚧 North-South Highway Project of Dien Chau-Bai Vot route (Nghe An-Ha Tinh)

This is the second North-South High-speed BOT project signed by the Ministry of Transport with investors, after the Nha Trang - Cam Lam Highway project (Khanh Hoa). BOT contract is signed between the Ministry of Transport with the Joint Venture Company Limited Hoa Hiep Co., Ltd. - CIENCO4 - Nui Hong Investment Co., Ltd. - Truong Son

Construction Corporation - VINA2 Construction Investment Company and Phuc Thanh Hung Investment Joint Stock Company (Project Enterprise). The project has signed a contract to deploy and start on May 5/2021. Dien Chau-Bai Vot Highway is about 50 km long, going through the territory of 2 Nghe An Province (44.4 km) and Ha Tinh (4.9 km). Phase 1 of the project is divergently invested with a scale of 4 lanes, 17 m wide road floor, 80 km / h design velocity. This expressway is built to solve overload problems, traffic congestion, inhibiting development. North-South express projects have a particularly important role in the "Dai Phu Biological Highway", creating a huge motivation for socio-economic development of the country and each locality. The project has a total investment of about 11,157 billion VND, of which the investor capital mobilized about VND 5,090 billion, and the state capital participated in more than VND 6,067 billion. Construction time is about 3 years, the operation time of exploiting payback is 10 years 6 months.

Quang Tri Airport construction Project

Quang Tri Airport project was adopted on December 20, 2021, by the PPP method. This project is built to meet the demand for air transport increasing, contributing to promoting political and socio-economic development; Ensure high mobility in defense, as well as in rescue and rescue work; Ensuring national defense - security in the central region in general and Quang Tri province in particular; In accordance with planning and orientation of transportation development. Quang Tri Airport was built in Gio Quang communes, Gio Hai Commune and Gio Mai Commune, Gio Linh District, Quang Tri Province. The investment scale consists of 2 stages corresponding to the estimated total investment of VND 5822.9 billion. Phase 1 is VND 2,913.6 billion, including Capital mobilized by VND 2,680.5 billion (in which equity is VND 380 billion, credit loan is VND 2,300.5 billion) and capital the central budget supports to carry out clearance and resettlement is VND 233,103 billion. Phase 2 is VND 2,909.3 billion, including Investor capital, are VND 2,829.6 billion (in which equity is VND 1,080.1 billion, credit loan is VND 1,749.5 billion) and capital the state budget is VND 79.7 billion. Project implementation time is 50 years, operating with a payback fee of 47 years 4 months.

3.3. Finance for smart cities

3.3.1. Shortcomings of the public-private partnership model (PPP)

In matters related to smart city development, capital is considered a very important issue. The capital needs for smart city development are huge, even for developed countries. Therefore, for a developing country like Vietnam, the issue of capital for smart city development is even more important. The capital for smart city development is very large, but the budget capital can only meet a small part, while private enterprises are hesitant because of the high risk of investing in it alone smart city development projects.

The capital demand for infrastructure accounts for about 8-10% of GDP, of which the state budget only meets about 50% of the total demand, so the need to mobilize capital from both domestic and foreign private sectors is very large. According to the Asian Development Bank (ADB) and HSBC, the average annual infrastructure investment demand of Vietnam is about 16-17 billion USD/year (about 370-400 trillion VND) in the period 2020- 2025.

Accordingly, the demand for PPP capital in the period 2020-2025 can be up to 4-5% of GDP (about 10-12 billion USD/year), especially in the condition of big cities (Hanoi, Ho Chi Minh City) is focusing on developing smart cities, changing the urban appearance to meet the requirements of modern and creative economic development infrastructure. Specifically, in Hanoi, in the 2016-2020 period, it will spend 3,000 billion VND to build a smart city. In Ho Chi Minh City to build a smart city with a total estimated cost of 2,130 billion VND. To meet the needs of investment in the development and modernization of technology towards a smart city model, it is not possible to rely only on state budget investment, but also to mobilize investment capital from the private sector.

According to the General Statistics Office, the total investment capital of the whole society in 2016 was about 70 billion USD. That is, if divided equally among all provinces, each province will have more than 1 billion USD. This number is very modest compared to the capital needed to build a smart city with high costs as seen above, not to mention that this money is spent on many different socio-economic projects. not only focus on building a smart city.

In Hanoi, October 2019, a smart city project invested and developed by a joint venture between BRG Group (Vietnam) and Sumitomo Group (Japan) with a total investment of 4.138 billion USD on an area of 272ha in Dong Anh district has been started and is expected to be completed in 2028.

Currently, Ho Chi Minh City is continuing to implement and complete 5 projects under the smart city project. Specifically, the project "Building a smart city management center in Ho Chi Minh City" invested by the Department of Information and Communications, the implementation period is 2019 - 2022, the total investment is 958.67 billion VND. The second project is "Building a center to receive and handle emergency information of Ho Chi Minh City through a single telecommunications number in the period of 2019 - 2025" invested by the Department of Information and Communications. With a total investment of 992.54 billion VND. The implementation period of the project is the period of 2019 - 2025. The third project is "Building a centralized camera image monitoring system of Ho Chi Minh City for the period of 2019 - 2021", owned by the Department of Information and Communications. invest. The project implementation period is in the period of 2019-2022, with a total investment of 548.07 billion VND. The fourth project is "Implementation of the database management and storage system under the city's shared data warehouse - phase 1" invested by the Department of Information and Communications. The project implementation period is in the period of 2019-2022, the total investment is 48.78 billion VND. The fifth project is "Deployment of information security and safety solutions in the area of Ho Chi Minh City" invested by the Office of the City People's Committee. The implementation period is 2020-2022, total investment: 127,011 billion VND.

3.3.2. The role of public-private partnerships (PPPs)

The application of the form of public-private partnership (PPP) will initially reduce the burden on the state budget, contribute to improving investment efficiency, improve the quality of public services, promote sustainable development, improve competitiveness, markedly change the face of Vietnam's urban areas. This form opens up relatively attractive markets and investment opportunities for domestic and foreign private investors.

- Make more investments in infrastructure. With the PPP mechanism, the State will reduce the burden of searching, arranging, and allocating investment capital from the budget for infrastructure. Therefore, the State can conduct more investment projects or increase the size of investment projects for infrastructure.

- Creating stability and growth for the private sector. By participating in the PPP mechanism, the private sector has more long-term investment opportunities, possibly less risk with the guarantee and sharing from the State. From there, creating stability and growth for the private sector, promoting the development of the local industry as well as creating more jobs for workers.

- Allocate and manage risk better and more efficiently. The key principle of the PPP mechanism is that the risk will be distributed to the party that is best handled at the lowest cost. In many cases, the State will be the party responsible for dealing with risks related to the community, the environment, or guaranteeing loans by the State. In contrast, the private sector is superior in handling risks related to the management and use of capital...

- Cost savings. Firstly, by combining the two stages of design and construction in the same contract, the PPP mechanism allows designers and builders to establish a closer and deeper relationship. This combination, first of all, makes the design more creative and saves more costs; at the same time, it also helps to reduce the time of the construction process, so that the service can be put into use sooner, thereby also reducing costs. Secondly, most PPP projects need operation and maintenance services throughout the life of the project, and this is left to the private sector. Therefore, the private sector will have incentives and solutions (in terms of technology, management, use of resources...) to reduce operating and maintenance costs throughout the life of the building. Meanwhile, it is difficult for the State to ensure this due to budget constraints.

- Improve the quality of service provided. One of the clear benefits that many international studies and experiences have shown us is that the quality of PPP projects is often better than that of traditional investment firms. The reason for this is that the PPP mechanism takes advantage of the most advantages of the parties, with the State being "policy and governance", with the private sector being "technical factors such as design, construction, operation, and management". The European Commission (2003) argues that the better service quality of PPP projects is due to the service associated with supporting works, the application of new technologies in service delivery, or regulations. clear rewards/penalties based on the quality of service delivery in the PPP cooperation contract.

- Improve public management ability. The government will not have to do the day-to-day management of the project since it has been entrusted to the private sector but will focus on planning and overseeing the day-to-day management.

3.4. Challenges in mobilizing PPP for smart cities

Regarding the mechanism of management and use of investment capital in current PPP projects, there are many different views. From an investor's perspective, the project investment capital is their own investment or borrowing and must be responsible for debt repayment, so investors must have the right to be proactive in the management and use of

capital to invest in the project. The State should not control directly, but only control the total investment of the project and control the compliance with the law in the process of using capital, ensuring cost savings at the beginning of the project.

However, from a management perspective, competent state agencies believe that the sources of investment capital for PPP projects are essentially budget capital. Because in fact the state is the final payer for the investment value of the work, so after all, it is still an investment with the state capital, the investor is only the initial advance and will be paid by the state. payment in cash or the value of the corresponding land fund. There are some limitations when applying PPP as follows:

- Cause higher costs. First of all, this does not contradict the cost savings discussed above. The higher cost here may be that loans to the private sector will have higher interest rates than the State borrowing in previous traditional models. In addition, the costs of organizing the bidding process and contract negotiations, and the costs of paying legal consulting firms can also make the cost of applying the PPP mechanism higher. From the consumer's perspective, using products of the PPP mechanism directly, when setting a fee for using a service provided by the State (fee for using a road, a bridge...) in many cases, the State has not taken into account administrative costs, depreciation of works or simply has subsidies to compensate for those costs. While the imposition of a fee in the PPP scheme requires the inclusion of all relevant costs plus a calculation of the return on the private partner's investments. This will result in service users having to pay higher fees than using services provided by the State alone.

- Lack of capacity and political risks: The PPP mechanism requires both public and private parties to have strong enough capacity in PPP; but in many cases, one or both parties are incompetent. And it is possible that the combination of an incompetent, inexperienced government and a private partner is unfamiliar with the PPP presents political risks to that administration. The lack of capacity is also reflected in the fact that the PPP model is too dependent on external consultants and the risk that both the State and the private sector will not learn anything through the project implementation process.

- Reduce competition. High standards in selecting a private investor/entity, high transaction and bidding costs, and the need to sign long-term contracts are essential factors for participation in the PPP scheme; and not all units/private investors can meet this requirement. This leads to a narrower selection of the State's private partners thus creating a monopolistic market with less competitive pressure for the selected private partners to strive to reduce costs or improve the quality of service.

- The legal corridor is not complete and stable: the legal documents regulating the form of PPP investment currently only stop at the level of the Government's decree, so the legal corridor on this activity is still dependent on the government and laws such as: Law on Enterprises, Law on Bidding, Law on Public Investment,... from preparation to investment implementation, project operation and exploitation. Meanwhile, these documents are mainly developed to regulate public investment activities.

- Low transparency and accountability. One of the concerns when applying the PPP form is the transparency of the project. The reason is considered that it is difficult to access information of private partners, especially financial and commercial information that is considered as a business secret of private sector companies/groups. core. In addition, the evaluation of the entire project will also be very difficult due to the same reasons, plus the fact that information and data sources are held by many sources, making it difficult for the public to track and check. And when transparency and accountability are low, it can lead to public criticism of the State's cooperation with the private sector and demand that the State ensure the interests of the community.

- Long project implementation schedule: PPP projects are often large-scale, the process of promotion and research as well as the application file must go through many steps; while regulations and investment procedures step by step requires consulting many relevant agencies and units before summarizing and appraising, and submitting to competent authorities for approval, thus affecting the project implementation progress. judgment.

- The financial strength of domestic investors is weak, so they are very sensitive to economic fluctuations, leading to a low ability to mobilize finance on schedule. The feasibility study is not linked with development planning and forecasting, so the forecast results are unreliable and the risk of not recovering the investment is very large.

- Foreign investors have a strong financial capacity, high expertise but are very sensitive to the unclear investment environment, so they do not want to invest. In addition, Vietnam does not have commercial insurance for the areas that the project requires such as damage to construction materials, delay in starting construction, political risk insurance, etc., increasing risks. of project.

- In a partnership, risks are not shared appropriately. Investors tend to assign risks to the state to reduce liability; The stateside also has no specific policy to share risks fairly with investors.

- Unstable macroeconomics. The constantly changing macro policies, the escalating volatility of interest rates and exchange rates make it difficult for investors to control their expected profits

4. Discussion and Conclusion

In the past period, the research and improvement of the PPP mechanism and policy system have been identified by the State as a key task that needs attention and implementation. However, a number of normative documents related to PPP have not yet completely resolved the basic problems in the project implementation process. Therefore, it is necessary to set out solutions to overcome the following critical problems:

- Applying the experience of countries that have developed PPP Laws, including specific provisions on PPP in the field of infrastructure investment.

- In the process of researching and developing the PPP Law, it is necessary to focus on problems and contradictions in other relevant laws into the PPP law.

- Building a PPP management model from the central to local levels in each field in a professional manner.

- Specifying each function of each agency, each subject related to the entire process of project preparation and implementation.

- In addition to the general provisions in the Law on Enterprises, it is necessary to develop detailed mechanisms and policies on project enterprises to ensure the specificity of enterprises.

For specific mechanisms and policies, it is necessary to study, supplement, and perfect policies mainly on:

- Investment incentives and guarantees and investment support in order to increase the financial viability of the project and increase the attractiveness for participating private investors. To implement this solution, it is necessary to add incentives and ensure investment throughout the life of the project instead of just incentives at the project implementation stage. Strengthening support for private investors such as providing information, guiding administrative procedures, assisting in solving difficulties during project implementation; adjusting the method of determining the price of infrastructure services and the roadmap for the price increase, price subsidy conditions, subsidy level, and duration according to international practices, ensuring harmony between the interests of the State and investors. private and users.

- Minimum revenue guarantee and loan guarantee is not regulated and this is a big barrier in attracting private investors to participate in projects with low profit. This content needs to be researched and applied specifically to infrastructure projects with low payback in order to attract private investment resources, especially foreign investment.

- Regulations on conditions for deciding investment policies need to be adjusted to suit PPP projects in the direction of paying attention to factors of investment attraction and project revenue.

- Finalize the policy of selecting and announcing projects in the form of PPP in the direction of prioritizing projects based on the advantages and characteristics of the urgency of the project. Projects are selected when ensuring efficient use of financial resources, value for money for the state, and receiving the consent of the people.

- Regulations on the content of the Feasibility Study Report in the Law on Public Investment unifies the PPP project management mechanism with traditional projects, while a PPP project is a project formed between the state and the investor. private investment and focus on investment product of the project are different from the focus on traditional project inputs. Therefore, it is necessary to change the approach to management mechanism in order to amend the regulations on the content of the Feasibility Study Report in accordance with the characteristics of the PPP project.

- Risk identification, risk allocation, and risk management are some of the key factors to ensure the project achieves its investment goals effectively, but it has not been specified in the legal system. of Vietnam today. Therefore, it is necessary to stipulate this content in the legal document on PPP in the direction of identifying and distributing risks to

the party with better risk management capacity, ensuring a balance between the distribution of benefits and risks.

- The policy of balancing between mobilization and management of investment resources still contradicts the goal of resource mobilization and management activities to prevent loss and waste. Therefore, it is necessary to adjust these regulations in the direction of harmonizing the objectives of the state and private investors.

- Policies and regulations on investor selection need to be improved in the direction of overcoming the situation of appointment of contractors, ensuring competitive and transparent bidding in order to select qualified investors to implement projects. To implement this solution, it is necessary to strictly stipulate the order and procedures forbidding selecting investors, responsibilities, and obligations of related parties. For infrastructure projects, competent state agencies need to prepare and approve technological designs and total investment before selecting investors to control costs more effectively.

- The policy on project contracts needs to supplement the content and form of separate project contracts for the infrastructure sector separately for each major in the direction of detailing the rights and obligations of the parties involved. accompanied by a contract form with full quality of project products and services, risk division, and control...

Some solutions to remove difficulties in PPP investment activities in our country:

- Completing the legal framework for PPP investment: First of all, it is necessary to amend and supplement the Government's Decree in the direction of removing obstacles in the implementation process. Going forward, promulgate the Investment Law in the form of public-private partnership to create a strong and stable legal framework as a basis for effective implementation of the public-private partnership model.

- There must be a specialized department in the ministries, branches, and localities on PPP, and at the same time quickly foster and improve the capacity of PPP staff in ministries, branches, and localities.

- Accelerate the project preparation process: To contribute to speeding up the project preparation process and create transparency, ministries, branches, and localities need to soon form a source of investment preparation support to support State agencies in the preparation stage of project investment in the form of PPP,...

- Creation of land fund and other payment methods for BT projects: competent authorities should quickly review the implementation of regulations on land fund creation for payment for projects implemented in the form of BT.

Theory and practice of developing PPP forms show that this method is quite close to the socialist-oriented market economy development philosophy.

First of all, the goal is to put people at the center of development, enjoy the best services in terms of transport infrastructure, energy, environment, health, education, and at the same time improve competitiveness. of the country's economy, creating a premise for private economic development and attracting resources from outside.

Second, the entire population or the public maintains ownership. Mobilizing private participation improves the efficiency of public services and resources before the ownership transition. In addition, the State plays a key role in leading and orienting development, expanding fields, sharing risks to ensure harmony between the interests of the community and businesses. At the same time, through this mechanism, it is possible to create favorable business conditions, promote the role of the Government, and contribute to the stable development of private enterprises.

In fact, PPP project implementation shows that this is a form of continuous implementation in the process of adjustment and improvement. It is also a problem with many variables, the impact of which requires a high socio-political consensus, towards public activities serving the people's interests. From an economic point of view, this is also considered to be done completely according to the principles of the market: There is competition and benefit-sharing between the State and private enterprises. That is because ownership still belongs to the State. However, that has to be profitable for private businesses to make it work. Without publicity, transparency, and without the close supervision of the law and institutions, this cooperation is very likely to occur corruption and group interests.

The prerequisites for a successful PPP are compliance with the principles of market competition and the design of appropriate regulatory and institutional frameworks that ensure the roles of both owners and participants. There is risk-sharing between the State and businesses, for the sake of the people, it is necessary to have the supervision of the whole society.

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THE IMPACT OF URBANIZATION ON THE REAL ESTATE MARKET IN VIETNAM

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Abstract

The study uses statistical data of cities with high urbanization rate of Vietnam in the period 2009-2020 and uses the method of ordinary least squares (OLS) to assess the impact of urbanization to the real estate market in Vietnam. The study shows that the speed of urbanization affects the real estate market in Vietnam in the same direction. Basing on the research results, the authors have proposed solutions to develop the real estate market in Vietnam during 2022-2030, and at the same time overcome the limitations caused by urbanization.

Keywords: *Urbanization, real estate market, real estate, Vietnam.*

1. Introduction

Urbanization is an inevitable process in every country, including Vietnam. However, the process of urbanization in each country also takes place at different speeds because it depends on the conditions and economic and social development level of that country. In Vietnam, over the past time, the process of urbanization has taken place strongly in large cities, promoting rapid urbanization to spread widely across provinces, regions and the whole country. Many new urban areas, were formed and developed; many old urban centers have been renovated, infrastructurally upgraded, etc. This shows that Vietnamese cities have been paid great attention to develop with modern architecture.

Overall, it can be seen that the urban system of Vietnam has developed rapidly, the urbanization rate has increased sharply from 19.6% with 629 cities in 2009 to about 36.6% with 802 cities in 2016. By the end of 2018, Vietnam has had 819 urban areas (an increase of 6 cities compared to 2017); the national urbanization rate reached about 38.4% (an increase of 0.9% compared to 2017). Urban growth is the fastest in two major cities, Hanoi and Ho Chi Minh City, followed by Hai Phong, Da Nang, and Can Tho. Until April 2019, the number of urban centers in the country has increased to 830, including 2 special cities, Hanoi and Ho Chi Minh City, 19 first-class cities, 29 second-class cities, 45 third-class cities, 80 fourth-class cities and 655 fifth-class cities. The urbanization rate of the whole country is estimated to be approximately 40% by the end of 2019. (Ministry of Planning and Investment, 2019).

The rapid and widespread urbanization process in many localities has impacted on the population growth in urban areas. In 2019, the estimated population of urban areas in our country was 33,059,735 people, accounting for 34.4% of the country's population. Since 2009, the proportion of the population in urban areas has increased by 4.8 percentage points. Vietnam's population density also increased by 290 people/km² (in 2019). Hanoi and Ho Chi Minh City are the two localities with the highest population density in the country, respectively 2,398 people/km² and 4,363 people/km². (Ministry of Planning and Investment, 2019)

In most urban areas, along with the process of high urbanization, the technical and social infrastructure architectures have not been invested or invested unsynchronizingly, causing the overload of technical infrastructure. and urban management such as: urban transport system, water supply and drainage system, environmental pollution problems... Housing is also one of the issues to be concerned. Not to mention whether the quality of housing is safe enough, enough to meet people's lives or not, regarding the number of houses is enough to meet people's needs or not. In recent years, the Covid 19 pandemic has made the world's economy enter a period of crisis. Despite Covid, in Hanoi, in 2020 many projects with good quality infrastructure investment have increased sharply, by about 5% compared to 2019. Some townhouse projects have established high recorded prices such as: : Kien Hung Ha Dong costs 200-250 million VND/m², Him Lam To Huu costs 300 million VND/m². (Report on the situation of the real estate market in Vietnam, 2020)

So what have make the real estate market in Vietnam still in a "hot" state in recent years? What factors are affecting the real estate market in Vietnam? And is the real estate market in Vietnam facing any difficulties and challenges? With the above paradoxes and questions, the group decided to choose the scientific research topic: "The impact of urbanization on the real estate market in Vietnam". The study will answer the following key questions: Does urbanization really affect the real estate market? And if there is an impact, does it make a positive or negative impact on the real estate market? What are solutions to develop the real estate market in Vietnam in the period of 2022-2030?

2. Literature Review

Studies around the world have confirmed the role and impact of urbanization on the real estate market, proving by the results showing that urbanization makes a strong investment in the real estate market. The study by Tie-Ying Liu, Chi-Wei Su, Hsu-Ling

Chang & Chien-Chi Chu (2018) showed the relationship between the degree of urbanization and real estate investment using a bootstrap panel Granger causality test between 1990 and 2014 in China. The main findings are as follows. We assume that the interaction patterns between urbanization and real estate investment vary across regions in China. The results show that urbanization makes a strong investment in the real estate market, mainly in the central and northeastern regions of China, while urbanization does not have a large impact on investment in real estate in the eastern and western regions, excluding four provinces. This means that urbanization can improve real estate investment through increasing demand for real estate, as population concentration and urbanization is independent of the investment in real estate in China. Our results do not support the theory developed by Saiz (2007) because China's real estate market is characterized by severe bubbles and urbanization in China is mainly affected by industrialization and policies of the Hukou system. These results could be useful for the government in seeking to increase urbanization and macro control over real estate investment in China. This article can also provide suggestions for the urbanization of other countries related to real estate investment level adjustment, especially for developing countries.

In Vietnam, the issue of the relationship or impact of urbanization on the real estate market has been paid attention in recent years, but the number of studies is still limiting. For example, research on the prospect of urbanization, real estate market development and land transformation during the period 2020-2030 by Tran Kim Chung (2019). This study shows the quantitative relationship between land displacement, real estate market development, urbanization and GDP growth, and at the same time, proposes solutions to improve urbanization tools to promote land transformation. land to meet the requirements of sustainable development. The author uses the least squares method to show the relationship between investment growth and value added in the real estate industry.

In the seminar "Developing the real estate market, transparent and sustainable housing to promote urbanization and urban development in Vietnam" (2021), coordinated by the Central Economic Commission, the real estate association Ho Chi Minh City and the Open University of Ho Chi Minh City also mentioned the impact of urbanization on the real estate market, and talked about the effect of real estate due to the speed of urbanization. cause. However, these analyzes are just qualitative, which means, they only provided opinions and arguments, but did not provide specific data to analyze this relationship. The research has also shown that with the increasing population, along with the cities that have attractive living conditions, the real estate market in these cities has a more "vibrant" level" than in real estate markets elsewhere. Therefore, with this analysis, it is only theoretical, observational but still subjective in the argument. Due to this fact, this is the limitation of recent studies.

3. Method

Research method

Two main methods used in this research are descriptive statics and quantitative research. The statistical method, helps provide simple summaries of samles and measures,

generally describing research subjects. Using quantitative research methods combining panel data models, helps design quantitative observations of variables, analyze, and explain the relationship between variables quantitatively.

Data collection method

Data used in this study is deducted from some sources such as “Completed results of the 2019 Vietnam population and housing census” of General Statics Office, Vietnam Real Estate Market report 2020 of Vietnam National Real Estate Association, the urbanization indicators of the cities mentioned in gov.vn, ...

Data processing method

Dependent variable is the developing speed of the real estate market. To measure the development of the real estate market, we consider the global demand for real estate in a particular time period. Reviewing the total demand of urban areas for real estate markets accurately reflects the property market development in Vietnam. To assess the dependence of the real estate market due to the impact of urbanization, the measure of urbanization we used are the local population, the migrated population, the average population growth rate from 2009 - 2019, and the population density of high urbanized areas. By that, we expect the urbanization variable to have positive effects on the real estate market.

We're going to analyze by ordinary least square (OLS) method using EViews software to assess whether urbanization affects real estate markets in Vietnam? And if there's an influence, how many percent is it? Are there other factors that affect the property market other than urbanization?

Choosing model

Since there is no theoretical framework in empirical studies presenting the relationship between urbanization and the real estate market in Vietnam, the evaluating model built by the authors based on the ascendant models evaluating the effect of urbanization on the real estate market of tie - ying liu, hsu - ling, hsu - ling, kim su & chien - chi (2018). The experimental model assessing the impact of urbanization on the real estate market in Vietnam built is:

$$\ln D_{it} = \theta_0 + \theta_1 * \ln(N_{it}+L_{it}) + \theta_2 * \ln M_{it} + \theta_3 * PGR_i + \theta_4 * T_{it} + u_{it}$$

Table 1. Explain the author' s model variable

<i>Variable</i>	<i>Meaning</i>
$\ln D_{it}$	Logarithmic base e of the general demand for the local real estate service <i>i</i> in year <i>t</i>
$\ln(N_{it}+L_{it})$	Logarithm of base e of the total number of indigenous inhabitants N and the rural-to-urban population L of locality <i>i</i> in year <i>t</i>
$\ln M_{it}$	Base e logarithm of local real estate purchase price <i>i</i> in year <i>t</i>
PGR_i	Average annual population growth rate from 2009 to 2019 of the locality <i>i</i>
T_{it}	Population density of locality <i>i</i> in year <i>t</i>
u_{it}	Indeterminate error

Source: Self-built by the author team

The research is based on several key aspects. Those are the studies that have been tested before. For example, research by Liu (2018) or Wu (2001) has concluded that immigration affects the structure and demand for the real estate market, so the study applies a dynamic panel data model in the experimental estimate. In addition, according to Saiz (2007), immigration increases property value and is positively correlated with rent increases when immigration is rampant over time. Saiz (2007) assumes that the preferences of local residents can be expressed as a separable utility function which is also able to examine the income effect on real estate consumption. The optimal individual consumption of real estate services for immigrants is assumed to be the same as that of local residents. Aggregate demand for real estate services D is equal to the number of residents multiplied by the consumption of each resident. Take the logarithm of this identity after substituting to obtain the optimal property consumption output.

Estimating the impact of urbanization on the real estate market by an empirical model is carried out by estimating the regression coefficient which is the ordinary least squares (OLS) method. In the model, the considered variable is $\ln(N_{it}+L_{it})$. If the analysis results show that the regression coefficient of the variable $\ln(N_{it}+L_{it})$ has a positive value and is statistically significant, it can be concluded that urbanization has a positive effect on the real estate market. On the contrary, if the regression coefficient of the variable $\ln(N_{it}+L_{it})$ is negative and statistically significant, it can be concluded that urbanization has a negative effect on the real estate market.

4. Results

Variables descriptive in the model

Table 2. Variables descriptive in the model

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
$\ln D_{it}$	32	7.30	12.21	9.6132	1.24137
$\ln(N_{it}+L_{it})$	32	11.69	16.00	12.8816	1.06057
$\ln M_{it}$	32	2.81	10.53	6.3841	3.37678
PGR_i	32	.31	4.08	1.7378	1.04276
T_{it}	32	574.00	4363.00	1621.7813	824.85744
Valid N (listwise)	32				

Results and reviews

Conducting an estimate of assigned regression model, the authors have received the following results:

Table 3. Estimation of regression coefficient in the model, significance level of 95%

Dependent Variable: TC					
Method: Least Squares					
Date: 03/25/22 Time: 14:01					
Sample: 1 32					
Included observations: 32					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
$\ln D_{it}$	-2.898850	2.051142	-1.413286	0.1690	
$\ln(N_{it}+L_{it})$	1.051086	0.160720	6.539843	0.0000	
$\ln M_{it}$	-0.026832	0.042218	-0.635550	0.5304	
PGR_i	-0.124025	0.140001	-0.885893	0.3835	
T_{it}	-0.000396	0.000210	-1.885803	0.0701	
R-squared	0.693525	Mean dependent var	9.617254		
Adjusted R-squared	0.648121	S.D. dependent var	1.242097		
S.E. of regression	0.736804	Akaike info criterion	2.369612		
Sum squared resid	14.65777	Schwarz criterion	2.598633		
Log likelihood	-32.91379	Hannan-Quinn criter.	2.445526		
F-statistic	15.27464	Durbin-Watson stat	0.899383		
Prob(F-statistic)	0.000001				

Regression results show that only variables $\ln(N_{it}+L_{it})$ are statistically significant ($p_value = 0.0000 < 0.05$). The test results show that there are sufficient grounds to remove $\ln M_{it}$, PGR_i and T_{it} variables due to the lack of statistical significance, which can be removed simultaneously from the model. The model after being shortened will take the following form:

The following model shortens:

$$\ln D_{it} = \beta_0 + \beta_1 * \ln(N_{it}+L_{it}) + u_{it}$$

Table 4. Results of estimation of regression coefficient after shortening, meaningful level of 95%

Dependent Variable: TC					
Method: Least Squares					
Date: 03/25/22 Time: 14:17					
Sample: 1 32					
Included observations: 32					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
C	-2.098920	1.738709	-1.207171	0.2368	
$\ln(N_{it}+L_{it})$	0.909210	0.134536	6.758138	0.0000	
R-squared	0.603554	Mean dependent var	9.613125		
Adjusted R-squared	0.590340	S.D. dependent var	1.241213		
S.E. of regression	0.794435	Akaike info criterion	2.438090		
Sum squared resid	18.93380	Schwarz criterion	2.529698		
Log likelihood	-37.00944	Hannan-Quinn criter.	2.468456		
F-statistic	45.67243	Durbin-Watson stat	0.597457		
Prob(F-statistic)	0.000000				

Make an estimate of the regression coefficient using the OLS regression model for results such as table 4. The model after shortening has the *p-value* of the variable $(\ln(N_{it}+L_{it}))$ of $0.0000 < 0.05$, which is statistically significant; R-squared coefficient = 0.603554 is negligible difference with this coefficient in the estimate of the original model, so the model can be accepted after shortening the variables that are not statistically significant.

The estimated results show that the regression coefficient of the logarithmic variable base e of the total number of local residents N and the population from rural to urban areas of the locality $(\ln(N_{it}+L_{it}))$ has a positive value and statistically meaningful implying that the higher the degree of urbanization, the greater the impact on the real estate market, which means that urbanization has a positive effect on the real estate market in Vietnam.

5. Discussion and Conclusion

5.1. Discussion

After giving the results, it can be seen that in Vietnam, the real estate market is also affected by the speed of urbanization. This outcome is consistent with the research results of Tie-Ying Liu, Chi-Wei Su, Hsu-Ling Chang & Chien-Chi Chu (2018). Similar to the above study, this study shows that in Vietnam, the influence of urbanization on the real estate market is very strong, but there are some special areas such as tourism development urban areas or industrial development urban areas, there are other factors affecting the real estate market. In addition to factors of economic development there are also a number of other factors influencing the development of the real estate market, such as topography, climate or social and environmental aspects. In Liu's study (2018) in China, the impact of urbanization on the real estate market is also inconsistent, there are provinces in the west and east regions that are not affected or have little influence. However, the research results of this research team this time give us the expected outcome that the effect of urbanization speed will positively affect the real estate market in Vietnam.

Recommendations

Through studying the impact of urbanization on the real estate market in Vietnam, the study offers solutions to develop the property market in the period of 2022-2030 in the ongoing urbanization period with high speed helping the real estate market overcome difficulties at the present time.

(1) Develop public housing and affordable shophouse:

Urban is the core factor affecting the real estate market. Rapid urbanization has led to an increase in housing demand in urban areas, especially housing development for low-income people such as public housing and shophouse. Therefore, developing these two housing segments is one of the solutions to solve the current housing shortage.

(2) Improving the institutional environment of the real estate market:

Improve investment policies in the direction of encouraging investors to invest in order to increase the "supply" for the real estate market so as to contribute to the market stabilization. Therefore, we can gradually create conditions to encourage foreign investors

to participate in the real estate market in the tendency of equality, in the same playing field with domestic investors.

(3) Prepare a plan for land acquisition regarding excess land area compared to the standard

The area of land that is inefficiently used for construction of offices, works needs to be acquired for the implementation of building industrial area, free-trade zones, urban areas, resettlement projects, etc. will increase the value of the land, not only in the areas where the land is acquired, but also the "satellite" areas of the project. This is the responsibility of the State in implementing land management policies, regulating the added value from land through shifting land position in economy and society development projects, transferring different types of land to land for project implementation.

(4) Orientation and prospects of urbanization and real estate market in the period of 2022-2030.

To realize the common goals of the whole economy during 2022-2030 with a vision to 2045, the field of urbanization and the real estate market will need to have their own specific contents:

Firstly, industrialization, modernization and urbanization. Modern industries and knowledge-based economies will thrive, placed in an effective and well-connected network in modern cities, where urban and rural policies will closely synchronized. Cities like Hanoi and Ho Chi Minh City will interact with the global economy and ensure urban diversity, thereby encouraging learning, innovation and new product development, connecting people and businesses around the world.

Secondly, it is forecasted that by 2030, over 50% of Vietnam's population will live in urban areas. The share of industry and services in GDP stands at more than 90% and contributes more than 70% of employment. Therefore, the problem of urbanization is essentially a matter of industrialization and urban migration. Urban system development leads to urbanization. However, how the urban system develops is not a concern of one party or in a short time, but of all parties, in the long run. Only when the urbanization rate reaches a high level (about 80% or more) can it be considered a success.

Associated with urban development is the operation of the real estate market. The interaction between economic growth, real estate market development and urbanization are issues that need to be solved at the same time. Only when the real estate market operates fully, the housing problem of urban people can be solved and at that time is the urbanization sustainable.

Thirdly, a favorable legal system for land transfer. In the coming years, Vietnam will enter a period of rapid economic development, followed by rapid urbanization. The land transfer, therefore, will also take place very strongly. To be able to meet the requirements of high and diverse land transfer, it is highly necessary to improve the institution, including the land legal system in the direction of promoting land transfer. Therefore, attention should be paid to completing the institutional framework on land to ensure that land is transferred quickly and smoothly.

5.2. Conclusion

Based on the research results of the topic, it can be stated that the activities of the real estate market in Vietnam are deeply influenced by the process of urbanization. Urbanization increases the value of real estate, opening up many investment opportunities for domestic and foreign business. Real estate products also become more diversified and effective. By that way is, the real estate market made vibrant. The appearance of Vietnam's urban areas is becoming more spacious, well-equipped and modern as real estate projects develop speedily. However, besides those positive changes, urbanization also causes negative impacts such as shortage of land area, high housing demand, imbalance between supply and demand of the market or problems related to management mechanism and policies, etc. After analyzing the relationship between urbanization and the real estate market, simultaneously through researching and grasping real estate difficulties, the group has proposed a number of specific solutions to remove those bottlenecks. The solution proposed in the study is based on approaching the effects of urbanization and looking at the reality of Vietnam's real estate market today.

Finally, the study has completed the initial goal of assessing the relationship and impact of urbanization on the real estate market in Vietnam and providing solutions for the real estate market. to meet the demand for housing and housing quality in Vietnam in the process of urbanization. With this article, we hope to bring useful information to readers, who are also interested in and study the above problem. To gether with the solutions proposed do we, hope that Vietnam's real estate market will have more new prospects in the future.

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THE RELATIONSHIP BETWEEN PLACE ATTACHMENT, RESIDENTIAL SATISFACTION AND HOUSING BEHAVIORAL INTENTION: A CASE STUDY IN VIETNAM

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Abstract

This paper analyses the relationship between place attachment, residential satisfaction, and housing behavioral intention of people living in these apartment buildings in two big cities of Vietnam. Data were collected from 781 dwellers in Hanoi and Ho Chi Minh city. This study uses the Partial Least Squares structural equation modeling (PLS-SEM) approach to testing hypotheses about relations among observed and latent variables. These results have shown that there is a relationship between the three factors mentioned in this topic. Notably, place attachment has a stronger effect on housing behavioral intentions than satisfaction, and satisfaction is confirmed to have a mediating variable function.

Keywords: *Housing behavioral intention, Place attachment, Residential satisfaction, Viet nam.*

1. Introduction

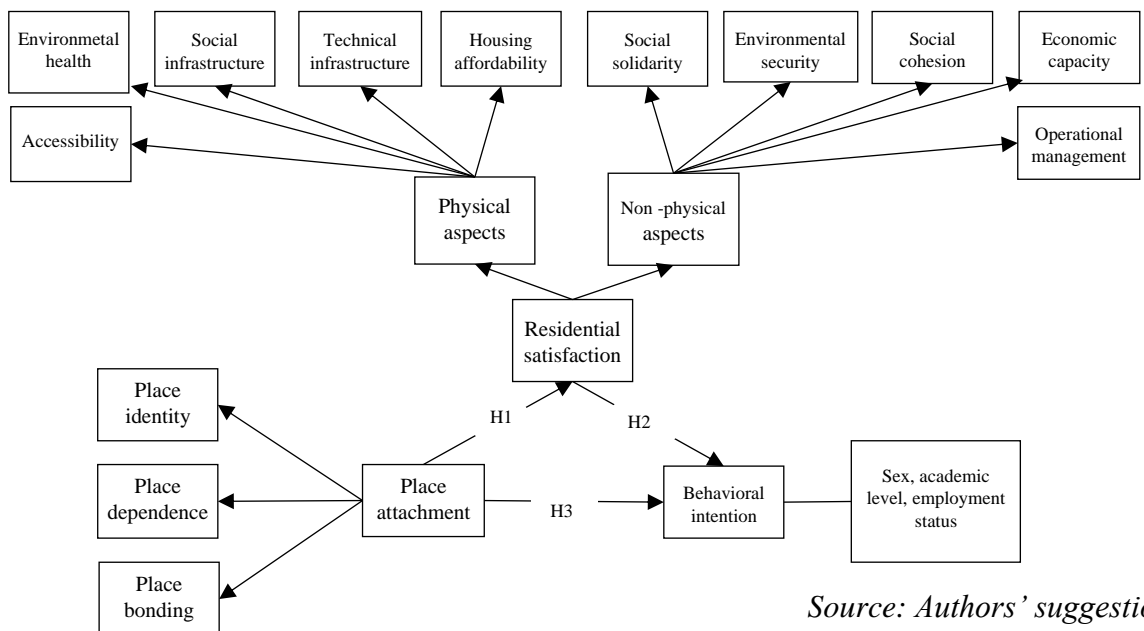
Viet Nam is experiencing a very fast rate of urbanization, especially in Ha Noi and Ho Chi Minh City. The shrinking of the land bank and the unstoppable population explosion are the reasons for the rising number of apartments in Vietnam's urban areas. These apartments are growing at a non-trivial speed which triggers more harm than good, for instance, the density in urban planning, legal status... On the other hand, the value of the apartment can reduce because of the normal wear and tear which shapes the law of housing demand and supply. This will be a prologue of dissatisfaction and weakens the feeling of place attachment. Therefore, the resident will tend to think about negative

housing behavioral intentions such as moving, selling... This research is to present several concrete suggestions to address the inadequacy and shortcomings of the housing market and support the analysis of social psychology, forecasting the rule of demand and supply at the same time.

This research will focus on analyzing the relationship between place attachment, residential satisfaction and housing behavioral intention of people living in apartment in Vietnam's urban areas. The topic about this relationship always receives attention from domestic and foreign scholars, so that there are many foundation theories was formed. Theory of place attachment was mentioned and developed by psychologists in 1970s. "Place attachment" was first proposed by John Kasarda and Morris Janowitz (1974) as an invisible tie between human and place. The theoretical framework of residential satisfaction is a branch of family housing adjustment theory (Morris & Winter, 1975), considering the needs and expectations of a family in order to gauge their behavior toward the current housing status (Galster & Hesser, 1981). Housing behavioral intention theory is based on the theory of reasoned action and the theory of planned behaviour. The theory of reasoned action (TRA) was appeared in 1967 and adjusted by Martin Fishbein and Icek Ajzen (1980) aims to explain the relationship between attitudes and behaviour within human action. The theory of planned behaviour was built off of what assumed of human behavior in the theory of rearsoned action (TRA). Both theories postulate that a person's behavioral intentions and their attitudes about a certain behavior are determined by being able to understand that person's behavioral and normative beliefs as well as the social norms for the society that they are within.

When researching the relationship between place attachment and residential satisfaction, Ringel and Finkelstein (1991) expressed enthusiastic support for distinguishing these terms. Place attachment was believed to stand apart from residential satisfaction (Lewicka, 2010). The later research of Byungsook Choi, Jung-a Park và Hyun-Jeong (2016); Ning (Chris) Chen, C. Michael Hall, Kangkang Yu và Cheng Qian (2019); Elif Aksel và Çağrı İmamoğlu (2020), all model have had a leg to stand on a positive relationship between place attachment and residential satisfaction. To give a specific example, the research of Femke Luitse (2021) given that place attachment had a positive impact on residential satisfaction, which means, that the more place attachment the residents have, the more satisfied they will be. Although there are many pieces of research mention the effects of the relationship between place attachment, residential satisfaction, and housing behavioral intention, they still focus on certain aspects such as mobility intention of Amelia Tri Widya, Hanson Endra Kusuma và Rizal Arifin Lubis (2019); pro-environmental behaviors of Haywantee Ramkissoon, Liam David Graham Smith, Betty Weiler (2013)... Most previous studies were carried out in developed countries such as the Netherlands, China, Korea. Meanwhile, there are very few studies conducted in developing countries like Vietnam. Besides, Vietnam has witnessed an increasing project of apartments in these big cities such as Hanoi and Ho Chi Minh city, after amended the Housing Law 2005. Therefore, Vietnam is likely to become a new potential context to research on the relationship between place attachment, residential satisfaction, and housing behavioral intention.

This research aims to measure the relationship between place attachment, residential satisfaction and housing behavioral intention of people living in these apartment buildings in Vietnam's urban areas. Therefore, our research model and hypotheses are suggested:



Source: Authors' suggestion

Figure 1. Research model

Hypotheses:

H1: Place attachment has a positive impact on residential satisfaction.

H2: Place attachment has a negative impact on behavioral intention.

H3: Residential satisfaction has a negative impact on behavioral intention.

2. Method

To test the developed hypotheses from the literature review, we used qualitative research and quantitative research. In the first stage, qualitative research aims to adjust the questionnaire survey. A questionnaire survey was formed based on previous research, which we separated into two parts: demographic information of the sample and the second part involved a range of questions using the Likert scale from 1 (strongly disagree) to 5 (strongly agree) for measuring the variables in the model.

In the second part, we continue dividing into three small groups. First, place attachment with these variables: place identity, place dependence, and place bonding which were perceived from Ning (Chris) Chen, C. Michael Hall, Kangkang Yu, and Cheng Qian's (2019) research. Second, residential satisfaction with scale items measured perceived by Amelia Tri Widya, Hanson Endra Kusuma, và Rizal Arifin Lubi (2019). The last one was the behavioral intention which items scale perceived by Amelia Tri Widya et al., 2019. Then, an interview with experts and individuals was taken to adapt and check the content, wording, and clarity before sending.

Data were collected by online surveys via Google Form and in apartments in Ha Noi and Ho Chi Minh City from 01/02/2022 to 21/02/2022. We obtained 781/850 valid responses for analysis. After that, we gather the data to measuring the variables presented in the research model, using the exploratory factor analysis (EFA), reliability, convergent validity and discriminant validity. Then, we using the PLS – SEM to test the appropriateness of the formative/reflective model and reliability analysis using bootstrapping with 1000 samples. Afterwards, the second qualitative research was implemented out by interview resident in apartments and experts to use as a basic for discussion. After that, we gather the data to measuring the variables presented in the research model.

3. Results

3.1. Research sample statistics

Table 1. Sex, gender, age, location, academic level, employment status, legal status, living time and household income statistics

Criteria		Frequency	Percent (%)
Location	Ha Noi	553	70.8
	Ho Chi Minh	228	29.2
Sex	Male	404	51.7
	Female	377	48.3
Academic level	High school	101	12.9
	Intermediate school/ Junior college	111	14.2
	University	427	54.7
	Postgraduate education	142	18.2
Employment status	Employed	585	74.9
	Retired	51	6.5
	Unemployed	43	5.5
	Student	48	6.1
	Housewife	54	6.9

Source: Authors' calculation from survey data

In 781/850 samples obtained, the number questionnaires taken in Ha Noi and Ho Chi Minh City was not the same so that the samples structure had a significantly difference. Especially, questionnaires collected in Ha Noi were 70.8% - 2.4 times more than in Ho Chi Minh City (29.2%).

There is not big gap in sex of the respondents, male constitute 51.7%, meanwhile, female made up 48.3%. The percentage of university made up more than a half of the academic level, 54.7%. Postgraduate education following with 18.2%; Intermediate school/ Junior college accounted 14.2% and the lowest percentage was high school level with 12.9%. In employment status, the highest percentage was employed with 74.9%. In contrast, the lowest percentage was unemployed with 5.5%. The rest status: retired, student and housewife accounted around 6% - 7%.

3.2. Results from analysis the exploratory factor analysis (EFA)

KMO returns value $0.832 > 0.5$ and $0.832 < 1$, this prove the accordance with the research data of the factors. Sig of the Bartlett test = $0,000 < 0,050$ referd the correlation of the observable variables.

There are 14 factors which has Eigenvalues > 1 means that these 14 factors will be kept in the analytical model. So, from the 43 factors at first had been condensed to 14 main factors. The total variance explained (Cummulative %) = $65.608\% > 50\%$, presented the percentage of variation in observable variables.

Convergence test and factor loading: The variables converged to one factors (column) and all the coefficient were $> 0.5\%$ so that none of the observable variables are removed.

In conclusion, there are 14 factors which satisfying the convergent validity and the discriminant validity.

3.3. Result of Evaluation of reflective measurement model (Smart PLS)

Table 2. The result of evaluating the Reliability of Scale

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
AC	0.867	0.904	0.652
EC	0.886	0.929	0.814
EH	0.781	0.872	0.694
ES	0.844	0.928	0.865
HA	0.786	0.875	0.700
OM	0.815	0.890	0.730
PB	0.894	0.934	0.825
PD	0.898	0.936	0.830
PI	0.831	0.922	0.855
SC	0.834	0.923	0.858
SI	0.818	0.880	0.647
SS	0.756	0.891	0.804
TI	0.924	0.946	0.814

Source: Authors' calculation from survey data

According to Table 2, the scale is highly reliable because not only the Cronbach Alpha coefficient is greater than 0.6 but also both Composite Reliability (CR) and Average Variance Extracted (AVE) values are greater than 0.5.

Verification of Convergent validity shows that all outer loadings being > 0.708 means the lowest 50% of the variance from the observed variable are taken by the latent constructs in the model; both standardized – unstandardized outer loadings and all of the AVE values are more than 0.5, which indicates that each observable variable component is greatly accepted and the explanatory level of the factors for the latent variable is high.

Verification of Discriminant validity confirms that the manifest variable of this construct is distinct from other constructs in the path model through its cross-loading value in the latent variable being greater than that in any other constructs. Furthermore, the squared root of average variance exerted along the diagonals is greater relative to all of the correlations, and all heterotrait – monotrait (HTMT) is less than 0.9, implying satisfactory discriminant validity.

3.4. Result of Analyzing Partial Least Squares Structural Equation Modelling (PLS-SEM)

Multicollinearity phenomenon in original formative and reflective measurement model testing: Reflective measurement model is used for high order latent variables (PA and RS) and the remainder is for dependent variable BI.

Table 3. VIF value of reflective measurements model

	SS	ES	SC	EC	OM	PI	PD	PB	RS	AC	EH	SI	TI	HA	NP	PS	BI
NP	1.000	1.000	1.000	1.000	1.000												
PA						1.000	1.000	1.000	1.000								1.312
PS										1.000	1.000	1.000	1.000	1.000			
RS															1.000	1.000	1.312

Source: Authors' calculation from survey data

The table shows that the indicator variance inflation factors VIF of all coefficients are all less than 2 so there was no correlation among independent variables and obviously the research models do not get multicollinearity with all acceptance variables.

Table 4. VIF value of formative measurements model

	BI1	BI2	BI3	BI4
VIF	2.179	1.903	2.237	1.890

Source: Authors' calculation from survey data

According to the model test results, all VIF values are less than 5, thus, collinearity does not exist or there is no multicollinearity among independent variables in this estimation formative measurement model.

Adjusted R Square coefficient

Table 5. Results of R2 and \bar{R}^2 coefficient of dependent variables

	R Square	R Square Adjusted
AC	0.263	0.262
BI	0.490	0.489
EC	0.678	0.678
EH	0.193	0.192
ES	0.223	0.222
HA	0.235	0.234
NP	0.444	0.443

	R Square	R Square Adjusted
OM	0.238	0.237
PB	0.618	0.617
PD	0.509	0.509
PI	0.437	0.436
PS	0.802	0.801
RS	0.238	0.237
SC	0.344	0.344
SI	0.291	0.290
SS	0.142	0.141
TI	0.741	0.741

Source: Authors' calculation from survey data

As the result of Table 3.5, all values of Adjusted R^2 are less than or equal to the corresponding R^2 , which indicates that the model is relevant and suitable. In particular, the independent variables influence 80.2% of the variation of the dependent variable PS (physical aspect); the remaining 19.8% is due to the variables outside the model and random errors. The same goes for other dependent variables.

Verification of significance of regression coefficients in the model (PLS-SEM)

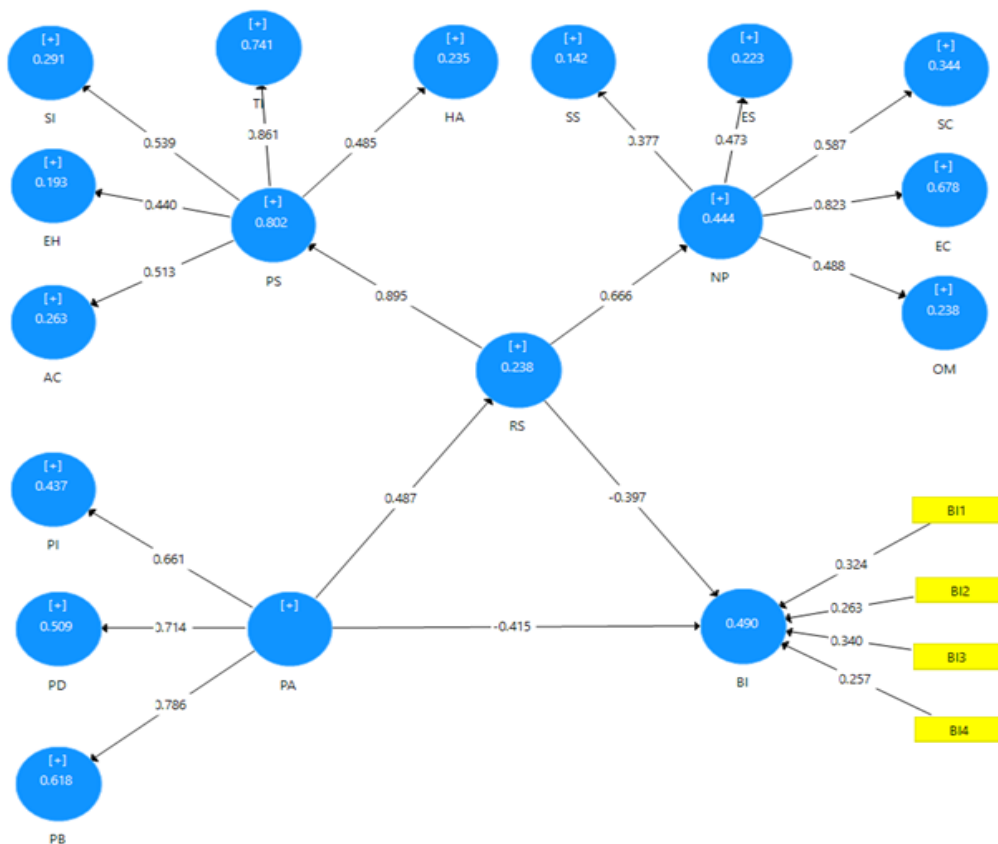


Figure 2. Regression coefficient results of the original model

Source: Authors' calculation from survey data

Running Basic Bootstrapping with a sample size of 1000, the significance level of each regression coefficient is less than 0.001, which means that the original model has high efficiency in explaining the relationship between the lower order latent variables and observed variables (except BI, all observations inner the latent variables have been hidden to easily evaluate the model measurement results).

Outer weights results: Outer weights are applied to the formative measurement model, and p-values of observed variables BI1 to BI4 are all equal to $0.000 < 0.050$. Thus, the observed variables contribute to the latent parent variable (BI) in a statistically significant way.

3.5. Repeated observed variable method results (Repeated indicator approach)

Approach the method through two stages approach, which is used to evaluate the relationship between a high-order latent variable and a low-order latent variable, but not a higher-order latent variable with repeated observations within it. After reduced the model twice cause of 3rd order latent variable (RS), the authors at the same time performing tests for the new model and obtain the following results:

Table 6. Result of regression coefficient in the new reduced model

	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
PA -> BI	-0.413	0.028	14.959	0.000
PA -> RS	0.499	0.031	15.862	0.000
RS -> BI	-0.391	0.026	14.851	0.000

Source: Authors' calculation from survey data

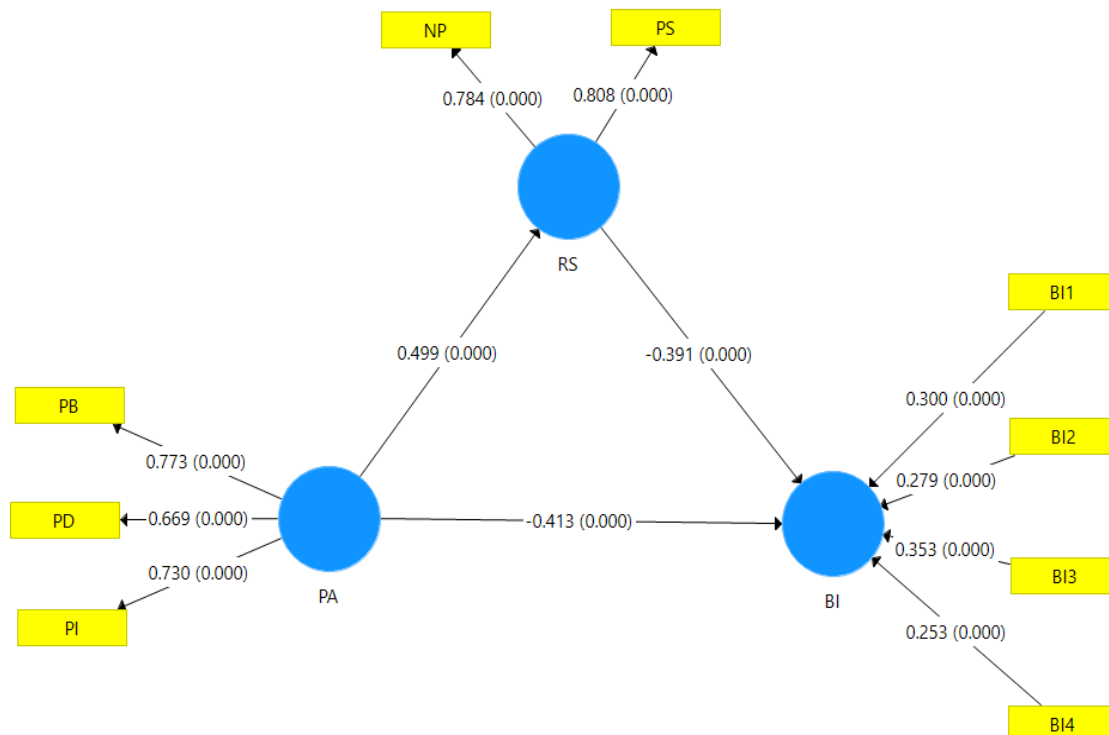


Figure 3. Result of regression coefficient in the new reduced model

Source: Authors' calculation from survey data

Based on the table results, all P-values of the new model's regression coefficients are < 0.001 , and the variables of the new model are all statistically meaningful. As the result, PA has a stronger indicator than RS when being in the relationship with BI ($|-0.413| > |-0.391|$). In other words, the higher the PA and RS, the lower the BI. PA affects RS positively at $0.499 > 0$ and RS is confirmed as a mediator variable of the PA and BI relationship.

4. Discussion and Conclusion

4.1. Discussion

After performing two phases of qualitative research, combined with quantitative research, the authors obtained data and descriptive statistics via SPSS to get an overview and then apply the structural equation modeling PLS-SEM to analyze the data. As a result, all three hypotheses are accepted: *Place attachment* has a positive impact on *residential satisfaction* (hypothesis 1); *Place attachment* and *residential satisfaction* affect *behavioral intentions* negatively (hypotheses 2, 3), in which the former has a stronger impact and the latter is a mediator variable.

The sample regression coefficient in the relationship between *place attachment* and *behavioral intention* is -0.413 , less than the one in the correlation between *residential satisfaction* and *behavioral intention* (-0.391). Thus, *place attachment* has a stronger impact than *residential satisfaction* on the negative *behavioral intentions* of urban residents living in apartments. This result is similar to the previous study by Amelia Tri Widya et al. (2019) on "The correlation relationship between people's satisfaction, place attachment and intention to move: Research preliminary study in Belawan, Medan", the similarity is believed to come from the scale and questionnaire of *place attachment* and *residential satisfaction*. However, Amérigo & Aragonés (1997) argues that residential satisfaction has a stronger impact, according to another previous study by Liang et al. (2014), even if *residential satisfaction* is a good factor to predict and determine, there was also no clear correlation between *residential satisfaction* and *behavioral intentions*, namely intention to move.

This study can be a premise for the future development of a model to measure the relationship between place attachment, residential satisfaction, and behavioral intention. Based on research results, some policy implications and recommendations are drawn below:

Firstly, real estate developers and investors can rely on research results to come up with ideas and implement the construction of apartment buildings that are suitable for residential needs as well as identify locations and designs to attract people to live. The efficiency of urban planning and construction can be improved by: improving the approach distance of apartment buildings, ensuring construction quality, water supply, and drainage system according to the regulations and population. The research results help the developers understand the factors that make residents more satisfied and engaged with their apartment, at the same time predict the psychological and behavioral intentions of residents to provide appropriate development strategies for increasing place attachment and satisfaction, reducing negative behavioral intentions toward housing.

Secondly, real estate managers can better understand the psychology and intentions of current apartment residents, thereby making modifications in terms of service quality and boosting the position and reputation of a professional real estate manager. Building management should focus on improving the quality of the operation management team through highly qualified recruiting and training staff, by the way, build up a professional apartment management model to easily solve problems arising during the management and operation process.

Thirdly, the investors, to ensure their reputation, should speed up the process of granting the House ownership certificate, they better fulfilling their responsibility to carry out the procedures to apply "So hong" for the customer of the apartment within 50 days from handing over, unless there is any other agreed and then properly perform their responsibilities and obligations to the state.

Finally, for state management agencies and policymakers, the research result is a useful source of information and references for planning the construction and improvement of urban quality and landscape. In addition, it is proposed to recommend to the state that, come up with policies to adjust supply for each specific segment, type, and demand to avoid massive and unbalanced development.

4.2. Conclusion

In general, this paper systematized and conveyed concepts of place attachment, residential satisfaction, and housing behavioral intentions. On top of that, partial least squares structural equation modeling PLS-SEM is utilized with quantifying place attachment and residential satisfaction variable by repeated indicator method to measure their attributes while formative measuring behavioral intentions by four observed variables. The results reveal all hypotheses are accepted, indicating that place attachment affects positively with residential satisfaction and negatively mentioned housing behavioral intentions.

Based on the above conclusions, four main recommendations are provided to enhance the housing attachment and satisfaction of residents, concurrently reducing negative behavioral intention. Related parties need to weigh improving urban planning and architecture construction efficiency; speeding up the process of issuing ownership certificates, regulating the supply and demand of apartments; upgrading the quality of operation management; and the last one is enriching the culture of each apartment.

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RESEARCH ON THE INFLUENCE OF ONLINE KEY OPINION LEADERS ON VIETNAMESE TOURISTS' INTENTION TO REVISIT HOI AN ANCIENT TOWN

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Abstract

With the extreme development of e-commerce, the role of online key opinion leaders is becoming more and more critical in the advertising industry. In Viet Nam, the trend of advertising thanks to online key opinion leaders is being used powerfully in many industries, including tourism. It is the perfect combination of online marketing and online key opinion leaders' experiences. They share feelings and experiences about products and services on social media. It strongly influences customer behavioral intentions. Based on the previous theory, the research developed a conceptual framework and a research model of the influence of online key opinion leaders on tourists' intention to revisit Hoi An ancient town. Identify components of online key opinion leaders and the destination image of Hoi An ancient town. Analyzing the influence of online key opinion leaders on destination image; the influence of destination image on revisit intention. The study implements the online key opinion leaders as the exogenous variable and destination image as the intervening variable and intention to revisit as the endogenous variable. The samples would be collected by using convenience sampling technique, with up to 700 people responding to online questionnaires shared on the social media such as wechat, facebook and zalo. The method used to analyze was Structural Equation Modeling (SEM), using the SPSS and SmartPLS software. The study result pointed to the remarkable positive effect of both online key opinion leaders and destination image on tourists' intention to return. The results also focused on verifying the destination image such as cognitive image, affective image and overall image. Based on the results, the study also proposes some solutions to attract visitors to return Hoi An in the wave of a Covid-19 pandemic like now.

Keywords: *Online key opinion leaders, destination image, cognitive image, affective image, overall image, intention to revisit*

1. Introduction

The great development of the Internet has changed the obtainable information source related to the tourism, as well as impacted the method people access reliable and accurate information, making travel options [1]. Before, people found tourism information as well as travel agencies through book guides, newspapers, magazines and books. Now, they can find it through Internet by some the social media such as Facebook, Tiktok, Youtube, Instagram,

and Tripadvisor [1],[2]. Bloggers, reviewers, key opinion leaders and celebrity endorsements can share views, opinions, comments, places, experiences, and feelings related to their travel, including during the tour, finally serving as an information source for others in such the social media [2],[3].

Tourism is especially service intangibility because people cannot review them without having practical experience. Therefore, online comments can be used as proof before booking travel services and products and be factored into the decision-making process to decrease the risk when choosing tourism products. In the research of Wei & Lu (2013) [4], the authors also confirmed that customers turn to the Internet to learn about products and services before purchasing them. To have the best choice for travel, customers always use social media to search information about a destination, visualize images and read comments from others' previous tourist experiences [5]. Hence, key opinion leaders could become third parties who connect between products or services and customers, recommending and introducing the products or services through social media content, video, and images. This has impacted the customer's opinions, behaviors, and attitudes towards products [6].

Tourism development is of special significance to many countries in the world because tourism is the motivation for socio-economic development and one of the most important activities in the world [7]. Aware of the above problem, researcher S. J. T. m. Pike (2002) [8] in this field are not only finding improved product and service quality but also focusing on building and developing of image tourist destination because it is considered one of the most important point affecting the intention of customers. Visitors' intentions include the intention to visit in the future, intention to revisit, and willingness to recommend [9]. In economic terms, the intention to return makes an important distribution to decreasing advertising costs, and increasing revenue and profit of tourist destinations [10]. Therefore, how raise tourists' intention to revisit the same place is being researched more and more. Much previous research shows that that many variables influence tourists' intention to return such as destination image, destination quality, satisfaction, and loyalty [11]. Among them, the destination image is considered the most crucial factor that evokes the tourists' intention to return to the same place. Thus, studying the destination image concerning tourism intention in general and tourists' intention to revisit in particular is one of the most researched issues in the tourist industry [12],[13]. Influencers affect on destination image, and the tourism marketing field became a great topic for researchers and practitioners. This became a critical point in developing and promoting effective marketing strategies for tourism destinations and building destination images [3].

In 2021, the Covid-19 pandemic will continue to disrupt and break the tourism service supply chain, causing damage not only to the tourism industry but also to the agriculture, catering, entertainment, and food supply industries, products, specialties, crafts, souvenirs, transportation. In the tourism industry, 95% of travel companies stopped operating, 35% of travel companies applied to withdraw their business licenses; 90% of tourist accommodation are closed, the annual average capacity of the entire system of tourist accommodation is only 5%; millions of tourism workers will lose their jobs in 2021.

According to statistics, the number of domestic tourists in 2021 is estimated to reach 40 million, down 29% compared to 2020 and down 53% compared to 2019. The key tourist areas continued to record large declines such as Hanoi down 47%, Thua Thien Hue down 60%; Da Nang down by 60%; Quang Ninh down 37%; Ninh Binh down 49.5% over the same period in 2020. In 2021, total revenue from tourists is estimated at 180,000 billion VND, down 42% compared to 2020 and down 76% compared to 2019. Estimated contribution GDP of tourism in 2021 would only reach 1.97% (in 2019 it would be 9.2%, in 2020 it would reach 3.58%). The above figures do not fully reflect the heavy damage that Viet Nam's tourism has suffered in the past 2 years, leaving very serious consequences.

According to Vietnamtourist.gov.vn, Viet Nam is a tourist country, especially Hoi An is UNESCO World Heritage Site. In 2 years, 2019 and 2021, Hoi An tourism to be voted for and won many international awards such as Asia's Leading Cultural City Destination. However, due to the influence of the Covid-19 pandemic, in 2021, the total number of tourists decreased sharply, reaching just over 300,000 arrivals, down 77% compared with the same period in 2020 and down nearly 95% compared with the same period in 2019, revenue reached VND 281 billion; social income from tourism reached VND 660 billion, down 73% compared with the same period in 2020 and down 93% compared with the same period in 2019; tourism damage is about VND 15,000 billion .

Faced with this situation, the tourism development strategy to 2030 has pointed out the need to be necessary to "Create an image of Viet Nam's tourism" to contribute to improving the competitiveness of the industry and enhancing the Vietnamese tourism brand. Specifically, in 2022, Hoi An ancient town is selected to kick off the National Tourism Year with the theme Quang Nam – A Green Tourism Destination. This event is the most significant annual tourism events in Vietnam's tourism sector with an expectation of improving national tourism potential. How to attract visitors traveling to Hoi An and returning after many times visiting Hoi An is a critical problem and challenge for managers and marketers.

To explore the influence of key opinion leaders and destination image on visitors' intention to return to Hoi An ancient town is the general goal of this study. The result of this study helps managers improve destination image and increase visitors to Hoi An.

2. Literature review and Hypothesis development

According to Alisa Alessia Comendulli (2020) [39] a key opinion leader, sometimes called an influencer, is an expert in a particular field provides information related to their field, when they promote products and service, they bring credibility, authenticity and influence to them. The author Rogers (1962) [14] showed that KOLs affects the decision of each customer differently. Other authors Kotler P, Bliemel F (2001) [15] defined opinion leaders are individuals who have a direct impact on other individuals in the social circle, possibly related to their technique, knowledge, personality, and other attributes. Author Rogers (2003) [16] pointed out those opinion leaders as individuals influencing others' opinions about innovations. Although their influence is unofficial, opinion leaders play a critical part in the information acquisition process of consumer decision-making and, as a

consequence, can affect the outcome of marketing strategies [17]. Consumers said that they found the information they received from communications reviewed by opinion leaders to be more credible than an advertising message [18].

Moreover, authors Brown D, Hayes N (2008) [20] also showed that the motivation of influencers use firms messages which cooperate them if company messages are valid. Most importantly, it increases the worth of their influence. This is also an important part of an effective influencer marketing plan. Thanks to the appearance and development of key opinion leaders on social media, marketing strategies that use key opinion leaders have become progressively well-known and influential recently

The majority of literature on key online key opinion leaders mostly focuses on their character, recognition, and influence on social media.

First of all, the author will talk about the character of online key opinion leaders. The theoretical framework of online key opinion leaders, according to Burson-Marsteller (1999) [19] who has brought forward e-fluentials to explain opinion leaders whose behaviors breaded out information through the Internet. The past research found that online key opinion leaders and offline key opinion leaders have the same characteristic. In comparison to regular people, and online opinion leaders have remarkable benefits in term of long-term involvement, innovation, pioneering behaviors, and self-perceived knowledge. Definitely, there are certain variations in between two groups, online key opinion leaders possess excellent computer abilities, as well as a wealth of information, expertise, and internet application frequency [21],[22]. Secondly, about the recognition of online key opinion leaders we have two kinds. One is based on a typical characteristic of online key opinion leaders. For example, as reported by author Xi R (2008) [23] attached key online opinion leaders' recognized statistical characteristics, personal characteristics, social characteristics, risk perception characteristics, buying motivation characteristics and personal value characteristics, and then the author will make an outline for online key opinion leaders scale. The other one of recognition is network theory [24], for instance, using sentiment information to analyze social networks, and the result shows that sentiment factors do have a significant effect on social network analysis. In the last of the literature, we will focus on the effect of online key opinion leaders. The past study demonstrated that famous and well-known participants' online comments on sites like Amazon had a significant impact on book sales volume. [25]. The search of authors Wang Z, Liu H, Liu W, Wang (2020) [26] showed that online key opinion leaders played vital roles in information diffusion, mostly in the original period in Sina Weibo. When the number of KOLs' sharing and interactions memorably rises, it brings about a scale of rapid network increase. Moreover, when the top KOLs forward a game related to hot keywords, the number of keyword-related them also increases quickly. Actually, in company with the strong growth of online social networks, specifically in worth-of-mouth (WOM) marketing such as providing information, giving personalized recommendations, sharing information, forwarding information become the consequences of online key opinion leaders' behaviors and online social blogs are one of the good channels where opinion leaders show their influence [27].

Based on antecedents and previous studies about online key opinion leaders, authors Meng F, Wei (2015) [28] innovatively designed an online key opinion leader leadership model on purchase intention. Those authors had considered some factors such as the character of opinion leaders, the perceived value of customers, opinion leaders' recommendation information, trust, and purchase intentions; in this has twelve variables, including professional knowledge, product involvement, visual cue, timeliness, and functional value. In order to measure how the characteristics of opinion leaders, opinion leader recommended information affects purchase intention, author Meng F, Wei (2020) [29] had conducted to design the questionnaire items for the variables in the key opinion leader influence model and create the primary scale. The results pointed out that the key opinion leader variable that affects customers' buying decisions are professional knowledge, product involvement, visual cue, interactivity, functional value, and trust. In addition, author Le Giang Nam (2018) [30] also found that consumers have a tendency to trust influencers vigorously and customers' purchasing intention is significantly affected by four factors: credibility of influencers, quality of information, customer participation, and interaction between influencers and products. Moreover, some similar studies showed a great impact of key opinion leaders on buying intention [31], [32], [33].

Destination image can be defined as a traveler's general impression of a place [34]. It is the sum of beliefs, ideas, and impressions that a traveler has toward a particular place [35],[36],[37]. Moreover, authors Agapito, Oom do Valle et al. (2013) [38] defined that destination image is as a subjective description of a place kept in a tourist's mind, which impacts their behavior during three stages including *priori*, *loco*, and *posteriori*. There are many different approaches to the conception of a destination image. According to Echtner and Ritchie (1991) [41] suggested that three continuum components of destination image are functional-psychological, common-unique and attributes-holistic. However, Gartner (1994) [42] clarified that destination image consists of affective, cognitive and conative. Some believe that only two components of destination image, namely cognitive and affective [43]. The cognitive can be explained as beliefs and knowledge about a place's physical features, while the affective identified that it is individual's emotional response and emotions regarding features and their surroundings [36]. In Spite of the definition of destination image as two or three dimensions, researchers tend to high point the composite and formative characteristics of destination image by referring to them overall image. Thus, overall image is the general impression of a destination image [44] that contains the cognitive and affective image [45] or is have effected by cognitive, affective and conative [46]. Overall image is also pointed out as the third component of destination image same as cognitive and affective [36] and the overall image is defined as an individual's general evaluation perception of a place. Despite that some authors already used overall image dimension like destination image construct [47]. To put it another way, the destination image is a summary component made up of two-three sub-dimensions. In this research, author develop destination image through three dimensions such as cognitive, affective and overall image.

Destination image impacts subjective perception of the destination and the future behavioral intention of tourist [51],[52]. Authors Rittichainuwat, Qu et al. (2001) [48]

defined that the better their opinion of the destination image, the higher their rate of returning to that destination. Author Lee, Lee et al. (2005) [53] said that a positive destination image will help visitors have a good perception of the experiences at destinations, leading to increased satisfaction and optimistic intention; Chen and Tsai (2007) [9] researched the relationship between destination image, tour quality, value perception, satisfaction, and behavioral intent. The consequences showed that there are influence positive and negative of destination image on behavioral intent.

Author Di Marino (2008) [54] said that the effect of destination image on tourist intention the perception process has 3 stages: perception “a priori”, perception “in situ” and perception “a posteriori”. It considered the influence of internal and external factors that can impact the tourists’ destination image. Perception “a priori” is the perception about a place from source of information without having a physical connection with the place. Then, perception “in situ” is the key moment in the tourists’ experience, tourists can be satisfied or not. The perceptions in this stage will impact on the third stage perception “a posteriori”. Of course tourists’ experiences do not have to end with the trip; they may incorporate some components into their daily lives. For example, the important role of photos of the destination.

In research, hindering tourists’ perception were neglected dimension or researchers have not been interested [55],[56]. As an example, in research of authors Rittichainuwat, Qu et al. (2001) [48] defined that tourists are well aware of Thailand’s image dimensions such as safe destination, activities and natural beauty scenic, rich culture, good-value food and accommodations, access and shopping has a significant impact on a return visit and sharing with their friends. The authors also showed that Thailand has a dissatisfaction image of environment and social problems.

Chen and Tsai (2007) [9] pointed that tourist intention is indicated through three stages: (i) choosing a place to visit, (ii) evaluation after visiting and (iii) intention in the future. In which, choosing a destination to visit is usually the intention of first-time visitors; the following evaluations are the perceived value or satisfaction of tourists about the tourist experiences at the destination; intention in the future refers to the visitor’s intention to choose the next destination, such as the willingness to return, suggest the destination to others or choose a new destination.

Intention to return is the willingness to return to a destination visited by a visitor to experience [57], or it is the possibility that a visitor will return to visit a defined destination specified for a specific period of time [58].

Hypothesis development

Internet development has changed the method people make a planned journey and buy tourism services and products. Besides, it has significantly changed the function of the middleman, now the role of the influencer has been enhanced. The key opinion leaders in social media are being utilized as marketing tools to build, develop and promote its image [59]. They will share information related to destination such as products and services, prices, activities, utilities, transportation, other services [60]. Then, visitors will communicate with them on social media in the travel process including during planning, expending, and after

visiting [61]. Positive online feedback, comments, or reviews from key opinion leaders will enhance the knowledge of travel products or services among prospective visitors. Therefore, online comments that provided by travelers on social media increase the perception of brand image and have a remarkable influence on destination image and purchase intent. [3].

In influencer marketing activities, the individual should spread the word through their social media networks. Consequently, influencer activities involve a content component that is mainly focused on building a brand image and influencing the purchase intent of their followers [62]. In research [31], authors Hermanda A, Sumarwan U, Tinaprillia (2019) [31] show a remarkable positive relation between social media influencers and brand image in those four variables (Visibility, Credibility, Attraction, Power) all accepted. Moreover, some authors such as Jaya I, Trisna PGI, Prianthara (2020) [63] also demonstrated that key opinion leaders have an optimistic and significant effect on destination image.

Based on previous studies above, the research already chose four characteristics that key opinion leaders should have to be a solid leader such as visibility, credibility, attractiveness and power.

Visibility

The essence of KOLs lies in the public's interest in them, which leads to their very high social media presence. According to Hughes (2006) [40] pointed out that visibility refers to how well a person or character is recognized or identifiable when presented to the public. From the standpoint of the target audience, visibility relates to how recognized the source is. Brand awareness and brand image are helped by visibility, especially when an opinion leader is used. In this study, visibility is measured by the frequency it appears in the media and its popularity and admiration. Visibility has a significant impact on the brand image of Marcks Venus Powder [85]. The author offered the following idea based on past research. The author offered the following hypothesis based on past research:

H1 Visibility has an optimistic and remarkable influence on cognitive image

H2: Visibility has an optimistic and remarkable influence on affective image

Credibility

According to Belch (1994), credibility is “the degree to which the reader regards the source as possessing relevant knowledge, skills, or experience and believes the source to provide unbiased, objective information”. Expertise and trustworthiness are the two most important aspects of credibility [64]. Authors Goldsmith RE, Lafferty BA, Newell (2000) [65] said that celebrities are trustworthy sources of information. The whole number of positive features that produce and increase the acceptance of the information is defined as a celebrity's credibility [66]. As a result, celebrity credibility has an influence on message acceptance and persuasion (Belch & Belch, 2001). Credibility can relate to a source's perceived knowledge and its level of objectivity, sincerity, or trustworthiness. Credibility has two components: expertise and objectivity. Expertise or the source's perceived understanding of what is being promoted. Objectivity or the source's regarded sincerity and trustworthiness in sharing what the source knows. The credibility of a person is determined by their amount of experience, expertise, honesty, and confidence. Author hypothesized that:

H3: Credibility has an optimistic and significant influence on cognitive image

H4: Credibility has an optimistic and significant influence on affective image

Attraction

According to Rosenbaum-Elliott (2021) [67], the attraction includes two components: the source's likeability and perceived likeness to the intended audience. Intellectual abilities, personality traits, style of life, athletic performances, and endorser talents are all factors that influence the attraction [66]. The level of appeal, personality, and lifestyle are all used to determine attractiveness in this study. Author posit the following hypothesis:

H5: Attraction has an optimistic and remarkable influence on cognitive image

H6: Attraction has an optimistic and remarkable influence on affective image

Power

The source's perceived capacity to persuade compliance from the target audience is referred to as power [67]. In this study, power was considered as the capability to improve a product's or service's image, inspire others, and remind people of the product or service. According to Rini and Astuti (2012) [49], power is related to the power possessed by celebrities to instruct the target audience to buy. The power that celebrities have can shape product image according to the character of the celebrity. The author offered the following idea based on past research. The author posits the following hypothesis:

H7: Power has an optimistic and remarkable impact on cognitive image

H8: Power has an optimistic and remarkable impact on affective image

Previous studies have agreed that a destination has an overall image [36],[41], which may be described as a person's overall evaluative impression of a place. Authors Akama JS, Kieti (2003) [68] proposed the overall image of a place may be more important than any individual image characteristic in determining its success. Many research have demonstrated that both cognitive and emotional factors have an effect on overall image [69]. Thus, the author posits the following hypothesis:

H9: Cognitive image has an optimistic and remarkable influence on overall image

H10: Affective image has an optimistic and remarkable influence on overall image

It has been demonstrated that the overall image impacts not only the destination choose but also visitor behaviors intentions [70]. The variables intention to return, intention to suggest, and word-of-mouth are frequently used to measure visitors' behavioral intentions related to the destination image [2],[50]. Intention to return is critical because it reflects consumer loyalty, which is one of the most crucial markers of successful destination development and aids in increasing a tourist destination's competitiveness [71]. Understanding the antecedents of visitors' destination image and purchase intention might thus provide managers with extra possibilities to improve the destination's image [2]. Many researchers have found that the image of a place effects on tourists' willingness to return the destination [72]. It is admitted that a person who has a favorable image of the place is always more willing to suggest it and visit it again [50]. Therefore, it is hypothesized that:

H11: Overall image has a favorable and significant influence on tourists' intention to return to the destination.

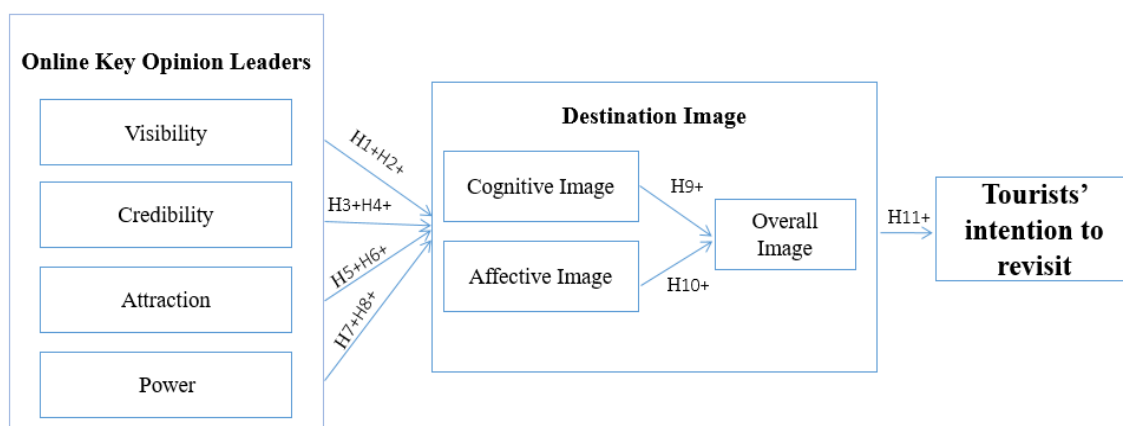


Figure 1. A model influences of online key opinion leaders on intention to revisit with hypothesized paths.

3. Method

3.1. Measurement

Before going to official research through the questionnaire, author design an unstructured questionnaire to explore some of new scales that can apply for this study such as the measurement of key opinion leaders and destination image. The goal of this qualitative research is to find, adjust, and add the observed variables that are utilized to measure the variables.

After collecting results from qualitative research, author will adjust the scale of the previous studies to fit with actual research in Viet Nam. All factors in the research model: Visibility (VI) – 4 observed variables from the research of [73] and qualitative research, Credibility (CR) – 4 observed variables from the research of [73] and [74], Attraction (AT) – 5 observed variables from the research of [73] and qualitative research, Power (PO) – 4 observed from the research of [73] and qualitative research, Cognitive Image (CI) – 12 observed variables from research of [75],[2],[41],[50], Affective Image (AI) – 4 observed variables from the research of [50],[44],[72], Overall Image (OI) – 4 observed variables from the study of [50],[44],[72], Revisit Intention (RVS) – 3 from the study of [76]. The observed factors will be quantified using a multivariate scale modified from prior studies to ensure compatibility with the social and cultural environment in Hoi An. The 5 point Likert scale will be used for this research with 1 represents strongly disagree, 2 represents disagree, 3 represents normal, 4 represents agree, 5 represents strongly agree.

3.2. Data collect and analysis

The study's target population is travelers who have already visited Hoi An. Because of time limitations, convenience sampling is estimated to yield 700 responders. Data will be collected using Google Form and sent to customers via Facebook, Wechat, and Zalo before being imported into SPSS.24 and SmartPLS software for analysis. In this research, method will be used for data analysis such as descriptive analysis, exploratory factor analysis, measurement model, and structural equation modeling (SEM).

4. Results

4.1. Descriptive analysis

The online survey reached a total of 700 complete. However, there are 200 responses who have not visited Hoi An before. Therefore, 500 questionnaires are usable.

The demographic information of the response is included in the table below, which showed that the primary of the answer is between the age of 25 to 35 (n = 222, 44.4%) and from 18 to 24 years old (n=215, 43%), with percentage of female responses is 90.4 percent. Bachelor's degree is the main education level in answer (n = 330, 66%). The largest daily time which interviewees spent to using Internet such as surfing Facebook, Youtube, Tiktok, Instagram is from 3 to 5 hours per day (n=263, 52.6%). Meanwhile, the highest time which participants used to read the commendations from KOLs from any fields (fashion, tourism, food, electronic products, high-clothes, cosmetics, books, movies, dramas) is more than ten times per a month (n=500, 100%). The majority of answer already visited Hoi An about one time before with 44%, 2-3 times with 26.4%, more than 5 times with 22.4%. In the future, they will definitely be back with 401 respondents (80.2%).

Designing the questionnaire, the frequencies online activities was used to evaluate frequencies use social media platforms to search information online before traveling or purchasing a travel product or service, which the social media platforms they access the most, they get experiences of finding knowledge and information because of influencers' recommendations, they will be attracted by items tagged some opinion leaders comment. As table 5.2 shows 82.8% of respondents will usually look for information through Internet before traveling or purchasing a travel product. The information is mainly from Facebook with 155 (31%), Google with 134 (26.9%) and You Tube with 111 (22.1%). Moreover, 53.6% of respondents also replied that they sometimes find tourism information because of online key opinion leaders' recommendations. Finally, when they are browse the webpage and see the label tagged some opinion leaders comments, they perhaps will be interested in labeled.

Table 1. Demographic information of the answer (N=500)

Demographics	Category	Frequency	Percent
Gender	Male	48	9.6
	Female	452	90.4
Age	Less than 18 years old	19	3.8
	From 18 to 24 years old	215	43.0
	From 25 to 35 years old	222	44.4
	More than 35 years old	44	8.8
Marital Status	Single	387	77.4
	Married	113	22.6
	Divorced	0	0.0
Education Level	High school	41	8.2

Demographics	Category	Frequency	Percent
	College	26	5.2
	Bachelor	330	66.0
	Master or higher	103	20.6
Using the Internet	From 1 to 2 hours per day	147	29.4
	From 3 to 5 hours per day	263	52.6
	From 6 to 8 hours per day	55	11.0
	More than 8 hours per day	35	7.0
Reading the recommendations for KOLs	From 1 to 3 times per month	0	0.0
	From 4 to 6 times per month	0	0.0
	From 7 to 10 times per month	0	0.0
	More than 10 times per month	500	100
Number of past visits to Hoi An	1 time	220	44
	From 2 to 3 times	132	26.4
	From 4 to 5 times	36	7.2
	More than 5 times	112	22.4
They are going to travel to Hoi An in the future	Yes, of course	401	80.2
	I do not know	96	9.2
	No, I do not like	3	0.6

Question	Answer	Frequency	Percent
Search for information online before travelling.	Occasionally	5	1.0
	Sometimes	81	16.2
	Usually	414	82.8
The information is mainly from	Travel agent (website, catalogues, pamphlets, magazine,...)	80	16
	Recommendations from experts, reviewers, bloggers,...	166	33.2
	Recommendations from friends/family	163	32.6
	Company advertisements	22	4.4
	Company advertisements	53	10.5
	Other	16	3.3

Question	Answer	Frequency	Percent
The platform of social media use to search for information about tourism.	Facebook	155	31
	Instagram	50	9.9
	Youtube	111	22.1
	Google	134	26.9
	Twitter	2	0.4
Finding tourism information because of the comments of online key opinion leaders.	Tiktok	49	9.7
	Never	26	5.2
	Occasionally	67	13.4
	Sometimes	268	53.6
To be interested in labeled with “some opinion leaders recommend”.	Usually	139	27.8
	Certainly	58	11.6
	Maybe	352	70.4
	Never pay attention that	90	18

4.2. Reliability and validity test

Table 2. Reliability and Validity test

Variables	Mean	Std. Dev	Outer loading	Composite Reliability	AVE.Var. Extracted
Visibility (VI)	Cronbach's Alpha 0.865			0.909	0.714
VI1	3.220	0.049	0.836		
VI2	3.296	0.049	0.782		
VI3	3.328	0.050	0.895		
VI4	3.654	0.046	0.863		
Credibility (CR)	Cronbach's Alpha 0.851			0.900	0.691
CR1	3.784	0.047	0.853		
CR2	3.932	0.047	0.843		
CR3	3.730	0.043	0.795		
CR4	3.696	0.041	0.833		
Attraction (AT)	Cronbach's Alpha 0.918			0.939	0.756
AT1	3.016	0.049	0.878		
AT2	3.262	0.047	0.913		
AT3	2.756	0.051	0.809		
AT4	3.066	0.049	0.889		
AT5	3.538	0.043	0.855		

Variables	Mean	Std. Dev	Outer loading	Composite Reliability	AVE.Var. Extracted
Power (PO)	Cronbach's Alpha 0.881			0.918	0.737
PO1	3.244	0.047	0.869		
PO2	3.302	0.048	0.900		
PO3	3.194	0.049	0.816		
PO4	3.104	0.051	0.848		
CognitiveImage (CI)	Cronbach's Alpha 0.950			0.957	0.649
CI1	4.072	0.044	0.837		
CI2	3.602	0.041	0.785		
CI3	3.958	0.041	0.805		
CI4	4.170	0.038	0.792		
CI5	3.946	0.043	0.823		
CI6	4.118	0.041	0.827		
CI7	3.432	0.044	0.741		
CI8	3.748	0.042	0.758		
CI9	3.876	0.041	0.849		
CI10	3.676	0.044	0.787		
CI11	4.010	0.041	0.855		
CI12	3.778	0.045	0.797		
AffectiveImage (AI)	Cronbach's Alpha 0.938			0.957	0.847
AI1	3.772	0.047	0.787		
AI2	4.008	0.042	0.855		
AI3	3.906	0.043	0.797		
AI4	4.040	0.044	0.787		
Overall Image (OI)	Cronbach's Alpha 0.820			0.881	0.649
OI1	3.636	0.057	0.866		
OI2	3.632	0.054	0.773		
OI3	3.722	0.054	0.781		
OI4	3.628	0.056	0.798		
Revisitintention (RVS)	Cronbach's Alpha 0.893			0.933	0.822
RVS1	3.392	0.054	0.878		
RVS2	3.424	0.050	0.910		
RVS3	3.408	0.052	0.932		

In this study, we want to measure the reliability of the variables using the Cronbach Alpha in SPSS in the Reliability Analysis function. A variable has a Cronbach's alpha value of greater than 0.6 so this variable is thus reliable. According to Hair & ctg (1995) and Nunnally (1978) indicated that the scale evaluated as reliable when composite reliability is larger than 0.5 and average variance extracted value is from 0.5 above. The table shows all

of the values are above 0.5 so the scale is reliable. According to Fornell & Larcker (1981), convergent validity is assessed by two criteria is outer loading and average variance extracted (AVE). Hair & ctg (2016) showed that outer loading should be exceeded or equal 0.708 are believed to be greatly accepted. The table below it is seen that all outer loadings were more than 0.708. Average variance extracted (AVE) for all constructs should be from 0.5 above so convergent validity is confirmed. According to the result above, the average variance extracted ranged from 0.649 to 0.847. We can be said that this research is satisfied both for convergent validity. Authors Fornell & Larcker (1981) recommended that discriminant validity of the scale is confirmed when the square root of average variance extracted (AVE) for each latent variable is more significant than all correlations between the latent variables. Seeing from the AVE value in the table above all variables are above 0.5, so it can be said that the discriminant of the scale is confirmed. In summary, the measurement model demonstrated reliability, convergent validity, and discriminant validity.

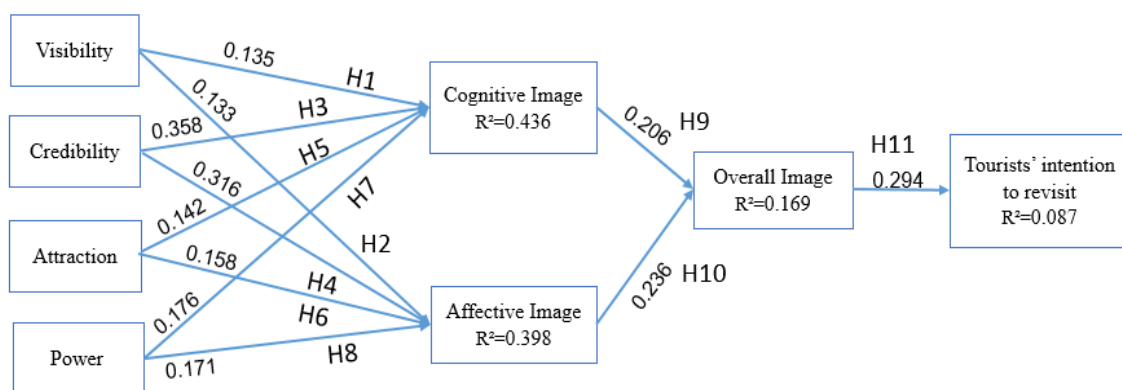


Figure 3. The influence of online key opinion leaders on tourists' intention to revisit

4.3. Hypothesis testing

The result indicates all hypotheses are supported.

Firstly, visibility H1 ($\beta=0.135$, T-value=2.126, $p=0.034 < 0.05$), credibility H3 ($\beta=0.358$, T-value=7.116, $p=0.000 < 0.05$), attraction H5 ($\beta=0.142$, T-value=2.904, $p=0.004 < 0.05$) and power H7 ($\beta=0.176$, T-value=2.995, $p=0.003 < 0.05$), all have remarkable positive relationships with cognitive image. The R-square statistic for the cognitive image variable showed that four variable explained by 43.6% of the variance in the cognitive image variable.

Secondly, visibility H2 ($\beta=0.133$, T-value=2.608, $p=0.009 < 0.05$), credibility H4 ($\beta=0.316$, T-value=6.465, $p=0.000 < 0.05$), attraction H6 ($\beta=0.158$, T-value=2.750, $p=0.006 < 0.05$) and power ($\beta=0.171$, T-value=2.937, $p=0.003 < 0.05$) are all significantly positively related to affective image. The R-square statistic for the affective image variable showed that four variables explained by 39.8% of the variance in the affective image variable.

Thirdly, cognitive image H9 ($\beta=0.206$, T-value=3.436, $p=0.001 < 0.05$) and affective image H10 ($\beta=0.236$, T-value=4.101, $p=0.000 < 0.05$) are all significantly contributed to overall image. Consequently, R² of overall image demonstrates that two variables explained by 16.9% of the variance in the overall image variable.

Finally, overall image H11 ($\beta=0.294$, T-value=6.887, $p=0.000 < 0.05$) has remarkable positive relationship with tourists' intention to revisit. Thus, the overall image explained by 8,7% of the variance in the tourists' intention to revisit variable.

Table 3. Hypothesis Testing

Hypo		Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Result
H1	VI - CI	0.135	0.135	0.063	2.126	0.034	Accepted
H2	VI - AI	0.133	0.132	0.051	2.608	0.009	Accepted
H3	CR -CI	0.358	0.358	0.050	7.116	0.000	Accepted
H4	CR -AI	0.316	0.316	0.049	6.465	0.000	Accepted
H5	AT -CI	0.142	0.140	0.049	2.904	0.004	Accepted
H6	AT -AI	0.158	0.156	0.058	2.750	0.006	Accepted
H7	PO - CI	0.176	0.179	0.059	2.995	0.003	Accepted
H8	PO -AI	0.171	0.174	0.058	2.937	0.003	Accepted
H9	CI - OI	0.206	0.208	0.060	3.436	0.001	Accepted
H10	AI - OI	0.236	0.236	0.058	4.101	0.000	Accepted
H11	OI-RVS	0.294	0.297	0.043	6.887	0.000	Accepted

5. Discussion and Conclusion

5.1. Discussion

Based on the derived results, hypotheses H1, H2, H3, H4, H5, H6, H7, and H8 which proposed online key opinion leaders have impact on cognitive image and affective image, was accepted by this research. In the study questionnaire, the highest mean variable visibility with the statement "Numbers of followers on social media for the opinion leader is large", the highest mean variable credibility with the statement "The opinion leader who is honest when making judgments about products/ services in the advertisement/when they experienced it", the highest mean variable attraction with the statement "The opinion leader who is able to bring inspiration to readers/respondents.", the highest mean variable power with statement "The opinion leader is a celebrity that makes readers/respondents follow their opinion.". From these results, it can be said that when key opinion leaders share or make judgments about services/products, then the audience follows their posts is very large, by using posts/recommends that they lead to audiences follow their opinion and bring inspiration and interest to readers. This indicates that the better the information that is spread about a tourist destination by a key opinion leader, the better the destination image of the place. The results of this research are in agreement with study conducted by I. Jaya, P. G. I. Trisna, and I. B. T. Prianthara (2020) [75]. Meanwhile, authors Godey B, Manthiou A, Pederzoli D, Rokka J, Aiello G, Donvito R, et al. (2016) [77] pointed out that the influencers had a great impact on the product or service's brand equity, emphasizing the importance of brand image in brand

equity. In other words, key opinion leaders worked as middlemen between firms and customers, effectively communicating product or service information to them. A study researched by Barreda AA, Bilgihan A, Nusair K, Okumus FJCihb (2015) [78] indicated that the firm's brand image can be improved via word of mouth on social media platforms. Furthermore, the presence of significant opinion leaders on social media enabled a two-way interaction that allowed consumers to connect with the company indirectly [79].

Based on the study results, H9 and H10 are accepted. This means there is a remarkable optimism between cognitive image, affective image, and overall image. Viewed from the variable mean, the cognitive image got a high mean value with the statements "Hoi An ancient town has many traditional cuisine/food (Banh My, Quang noodles, Banh Xeo, ...)", "Hoi An ancient town is a destination of the World Cultural Heritage", "Hoi An ancient town has attractive natural attractions and scenery (beautiful scenery, romantic, beautiful beach)", "People here are friendly". All means value of above statements are more than 4.0 (4.0 out of 5.0). However, the lowest means value is belong to the statements "Hoi An ancient town that has many historic sites, museums, architectural features of Chinese", "Hoi An ancient town has the good local infrastructure/transportation" and "Hoi An ancient town has reasonable travel service prices". Hoi An is near Da Nang city, with Da Nang international airport, very convenient for tourism. However, Hoi An does not have convenient public transport facilities, the roads in Hoi An are still narrow, so causes traffic jams. In addition, the prices of goods and services in Hoi An are not well controlled, companies arbitrarily raise the prices of products and services without the permission of state management agencies. Hoi An is characterized by historic sites, museums, architectural features of Chinese, but in the promotion of Hoi An tourism, domestic tourists still do not understand this clearly. This is one of the reasons that impact on tourists' perception of Hoi An. The affective image got the high mean value with the statements "Hoi An Ancient Town is a relax destination" and "Hoi An Ancient Town is a close destination". The overall image got the highest mean value with the statement "Hoi An is a peaceful and safe tourist destination". In fact, these characteristics are often associated with tourists when referring to the Hoi An tourist destination and are typical sentiments expressed in most promotional activities of Hoi An tourist destination. From that, it can be seen that the identification of affective image and overall image clearly is essential to promote the image messages of tourist destinations to visitors. The results of the research are in accordance with studies conducted by authors H. Zhang, X. Fu, L. A. Cai, and L. J. T. m. Lu (2014) [80]. Therefore, in order for the image of Hoi An tourist destined to become more and more attractive, it is necessary to increase affective image and overall image in the process of tourists' travel experiences.

Based on the results of the research that has been done, it is known that H11 is approved. It shows that there is a significant relationship between overall image and revisit intention. The tourists'intention to revisit variable got the highest mean value with the statement "I will revisit Hoi An within the next 12 months". It means visitors will return to Hoi An in the next times. This is correspondingly with the research conducted by Chen and Tsai (2007) and Qu and Kim (2011) [9],[50].

5.2. Practical Implication

The practical implications of this study are that, in order to increase intention to revisit levels related to tourism services and products, it is recommended that the management of a tourist destination try to set up an optimistic destination image of it through online key opinion leaders [31]. According to this research, positive destination image is constructed by highlighting interesting cultural attractions, infrastructure, traditional festivals, entertainment, a pleasant environment, people. Based on the correlation-coefficient values of each indicator, it can be seen Hoi An is a close destination with friendly people indicator, which is a principal indicator for shaping a positive destination image. Therefore, managers should work with online key opinion leaders to set up a positive destination image for their tourism business. It is crucial to note that this study would likewise help the tourism management pay keen attention to building tourism ambassadors or Miss tourism queen to promote Hoi An destination image, building a safe, close, friendly Hoi An ancient town.

Notwithstanding, a positive destination image for tourists should not only be based on advertising by KOLs, it must be formed from improving the actual perceived image of visitors. Therefore, in order to increase the ability to attract tourists back to Hoi An, it is necessary to focus on improving the overall image of Hoi An in the minds of visitors, in which enhancing the role of cognitive and affective image such as: continuing to promote the advantages of developing the image of a tourist destination in Hoi An through factors such as culture, history, festivals, and entertainment activities; increasing exploitation of natural resources around the ancient town creates attractiveness such as Cu Lao Cham island, coast, river, forest; improving and enhancing the factors of infrastructure, traffic, green tourist environment, safety, competitive travel costs.

Increasing tourists' awareness of the overall image of Hoi An tourism destination through tourism promotion activities. One of the effective ways of promoting tourism that many countries around the world are focusing on developing is promoting the image of a tourist destination through cinema. Cinema is likened to a “tourist ambassador”, along with a specific plot that goes into people’s hearts, beautiful frames with unique scenery become unforgettable impressions in the minds of viewers. In fact, many tourist destinations are very successful and attract a large number of tourists through famous movies that are not directly related to tourism promotion activities [81]. Movies can strongly influence tourists' decision to visit, and movies not only increase short-term tourism revenue, but also bring long-term prosperity to a destination [82]. To exploit this form of advertising, the destination of Hoi An needs to focus on a number of contents: building a separate budget for the promotion of tourism images through cinema; proactively order movie scripts with scenes shot in Hoi An and have support policies as well as commitments to the film crew; strengthen activities to introduce tourism images with domestic and foreign film crews; strengthen the Farmtrip form for domestic and international filmmakers; and enhance the initiative of tourist destinations in tourism promotion activities through films with scenes shot at the destination.

5.3. Limitation and Future Research Direction

As the research, we designed to evaluate the relationship between online key opinion leaders, destination image and tourists' intention to revisit in Hoi An ancient town. However, there were still some limitations that should be considered. The data collection was conducted during a period when the country was on lockdown by the epidemic, people were unable to travel and had to work from home. The study was conducted based on a convenient sample for domestic tourists across the country via the Internet, thus affecting the research results. In the future could pay attention to the method of direct sampling in Hoi An through surveys at the places to increase the objectivity of the research.

Secondly, the study only considers the influence of online key opinion leaders, destination image in relation to tourists' return intentions, but lacks the assessment of differences in demographics, travel experiences and psychological characteristics (self-worth, motivation, personality, travel motivation) affect the relationship. Therefore, the research results have not comprehensively considered the role of the above factors in the process of forming the destination image as well as the tourist intention of tourists. In the future, assessments of demographics, travel experiences and psychographic characteristics will be added. It is possible to add factors such as loyalty, satisfaction level and especially the factor "Tourism hindrance" in the research model to measure more fully the factors that actually affect the intention to return Hoi An destination. To conduct a survey of tourists who have not been to Hoi An to review secondary images; visitors who come to Hoi An for the first time to identify primary images from actual travel experiences; and visitors who come to Hoi An from the second time onwards to examine what motivates their repeat tourism activities. Comparison between three groups of tourists, as a basis for proposing marketing strategies to improve and develop tourism destination's image.

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LIVELIHOOD CHARACTERISTICS OF ETHNIC MINORITIES HOUSEHOLDS IN VAN HO DISTRICT, SON LA PROVINCE

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Abstract

Based on the primary data set collected from the survey of 86 ethnic minority households in Van Ho district, Son La province, the study has clarified the basic characteristics of the livelihood problems of these households, the impact of natural and socio-economic conditions on their livelihood methods. Up to 46% of surveyed households have an average income of less than 1.5 million VND/person/month, much lower than the average income of the country and the whole province. Most of their income sources still focus on farming and ranching.

Keywords: *ethnic minorities, households, livelihood.*

1. Introduction

Although Vietnam has achieved many economic achievements, it still faces poverty. In recent years, the gap between the rich and the poor in urban and rural areas has widened, with nearly 90% of the poor concentrated in rural and mountainous areas. Due to the gap in distance, people in the mountainous areas in general and the Northwest in particular often face many difficulties in accessing information, markets, public services and education. Especially, for ethnic minority households, they often live in villages far from the center, they have little awareness with difficulties in geographical location, climate, natural conditions, facilities have made it difficult for them to find sources of income and stabilize their livelihoods.

Van Ho is a newly established district in Son La province. Recently, there have been many programs and projects to support ethnic minority communities to transform and improve their livelihoods in a sustainable way. The livelihood activities of the people here are also greatly influenced by many different factors, including factors of resources (natural, social, human, material and infrastructural...). Research on the status and livelihood characteristics of ethnic minority households in Van Ho district is an important basis for proposing effective and feasible solutions to transform and ensure sustainable livelihoods for ethnic minority communities in Son La province and other similar provinces and regions today.

2. Literature Review

Many years ago, the issue of livelihood was chosen by many previous authors to study, but in 1983, Chambers and Robert officially used the concept of "livelihood" officially: "Livelihood includes possibilities, assets (including physical and social resources)

and activities necessary for a living”. Since then, scientists and scientific research organizations have accepted the concept of livelihood and applied it in many current studies.

According to the Department for International Development - DFID, the concept of livelihood "includes capabilities, resources and activities necessary as a means of living for humans". The above concept shows that livelihood includes the natural, economic, social and cultural resources possessed by individuals, households, or social groups that can generate income to improve their material and spiritual life or can be used, exchanged to meet their needs in life.

By 1992, a sustainable livelihood was defined by Robert Chambers and Gordon Conway: “A livelihood consists of the capacities, assets and activities of earning a living. A sustainable livelihood is one that can cope with and recover from stresses and shocks, maintain or enhance capacities, assets and provide sustainable livelihood opportunities for the next generation, beneficial contributions to the livelihoods of others locally and globally in the short and long term”.

According to the researchers, the sustainable livelihoods framework can flexibly change in different contexts in many different countries and communities because each organization has different mission, vision and goals, they also develop different livelihood analysis frameworks. According to DFID's sustainable livelihood framework, people's livelihood assets are classified into 5 categories including: human capital, natural capital, financial capital, social capital and physical capital. These five types of livelihood assets are both constitutive factors for livelihoods and generalized factors that directly affect the livelihoods of households.

In Vietnam, household livelihoods are not a new issue in research in recent years. Many studies have used a combination of both quantitative and qualitative research methods to measure the impact of factors on household livelihoods such as: Nguyen Quoc Nghi et al (2011), Nguyen Van Tam et al (2018), Nguyen Tien Dung et al (2020),... However, previous studies have focused mainly on the provinces of the Mekong Delta with research subjects being ethnic minorities (Nguyen Quoc Nghi et al., 2011), or residents of drought-salt areas (Nguyen Tien Dung et al., 2020) or coastal sandy areas of Thua Thien Hue province (Nguyen Dang Hao, 2012) and many other studies. The provinces in the Northeast often focus on the livelihoods of people in Thai Nguyen province, with the subjects being tea farmers in Dai Tu district (Nguyen Van Tam et al., 2018) and the most recent is a study on the livelihoods of forest-dependent people in the special-use forest area of Dinh Hoa National Park (Nguyen Tuan Hung et al., 2020). With different research methods and range, studies have shown many factors affecting household livelihoods such as the education level of the household head, the education level of labor, the number of demographics, the number of income generating activities of the household, the age of labor and many other factors. However, there have been no studies focusing on ethnic minority households in the Northwest region in general and Van Ho district, Son La province in particular.

3. Method

Research results from the theoretical basis and overview of previous studies help the authors build a scale, constituting the content and status of the household's livelihood. On the other hand, the results of secondary data research from socio-economic, cultural and population reports of Van Ho district, Son La province together with other articles and

journals on livelihoods, living standards, income, etc. of ethnic minorities in Son La province, helps the study to form preliminary scales to suit local characteristics.

Organize in-depth interviews with experts from Son La Provincial Committee for Ethnic Minority Affairs, local leaders at district and commune levels and representatives of households to design a preliminary survey. After the in-depth interview process, the preliminary survey results will help build and complete the survey form, and at the same time, the research will also determine the appropriate survey scope and subjects.

Survey and interview representatives of 86 ethnic minority households in 03 communes in Region III of Van Ho district, including: To Mua, Xuan Nha and Chieng Yen. After data collection, descriptive statistical analysis of sample characteristics was carried out. All data is aggregated and processed on excel, conducting statistical analysis to describe sample characteristics, graphing to determine the livelihood characteristics of ethnic minority households in Van Ho district, Son La province.

4. Results

4.1. Basic characteristics of Van Ho district and ethnic minorities in Van Ho district, Son La province

Van Ho district is a new district in Son La province, established in 2013 under the Government's Decree on the basis of adjusting and dividing the administrative boundary of Moc Chau district with a total natural area of 97,984 hectares. Van Ho district was established, including 14 communes with 121 villages and sub-zones, including 01 border commune, 04 zone II communes, 09 zone III communes. In terms of geographical location, Van Ho district has administrative boundaries to the east by Mai Chau district (Hoa Binh province), to the west by Moc Chau district (Son La province), to the south by Muong Lat and Quan Hoa districts (province). Thanh Hoa) and Sop Bau district (Hua Phan province, Lao PDR), the north borders Phu Yen district (Son La province) and Da Bac district (Hoa Binh province). Van Ho district is about 140 km from Son La city, 170 km from Hanoi capital along National Highway 6.

Van Ho district has a total natural area of 97,984 hectares, the total population of the district as of December 2020 is 15,178 households, with 63,625 people and 06 main ethnic groups living together. In which ethnic minorities account for over 93%. The details of the ethnic structure are as follows:

Table 1. Structure of ethnic groups in Van Ho district in 2021

Ethnic	Number of households	Number of people	Ratio (%)
Thai	6.340	25.205	41,8
Kinh	1.284	4.143	8,4
Muong	3.475	14.054	22,9
H'mong	3.103	16.031	20,4
Dao	973	4.172	6,4
Tay	3	14	0,1
Total	15.178	63.625	100

Source: Van Ho District Statistical Office

Similar to other localities, ethnic minorities in Van Ho district often live in separate areas, focusing on creating a community of villages and communes with characteristics of the community, different customs and practices make up a rich culture. The ethnic minorities here have a tradition of solidarity and attachment in the struggle, production and cultural exchange, forming and developing a diverse, rich and highly humane community culture.

4.2. Natural and socio-economic conditions affect on livelihood methods of ethnic minority households in Van Ho district, Son La province

Van Ho district has an important geographical position, considered a special gateway of Son La province and the Northwest mountainous region. The district center is 130 km southeast of Son La city, 170 km northwest of Hanoi capital. The district has national highway 6, which is the lifeline of the Northwest region, connecting the important economic region of the Northern Delta - Hanoi with the northwestern provinces of Vietnam and the northern provinces of Laos. With that geographical position, Van Ho district is considered as the gateway of a key economic region, bringing many livelihood opportunities for local people in general and ethnic minority households in particular.

Compared to other districts in Son La province, Van Ho district has a small population size and very low population density (in 2020: 64 people/km²). The total natural area stands at 98,288.90 hectares. In which, the agricultural land area is 19,495 hectares, accounting for 19.89% of the total natural land area, the non-agricultural land area is 3,428 hectares, accounting for 0.35% of the total natural land area. In particular, the unused land area is still very large with 23,462 hectares, accounting for 23.9% of the total natural land area. Besides, Van Ho district is located in the tropical climate zone, winter is usually cold and dry for some communes along the Da River, wet for communes along National Highway 6 and upland villages, and summer is usually cool and wet with lots of rain. Although surface water is very limited because the district is located on the limestone plateau, the district has many main streams with steep slopes suitable for irrigation development.

With these advantages in both topography and natural conditions, the livelihoods of ethnic minority households here focus mainly on agriculture and forestry with the average income at 1,700,000 VND/ month (*Van Ho District Ethnic Minority Office, 2020*).

In addition, thanks to agricultural development policies and many support policies for ethnic minorities, although the district was just established in 2013, over the years, the local economy has achieved many achievements. important results with an annual economic growth rate of over 10%. During the same period, agricultural growth was maintained at 3-4% per year.

Van Ho district is one of the important traffic areas on National Highway 6, from Van Ho can conveniently connect with Moc Chau district, Son La city, Hoa Binh province, Dien Bien province and Lai Chau province. This location has helped people in the district to trade, trade and move to other districts and provinces conveniently. Therefore, in recent years, there has been a change in the livelihood of the people here in general and ethnic minorities in particular with the form of hired labor in big city centers, industrial parks in districts and many other provinces and cities.

Van Ho district has diverse climatic conditions, characterized by low temperature, similar climatic conditions to famous tourist resorts in Vietnam such as: Sa Pa, Tam Dao, Ba Na, Da Lat, White horse... Moreover, because it has not been established for a long time,

Van Ho district still has a fairly large land area, and the unused land area is still relatively large. Van Ho district has 14 communes with 121 villages and sub-zones, in which the proportion of 2/3 villages and sub-zones still retains the cultural identity of the ethnic groups and becomes a community cultural village.

The preservation and combination of cultural identities from 6 ethnic minorities have created an attraction for many tourists, along with the propaganda and advocacy on the policies and development orientations of the leaders, that has created favorable conditions for people to initially exploit and develop tourism in recent years, creating momentum for socio-economic development and ensuring security and defense of the district.

In recent years, thanks to the social security, hunger eradication and poverty reduction policies, preferential credits for poor and near-poor households have been implemented, Van Ho district has focused on mobilizing all resources, with many practical solutions, effectively implementing the National Target Program on sustainable poverty reduction, contributing to improving people's living standards, reducing the rate of poor households remaining 25.5% in 2020. Although the percentage of poor and near-poor households is still high, this is also a significant result for a district with many poor communes, with a low starting point in terms of economy and society like Van Ho district. From there, it can be seen that the living standards of the people here are improving.

However, people in this area are facing many great challenges due to low education level, lack of jobs and low income. In addition, natural resources are being seriously degraded due to people cultivate unsustainable agriculture, forestry and aquaculture, the pollution level increases rapidly. This situation is becoming more and more serious under the impact of climate change in adverse directions such as droughts and floods. Infrastructure such as roads, irrigation, information, markets and clean water in this area are also not guaranteed. Except for the main road on National Highway 6, inter-village and inter-commune roads are still very difficult, especially in the rainy season. Although the locality has invested and supported the construction of concrete and asphalt roads, due to the complicated mountainous terrain, erosion and landslides lead to damage to roads, causing traffic delays and difficulties for people when moving. Not only that, the system of electricity, roads, and schools in communes and villages is still much slower than in other areas, making it difficult for people to find opportunities as well as maintain livelihood activities.

4.3. Survey results on livelihood methods of ethnic minority households in Van Ho district, Son La province

4.3.1. Research sample characteristics

Table 2. Research sample characteristics

Numerical order	Criteria	Size (person)	Ratio (%)
<i>I</i>	<i>Gender of household head</i>	<i>86</i>	<i>100</i>
1	Male	74	86,05
2	Female	12	13,95
<i>II</i>	<i>Ethnic minority</i>	<i>86</i>	<i>100</i>
1	Thai	44	51,2
2	Muong	24	27,9
3	H'mong	19	20,9

Source: Compiled from survey results

Survey results of ethnic minority households in Van Ho district show that male-headed households account for the majority (86.05%) while female-headed households account for only 13.95%. This reflects local realities and it is also characteristic of ethnic minority households that men are often the most important, have a higher voice and decision-making power than women in the family.

Regarding ethnicity, the sample size of the study with 86 households all focused on the Thai, Muong and Mong ethnic groups. In which, the Thai ethnic group accounted for the highest proportion 51.2%, the Muong ethnic group accounted for 27.9% and the rest was the Mong ethnic group accounted for 20.9%. Compare with the statistical results on the ethnic structure of the whole district (the Thai ethnic group makes up the majority of the population 41.8%, followed by the Muong ethnic group with 22.9% and the Mong ethnic group with the percentage. 20.4% while other ethnic groups account for a very low percentage (less than 15%). Thus, the ethnic structure in the sample size is relatively consistent with the ethnic structure of the whole district.

4.3.2. Survey results on livelihood methods of ethnic minority households in Van Ho district, Son La province

* Average income of ethnic minority households:

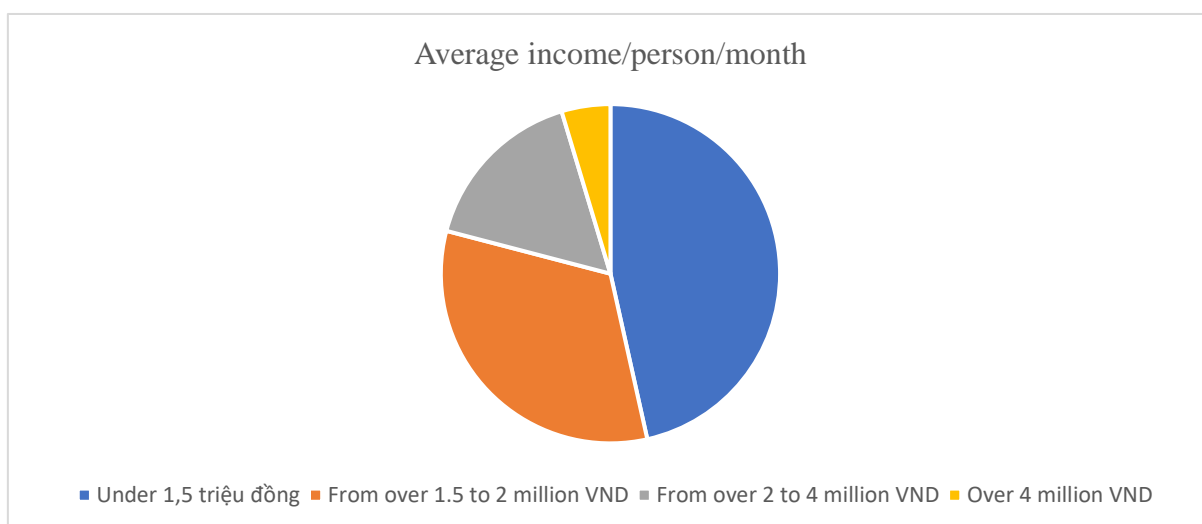


Figure 1. Survey results on Average income/person/month

Survey results in ethnic minority households in Van Ho district show that 46% of surveyed households have an average income of less than VND 1.5 million/person/month, up to 33% of households have an income of over 1.5 to 2 million dong/person/month, 16% of households have an income of over 2 to 4 million dong and only 5% of households have a good income above 4 million VND/person/month. According to the survey data on population living standards in 2021 of the General Statistics Office, the average income per person/month is about 4.2 million VND. Thus, up to 95% of ethnic minority households in Van Ho district have an income much lower than the national average. Moreover, the average income of Son La province in 2020 is about 1.8 million VND/person/month, the survey results also show that more than 54% of ethnic minority households in Van Ho district are lower than the average income of the whole province in 2020.

* Methods and sources of household income:

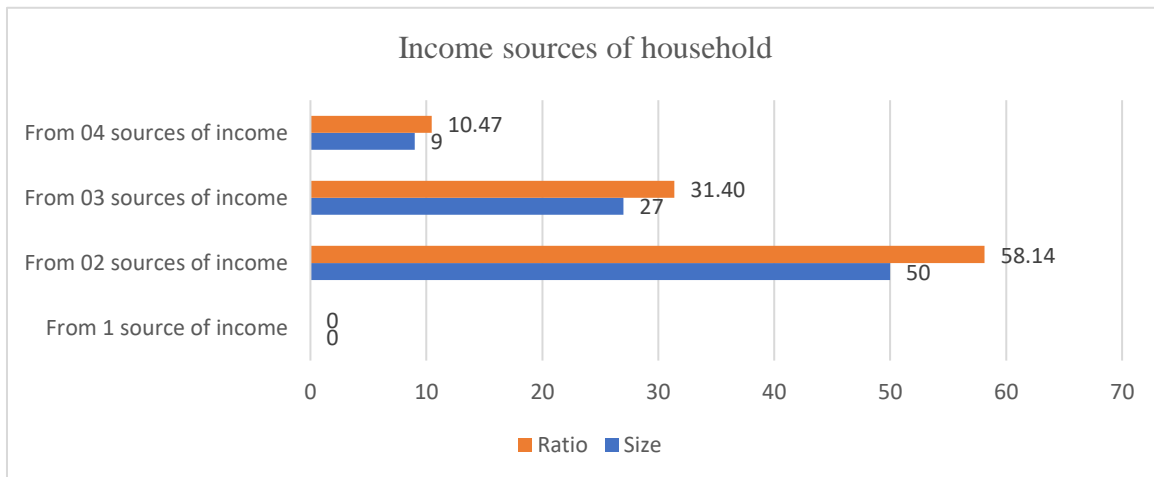


Figure 2. Survey results on household income sources

Many ethnic minority households in Van Ho district have very low income, while most of these households have at least two sources of income, mainly focusing on farming and ranching. Nearly 31.4% of surveyed households have an additional source of income from hired labor. This source of income has only arisen in households in the past 3 to 5 years and mainly focuses on households with young and healthy workforce. With this method, labors often have to look for jobs in other localities, in district centers, towns or industrial parks outside the province. Only about 10.47% of surveyed households have a fourth source of income from services, tourism or other sources. Thus, it can be seen that the method or source of income of households here is quite limited, and job opportunities are not many. This may also be one of the reasons for the low average income of ethnic minority households in Van Ho district.

5. Conclusion

Van Ho district is known as a newly established district, located at the gateway of Son La province and the Northwest region, it is considered as a district with an important geographical position, so it partly helps local people to opportunities to find jobs, diversify livelihoods, and increase incomes. However, this geographical location is mainly convenient for densely populated areas, near the national highway 6. While in communes and villages far from the center, away from the main road, ethnic minority households here are still maintaining their monthly activities with the average income of just under 1.5 million VND/person. With this income level, ethnic minorities here cannot ensure the minimum basic conditions for life in terms of food, education, health care and many other issues.

Part of the cause of poverty is the limitation of the livelihood methods of the ethnic minorities here, when their income is mostly focused on farming and ranching. The study also shows that 18% of households have an additional source of income from wage work, but only focus on households with a young population, many of whom are of working age. Despite the advantage of a large area of arable land, before the impacts of climate change and the current extremes of weather, these 2 livelihood methods are very unlikely to help them stabilize their lives.

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GARDENING FOR SUSTAINABILITY IN URBAN VIETNAM

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Abstract

Urban development has often been unsustainable with multiple issues which negatively impact wellbeing. This paper argues that gardening could feasibly and effectively promote sustainability in Vietnamese cities and urban areas, drawing on existing evidence from the literature and works of community and non-governmental organisations. It first examines the need to promote sustainability in urban settings and the urgency of these needs. It then looks at gardening and how it could address this need. The potential for wider applications and the conditions required will also be discussed.

Keywords: *Gardening, Sustainability, Urbanisation, Urban, Vietnam*

1. Introduction

Urbanisation, the development of cities and towns and their population is a steady trend (McGranahan & Satterthwaite, 2014). In 2018, the urban population accounted for 55.3% of the world's total population, reaching 60.5% in 2030 and 68.4% in 2050 (United Nations, 2019). With fast-growing, dense populations, however, cities and towns are facing multiple challenges including overcrowded conditions, environmental degradation, persisting disparities, exclusion and isolation, crime, and violence (United Nations, 2020a; 2020b). There are rising concerns about safety, food security, access to basic, quality amenities and services, infectious disease, and substance use (Crume, 2019). As part of this trend, Vietnam is already facing all these issues (Kataoka et al. 2020; Nguyen, 2020; Nguyen & Trevisan, 2020; Vuong et al., 2021).

To address these challenges, the United Nations (2016) call for a comprehensive shift in approach to urban planning, development, governance and management aiming at prosperity and sustainability for all. Among identified transformative actions, there is a focus on people, community, inclusion, coordination of stakeholders in service provision, public spaces, and the environment including the ecosystem, natural resources, and climate change.

Gardening has been a well-proven measure addressing the multi aspects of urban sustainability (Cabral et al., 2017; Schram-Bijkerk et al., 2018). In Vietnam, however, urban gardening is diminishing due to the urbanisation process where land traditionally used for gardening has been converted for construction (Kurfurst, 2019). This paper sets out to

examine gardening and its applicability to promote urban sustainability in this new context. It first looks at the need to promote sustainability and its urgency and gardening as a way to address this need in urban Vietnam. It then discusses recent urban gardening efforts, their potential for wider applications and the required conditions for them.

2. Method

The authors draw on data from existing literature and secondary information sources on the relevant sub-topics as briefly introduced in the introduction. The following keywords are used urban, sustainable, sustainability, garden, and gardening for the google scholar search engine and Vietnamese social media to identify relevant literature on gardening for urban sustainability, current gardens and gardening practices and their sustainability in urban Vietnam. Information is also drawn from current urban gardening projects that research team members are involved/ aware of through their networks. Then, thematic analysis is conducted to develop themes under each sub-topic.

3. Results

3.1. Sustainability in Urban Vietnam

Urban Sustainability

Sustainability is the development that meets “the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987, p. 43). Sustainability requires a balance among economic, environmental, social, and other interests. Changes to existing destructive practices, relations and conditions are needed (Wright & Nyberg, 2015) to protect the environment, enhance the quality of life, equity and justice, and resolve social issues (Barbosa et al., 2014).

Urban sustainability shares the above goal and involves the process to achieve it by the urban community and its stakeholders. Connection and cooperation are developed in multiple dimensions (Bossel, 1998) with various aims to accommodate stakeholder diversity and appropriate mechanisms to manage conflicts and struggles (Barbosa et al., 2014). Solutions are developed to address the multiple environmental, economic, and social issues of urban settlements (Jabareen, 2006).

Urban Issues in Vietnam

Vietnam experienced rapid urbanisation in the past 30 years. The proportion of the urban population in the total population increased from 20.1% in 1989 to 34.4 % in 2019 (UNFA Vietnam, 2019), reaching 43.3% in 2029 and 58.2% in 2049 (Tong cuc Thong ke & Quy Dan so Lien Hop Quoc, 2016). Urbanisation has had massive negative social and environmental impacts. “Weak urban infrastructure networks, restricted access to clean water, a deteriorated environment, bad urban sanitation, flooding, unmanageable solid waste, traffic congestion” are common in big cities (Nguyen, 2020, p.2). Troubling health issues include insufficient physical exercise, poor diet changes, increasing rates of overweight and obesity, and increased alcohol consumption rate. Heart diseases, road injuries, diabetes, and cancers are major causes of death and disability (Nguyen & Trevisan, 2020). Urban disparities are rising and ethnic minorities, older people, people with lower education or no

skills, and farmers are most likely to be poor or have low income (Nguyen, 2020; Tong cuc Thong ke, 2021). They also have much more limited, if no access to quality health care services, housing and education (see Kataoka et al., 2020; Vuong et al., 2021; World Bank, 2015). Despite these, there is a concerning contented attitude of state officials and residents toward these issues (Dang et al., 2021).

The above impacts pose serious threats to economic growth and achievement, public health, and social coherence and stability. The negative multi-faced impacts are most severe for the poor and near-poor group given their low income and education and limited or no access to health services and other basic amenities. These, in turn, widen the social disparities which are associated with greater instability which could lead to economic and social breakdowns and crises, as demonstrated in the past depressions (Landsley, 2012) and past and current conflicts and wars (Justino, 2012). They also reduce capacities to cope and recover from disasters and catastrophes, as well demonstrated under the current COVID-19 pandemic (United Nations, 2020a).

Actions for Urban Sustainability

The need for actions toward urban sustainability is urgent to avert the ongoing destructive direction of urban Vietnam. There require solutions to existing issues and a transformation toward sustainability. In response to this need, the state has developed a national legislative and policy framework and criteria for urban sustainability reflecting Agenda 2030 and Sustainable Development Goals (SDGs) (Dang et al., 2021).

Working with the local authorities and stakeholders, Vietnamese civil and private sectors have created bottom-up movements and actions for urban sustainability. The Center for Development of Community Initiatives and Environment (C&E), for example, in partnership with education and research partners, district authorities and community groups, has been running initiatives to promote urban eco-lifestyles and eco-initiatives. C&E also conducted research to assess and monitor sustainability progress and develop policy recommendations. Vietnam Green Generation Network by Live & Learn and multiple environmental urban volunteer campaigns and activities by Go Green are among other civil society highlights.

The private sector creates and runs various sustainable urban business models. Among them are Hoian Kayak Tour and Sapa O'Chau for sustainable tourism. Sen Shop, Nana Shop, Susu Xanh Shop and 3T Shop work on sustainable distribution and consumption of agriculture and local handicraft products. Tan Bamboo Workshop focuses on the production and distribution of bamboo-based products. Kilometre 109 specialises in sustainable and indigenous-based fashion. An Nhien Farm and Thanh Dong Organic Farm are urban organic gardening models while Think Playgrounds work to build urban public playgrounds and community gardens.

While the above actions and moves are significant, more efforts are needed to achieve urban sustainability. The state measures are weak with questionable applicability. Implementation has been slow and scanty given the lack of contributions and full participation from local authorities, businesses, the civil sector, and the community (Dang

et al., 2021; Nguyen, 2020). This is due to the long-existing centralized power structure which also hinders equity and justice for marginalised groups (Ngo et al., 2018). Besides, most stakeholders do not have sufficient awareness and capacity for sustainable thinking and actions (Thong et al., 2017). Part of the urban population possesses basic, common-sense knowledge of sustainability but has contented attitudes toward the multiple issues and disparities in their living areas (Dang et al., 2021). All of these need changing.

3.2. Gardening as a solution to urban sustainability

Benefits of Gardening

Gardening has been a well-proven solution to urban sustainability. As it involves land use, food production and consumption, and human-nature interactions, it can offer multiple benefits. Specifically, the gardens harbour wildlife and biodiversity, conserve waters, sink carbon dioxide, improve soil structure, produce oxygen and reduce concentrated heat and air pollution. They produce safe food for residents and reduce their food costs and dependency on markets, therefore, increasing their resilience. They allow residents to connect and exchange with each other, reduce social isolation and bridge social gaps. Gardening connects humans with nature. It improves the physical and mental health of participants. It helps to support sustainable thinking and actions at individual and community levels. Besides, it enables the transfer of eco-knowledge and skills across people and generations. Schram-Bijkerk et al. (2018) summarise the benefits of urban gardening in the picture.



Benefits might vary across types of gardens. Gardens in office buildings focus on decoration and relaxation. Home gardens allow opportunities for creation, relaxation, and food growing (Dunnett & Quaim, 2000). Community gardens tend to have more multi-benefits, including both those offered by home and office gardens and social benefits such as enabling community bonding and socialisation. Such benefits, however, might not be visible in the short term because the garden gathers diverse community members and might need to deal with conflicts and struggles, which is typical for a sustainable process (Veen, 2015).

Some benefits could reinforce or be against each other, thus affecting sustainability. A reinforcement example is that community gardens strengthened neighbourhood bonds and identity thus encouraging participants to look for and adopt sustainable practices and engage in more community activities. In this way, they made a positive contribution to environmental protection and social development (Wagner & Payne, 2019). A conflict example is when gardeners introduced non-native plant species that became invasive to the environment or used synthetic chemical pesticides and fertilizers which harm the environment and people's health.

Gardening Conditions and Other Contributing Factors

The gardening conditions are significant for sustainability. Rapid urbanisation and associated construction have narrowed urban green spaces, thus limiting people's opportunities to engage in gardening. Furthermore, as home gardens are more common than community gardens, social and environmental benefits of gardening could be small and difficult to transfer across the community given the limits of social contact and social learning of sustainable practices in private gardens.

Gardening in such conditions would need to use and adapt to available public and private land and spaces, both indoor and outdoor. Public parks, vacant/ abandoned areas, flower beds, traffic islands, reserved spaces for public work, community playgrounds, spaces in public and community buildings, residential houses and business facilities all could be used. This means gardens could be on the rooftops, indoors, on windowsills, and balconies.

Climate, location, geography, topography, socio-economic-cultural situation and farming traditions can have important influences. Soil fertility and contamination, for example, would determine if food growing is safe and feasible. Food production is usually a priority in poor urban areas while greening and decoration are a priority in wealthy urban areas. Insufficient material and social resources could significantly limit people's gardening activities.

Other factors exist and can influence the sustainability of urban gardens. Among them are gardening's hazards and hazard-control measures (Lin et al., 2017), awareness, knowledge and skills of involved parties and their relationship and available funding, infrastructure and resources (Giraud et al., 2021; Tharrey et al., 2020; Wagner & Payne, 2019). Such factors could either support or hinder sustainability. For example, poorly controlled hazards could lead to health and safety issues for gardeners and residents or interpersonal conflicts would lead to failure of cooperation efforts in the local community for gardening.

3.3. Urban gardening in Vietnam and its sustainability

In Vietnam, urban gardening has been an ongoing practice throughout history but urban garden slots are narrowed or taken away for building, thus limiting the residents' ability to grow vegetables, fruits and bonsai for their families in big cities such as Hanoi given the rapid urbanisation (Kurfurst, 2019). Still, the need for green space in daily life continued to urge people to do gardening in multiple types and forms using their homes and business spaces. Such practices have been observed in Vietnam urban and are captured briefly in the following photos.



(a)



(b)



(c)



(d)



(e)



(f)

(a) *Using sidewalk for gardening in Bac Tu Liem, Hanoi (Kurfurst, 2019, p.214)*

(b) *A private garden in Hue (Tran, n.d)*

(c) *An indoor garden, Ha Noi (A.D., 2016)*

(d) *A balcony garden, Hochiminh (Van Khanh, n.d.)*

(e) *A community garden as part of a multi-purpose park, Hanoi (Ha Anh, 2022)*

(f) *Gardening in Chua Lang, Hanoi, Vietnam (Kurfurst, 2019, p.216).*

Home and business gardening

Like elsewhere, home and business gardening depend much on the gardeners who decide on what types of plant species to grow and how to take care of them. This is connected to their knowledge and belief about gardening, such as how to grow, care for, and harvest different plant species and maintain gardens, the benefits and impacts of gardening, and gardening conditions and what they do to the gardens. Besides, existing resources such as plant nurseries, fertilizers and pesticides are also important which will condition their gardening. All of these would influence how such types of gardening contribute to urban sustainability. For some roof gardens, for example, water use and management cause leakages damage the buildings underneath and the gardens end up being removed. Currently, most fertilizers and pesticides supplied are chemicals and uncontrolled. This raises concerns about health and safety and environmental pollution. Furthermore, home and business gardens miss the various social benefits of community gardens, thus contributing less to community and social development.

Community Forest Garden(ing) (CFG)

Community forest gardening (CFG) is a new trend with more advantages for sustainability. A forest garden is a unique combination of forest trees and plants, also known as an agroforestry combination. With this model, the garden manager does not need to spend a lot of time taking care of the plants, and the plants and the natural ecosystem in them grow and develop themselves. The multi-layered canopy structure of the forest garden creates an ecosystem that contributes to a diverse, healthy, and abundant food source for humans. The community nature of the gardens enables community building and bonding and various positive interpersonal activities. Two gardens of this type, Xóm Phao and Bờ Vỡ in Hanoi demonstrate all these advantages with significant economic, social and environmental benefits for the community and various groups including the poor, marginalized, and disadvantaged.

Xom Phao CFG was built on an abandoned area that was occupied by the homeless, low-skilled labourers and their families by the accretion of the Red River in Ngoc Thuy ward, Long Bien district. The state leased this land lot to an elderly person in this community, Mr Nguyen Dang Duoc. Mr Duoc used to live on a boat along the banks of the Red River for decades. He and his neighbours realized the need for a play space for their children, so they called for the support of social organizations. With a small fund, the community, several NGOs and social enterprises built a forest garden of about 100 square meters and added a nearby playground space where children can dig the ground, do mud play, play with recyclables seesaws and other types of adventure. The playground also has a small library, with books donated by garden visitors. The garden hosts a variety of medicinal plants, shrubs, vines, rooting trees, low canopy trees, and overhanging fruit trees. Currently, Mr Duoc and Xóm Phao residents run the garden as a semi-free service. Children can use the playground, plant trees in the garden, and learn about agriculture for free, while adults are charged a token fee equivalent to US\$1.

Bo Vo CFG was developed on an unoccupied land area along the Red River in Bờ Vỡ, Chuong Duong Ward where illegal garbage dumping and land encroaching were

common with negative impacts on residents. To improve this situation, Chuong Duong ward authorities and social organisations such as the women's union mobilized residents and volunteers to clean the area and establish a community forest garden. Due to the complication of the land, which was filled with over three meters of deep garbage, the garden took more than four months to complete. After the garden is open to the public, it is placed under the management and regular care of the Women's Union of Chuong Duong ward. The garden is currently about 200 square meters, with an orientation to allow for further expansion. It is located in a spacious area with many facilities, such as a relatively convenient access road and has the potential to be a public park.

Zero-Waste Gardening (ZWG)

ZWG is part of the zero-waste community which is also recently developed, aiming at reducing landfills via waste management where the community garden plays an essential role. Organic waste from households and other human activities is directly managed on the garden site using its ecosystem and provides nutrition for garden plants. The garden produces foods and materials for daily life activities. It is a site for community communication and education and provides space for multiple community events and activities.

Morrison Street ZWG is an example. Located in An Hai Bac ward in Danang, the garden incorporates a zero-waste management procedure which is operated by local women. There is a café and vegetarian catering service with pop-up kiosks demonstrating a waste-conscious business model. This model has an on-site waste management system and uses the garden-grown herbs for its services, thus directing 16% of its net income to the project. The garden is open for public visitors and achieves financial sustainability thanks to the contribution from the business and visitors.

The garden is made possible under a zero-waste project led by C&E with funding from the European Union and sponsorship from GreenViet and Gustav-Stresemann Institute. It partners with the local authorities, civil society organisations (CSOs), local businesses, young people and youth networks, local women and households in the area in all stages who commit significant resources and build strong partnerships.

The garden promotes community development, young development, and gender equity. Community development is promoted through communications and education activities and diverse environmental and cultural events. Youth are involved in project decision-making and implementation. Women as the key participants are empowered with capacity training on waste treatment (such as waste classification and composting), communications, gardening, and opportunities to raise their voices.

Barriers and Success Factors of FCGs and ZWGs

The key success factors include firstly the creative use of abandoned/ vacant land which has enabled these gardens. Secondly, there are strong support and contribution from local people who are the main beneficiaries along with other city residents who want to have a place for their getaway, to visit and experience the forest garden model. In these gardens, the local people help with ground preparation, garden development, maintenance and protection, e.g. keeping them from becoming a place to dump garbage or be used for other

purposes. Thirdly, the contribution of CSOs is essential. They provide the required technical support in design and implementation to ensure that the gardens cater to the diverse needs of different groups while incorporating features to benefit the environment and reducing startup and running costs. For Bo Vo CGF and Morrison Street ZWG, the management and care are more regular thanks to the support of local authorities and the commitments of involved stakeholders including members of the community.

These gardens face different barriers. Xóm Phao CFG suffers from funding and human resource shortages and access issues. Because the area is accreted land, it is not under the management of any local administration, so no public funding is available. Access is also an issue: to get to this area, one must go through a steep stairway from Chuong Duong bridge. In terms of management, Mr Duoc, the leaseholder, is getting older and finds regularly care of the garden increasingly difficult. Future leaseholders might want to use the land for different purposes and terminate the garden.

The key issues of Bo Vo CFG are vandalism by individuals who used to dump rubbish or encroach on the land. This occurred to the garden's facilities' several times during the construction process with low intensity, causing damage to the bamboo slats surrounding the garden, prolonging the construction process and creating stress for participants. This, however, ended after the garden was completed.

The key issues for Morrison Street ZWG lie firstly in the requirements of the waste management procedure, including daily garbage sorting and collection. This requires a higher level of awareness and commitment from residents. Besides organic waste could decompose quickly in hot weather, create a bad odour, and attract flies which are nuisances that some people would find hard to get used to. Thus, more engagement, education, and awareness-raising efforts are needed. Secondly, the project is CSO-initiated so it takes time and effort to engage and gather support from other stakeholders including local authorities, businesses, and the community and gain their commitment. Diverse partners have diverse time schedules, commitments, needs, and orientations. This requires negotiation and compromise among parties to reach an agreement. Thirdly, the project initially plans to rely on volunteers for implementation. However, it turns out that volunteers are short of certain skills such as construction skills so there are more costs involved to do these tasks. More efforts have to be taken to secure funding from possible sources to add to the original limited fund.

4. Discussion and Conclusion

Existing gardening models currently developed in urban Vietnam have many similarities to those in the literature, particularly about people's willingness and engagement with urban gardening and adopting gardening to fit their living conditions. It demonstrates the different benefits between community and private gardening. It also confirms the importance of the private gardeners' perceptions and practices on gardening and their resources and materials to sustainability.

Private gardening is promising for urban sustainability in Vietnam. However, there is a need to fill in gaps in awareness, knowledge, skills and resources/ materials for gardeners so that home and office gardening can be sustainable. Public campaigns, state policies,

training, and technical support are known measures to motivate people and regulate the gardening markets to ensure sustainability in urban gardening and agriculture in general.

The CFG and WFG models possess similar barriers and success factors identified in the literature. They include the previously discussed space and environmental constraints (Lin et al., 2017). The lack of gardening knowledge and skills and awareness of gardening opportunities, time shortage, health problems and clashes with other gardeners might hinder participation (Tharrey et al., 2020; Wagner & Payne, 2019). No or insufficient support from local authorities which is linked to the lack of motivation and awareness of public officials and management can lead to a funding shortage, limited or no access to green spaces or short-lived projects (Hippolyte de Bellefroid, 2018). Other barriers are the lack of participation from stakeholders, especially the poor and marginalized group (Andal, 2022), insufficient or lack of funding and infrastructure (Giraud et al., 2021), and poor public communication and organisation (Wagner & Payne, 2019).

The CFG and WFG have great potential for urban Vietnam given all the benefits that they entail. These models could be applied widely across cities and urban areas, utilizing vacant/unoccupied land. For them to succeed, careful consideration of the cultural, economic and social settings and the gardening conditions is required in designing and developing gardens and gardening activities. Soil properties and contamination levels should be surveyed to determine suitable plant species (Wagner & Payne, 2019) or ways to improve the soil to make it suitable for certain plant species. Possible hazards and ways to mitigate risks should be considered. Proven strategies could be used to deal with issues and constraints such as making use of any available and possible spaces and innovative gardening models to resolve the green space limits (Lin et al., 2017). This could be done with technical expertise support.

The involvement and support of various stakeholders are important along with a facilitating/ coordinating agency. The community, authorities, and other stakeholders should have sufficient gardening knowledge and awareness and participate fully. Capacity building could be done via campaigns, education, training and technical support. A genuine participatory approach in design, planning and implementation could engage the community and stakeholders and support them to contribute properly (Mancebo, 2018) and cooperate well (Luetz & Beaumont, 2019). Good organisation and SMART targets are also important. Facilitators could be helpful to supervise and provide support in the related processes, including conflict management (Tharrey et al., 2020). Attention should also be paid to specific barriers in each area.

At the macro level, policy-makers should adopt the sustainability approach in dealing with cities and urban areas to facilitate urban gardening for sustainability. This includes attending to the poor and marginalized and their potential contribution (Andal, 2022) and promoting community participation (Tharrey et al., 2020). Community gardens should be created and maintained in the long term, especially in the most disadvantaged and vulnerable urban areas (Egerer et al., 2018). There should be changes to land use regulations to allow unused land to be used for gardening, mapping urban gardens, features, benefits, and issues, and monitoring and evaluating their impacts for public use (Lin et al., 2017).

The paper provides a broad picture of gardening as a solution to urban sustainability and reviews existing gardening models in urban Vietnam, barriers and success factors, and their potential for further application. Further studies would be beneficial, for example, on specific aspects such as the knowledge and practices of urban gardeners and the participation of different groups in gardening, or the quantitative contribution of different types of gardens to the environment, economy and society. They would fill in the knowledge gaps and provide evidence for better interventions. Besides, ongoing monitoring and evaluations are needed for suitable solutions to arising issues given the continuous evolvement of forms and practices of gardening and interventions for sustainability.

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FACTORS AFFECTING THE LINKING SUSTAINABLE TOURISM IN THE NORTH CENTRAL REGION

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Abstract

Tourism is a dynamic and competitive industry that requires the ability to adapt to the needs and wants of customers as customer satisfaction, safety, and enjoyment are the primary focus of the tourism business. Tourism activities and tourism business also take place on a large scale, requiring the parties' cooperation in organizing tourism activities, business, and tourism management. The study uses the PLS-SEM model to determine the factors affecting sustainable tourism linkages in the North Central region. The test results identified five elements (1) Tourism products; (2) Branding strategy; (3) Human resources; (4) Transportation infrastructure; and (5) Government policy that has an impact on sustainable tourism links in the North Central region. From there, the study offers several solutions to develop sustainable tourism links in the North Central region.

Keywords: *Linking tourism, Sustainable tourism, Linking sustainable tourism.*

1. Introduction

In the development trend, tourism is increasingly valued in the economic balance of countries worldwide, including Vietnam. However, rationally exploiting and ensuring the long-term sustainability of tourism resources needs to be considered. Tourism development needs to rely on two factors natural resources and human resources. If one of these two pillars is lost, tourism faces the risk of a severe recession. Therefore, to develop tourism, one of the most effective solutions that many countries worldwide have chosen is "sustainable tourism development." The sustainable development of a country, in general, must be ensured uniformly and simultaneously in all three aspects: economic, socio-cultural, and environmental.

In our country, the concept of sustainable development has only been approached since the 1980s, confirmed during the country's socio-economic development from 1991 to 2000 and through policies over the years. The 10th, 11th, and 12th National Party Congresses have become critical orientations for industries, including tourism. A clear understanding of sustainable tourism, evaluation criteria, and factors affecting sustainable tourism development is essential for the next steps in the tourism industry. This is even more important when Vietnam has a vast tourism potential with the advantages of natural scenery and many attractive destinations for domestic and foreign tourists, but cannot avoid common problems tourism, especially environmental protection.

1.1. Sustainable tourism

Nowadays, tourism has become a widespread socio-economic phenomenon in developed countries and developing countries, including Vietnam. However, the perception of tourism content has not been unified so far (Winter, 2007). Due to different circumstances and research angles, different organizations and individuals have different understandings of tourism (Telfer, D. J., & Sharpley, R, 2015).

Tourism is the activity of people going to a place outside the environment regularly. For some time, less than the time prescribed by the tourism organization, the purpose of the trip is not to carry out monetization activities within the visited area.

Tourism means activities related to people's trips outside their regular places of residence for no more than 01 consecutive years to meet the demand for sightseeing, relaxation, entertainment, research, and discovery of natural resources. Tourism resources combine with other lawful purposes (Camilleri, M. A, 2018).

Tourism is a dynamic and competitive industry that requires the ability to adapt to the needs and wants of customers as customer satisfaction, safety, and enjoyment are the primary focus of the tourism business. The development objective of the tourism industry is to contribute to the improvement of the quality and variety of tourism products and services in the target destinations to increase the number of tourists, foreign currency income, and employment (Trauer, B., & Ryan, C, 2005; Medlik, S, 2012).

Tourism development is a concept that refers to the process of moving from low to high, from simple to complex, from less complete to more complete, of activities related to people's trips abroad. Residence to meet the needs of sightseeing, relaxation, entertainment, research, the discovery of tourism resources, or other lawful purposes (Bærenholdt et al., 2017)

The criteria for tourism development are also in the general socio-economic development criteria (Berno, T., & Bricker, K., 2001; Akama, J. S., & Kieti, D., 2007). Accordingly, tourism development is the process by which state agencies, business units, and organizations work together to promote tourism development, create jobs, and improve the living standards of local people. The development of tourism also needs to ensure factors for development, including (i) rational exploitation of tourism resources based on research, selection of attractive tourism resources, building into specific tourism products, main tourism products, and complementary tourism products; exploit tourism resources suitable to local and regional characteristics; exploit tourism resources in parallel with the restoration, embellishment, and protection of resources, preserving and promoting traditional cultural values; (ii) ensure economic benefits for stakeholders including the community, investors, businesses. At the same time, ensure close and equal links between localities participating in the supply chain of tourism products; (iii) protection of the natural and social environment in tourist sites/spots/routes; exploiting tourism resources in parallel with investing in activities to protect the natural and social environment in tourist sites/spots/routes (Tien et al., 2019).

Sustainable tourism minimizes costs and maximizes the benefits of tourism for the natural environment and local communities and can be implemented in the long term without adversely affecting livelihoods (Lansing, P., & Vries, P. D., 2007). On which tourism depends.

Sustainable tourism is environmentally responsible travel and visits to natural areas to enjoy and appreciate nature (and all its accompanying cultural features, be it in the process). Full consideration should be given to current and future economic, social and environmental effects to address the needs of visitors, industries, the environment, and host communities.

Sustainable tourism development is tourism development that simultaneously meets socio-economic and environmental requirements, ensures harmony between the interests of the subjects participating in tourism activities, and does not harm the ability to meet the needs of tourism in the future (Bukola, A. A., & Olaitan, L. L., 2018; Tien et al., 2021).

1.2. Linking tourism

Tourism is an integrated economic industry involving many sectors and many parties. Tourism activities and tourism business also take place on a large scale, requiring the parties' cooperation in organizing tourism activities, business, and tourism management (Tien et al., 2021).

Tourism area links include regional links and regional links. Intra-regional linkage is the cooperation, support, and assignment between sub-regions (if any), sub-regions, and localities in the region based on the comparative advantages of each sub-region (if any), sub-regions, and each locality to successfully implement the strategic orientations of tourism development of the sub-regions, sub-regions, and localities in the region. Inter-regional linkage is the cooperation and assignment between tourist regions based on the comparative advantages of each part to successfully implement strategic directions for tourism development, actively contributing to promoting tourism development (Lansing, P., & Vries, P. D., 2007). The calendar of the tourist areas themselves. Usually, the inter-regional linkage is made between two regions with adjacent boundaries. According to the author, tourism region linkage is the cooperation and assignment between the parties involved in several key areas of tourism development, including cooperation in reallocating resources and adjusting development planning to suit the needs of tourists (Amerta et al., 2018). Suitable to the strengths of each locality in the region, in each development stage; linking in the development of tourism products, especially products typical of groups of localities, of sub-regions in the province or between two adjacent tourist areas; associate in promotion, promotion and development of destination brands and tourism products; link and establish unity in regional tourism space (system of points, tourist routes) through the development of infrastructure connecting the territory; association in training and development of human resources; cooperate in mobilizing investment capital and formulating mechanisms and policies to invest in developing the region's general tourism; cooperate to improve the business and investment environment, enhance the competitiveness of tourist areas; cooperate in building an information system and exchange tourism information to serve the tourism development goals of the region; cooperation in environmental protection for regional environmental issues, disaster response and climate change in tourism (Engels & Job, 2005). Sub-regional linkage is the connection of territorial units belonging to tourist areas. However, some link-specific content for sub-regional links is not specified. However, linking regions and tourism sub-regions will be very difficult without an organization in charge of managing the tourism activities of the area and each sub-region. This also means that no specific actors will represent regions and sub-regions participating in the linkage.

Therefore, regional and sub-regional linkages sometimes only mean "symbols" and "ideas" in the tourism development planning of tourist areas, especially transport connections.

From the perspective of consuming tourism products and services, tourists often consume many different types of products and services, from products with specific characteristics of tourism, such as hotels, restaurants, and tours, to complementary products, which may be locally common goods.

1.3. Linking sustainable tourism

1.3.1. Tourism Products

Modern tourism theory refers to a new element in the composition of tourism products: the element of the experience. The experience dramatically affects the perception and image of tourists about tourism products (Liu, Z., 2003). It is necessary to study the methods of combining services to create a richness in the visitor's experience and bring an impression and difference to the region's tourism. Combining a variety of modern and traditional modes of transportation in one travel is one of the most suitable forms of linkage. It links industries and fields with strengths to build specialized potential tourism products. Applying the bases and characteristics of the vital sectors in the region to research and develop combined tourism products is an effective exploitation direction. The industries' production processes are also exciting sights for many groups of tourists (Müller, H, 1994). The joint tourism development program contributes to linking management and administration, training human resources, designing tour routes, exploiting tourism products, and promoting and promoting development: cluster tourism and tourism in each province. The joint tourism development program creates a driving force for tourism development for localities. At the same time, the linkage between localities has brought efficiency and cost savings while still ensuring the quality and scale of the programs (Nguyen, T. Q. T et al., 2019).

Affiliate activities aim to create products for visitors to visit, learn about many fields many tourist attractions, and participate in many different activities in a tourism program. It is necessary to study the formation of several tourism products in general linkages suitable to the region, such as the link between cultural learning with visiting historical sites and linking activities to learn about the history of formation and development. Regional development. With the system of specific tourism products being fully developed, many linkage methods need to be studied to create integrated tourism products that attract tourism programs. High competitiveness in the market. For these general tourism products, it is also necessary to pay attention to the product's consumption ability and the tourist's enjoyment ability, avoiding putting too many activities and purposes in a short visit time. Reduce the visitor's ability to experience each exercise; on the other hand, it cannot create highlights in each product detail.

1.3.2. Branding strategy

Affiliate sustainable travel, connecting events and festivals of each locality in the region to create a series of regional tourism events to attract tourists, especially in critical markets with high economic efficiency; organize tourism investment promotion forums throughout the area to promote foreign investment attraction, especially investment from transnational tourism business groups; promoting the establishment of an electronic portal, building a database of tourism and related fields, establishing a brand, and forming a

specialized tourism newspaper for general use in the whole region. Research to develop and position the image of tourism in the entire area in the market and investors (Timur, S., & Getz, D, 2009). Coordinating with state management agencies in charge of tourism, tourism enterprises, and regional tourism associations to promote and provide information to tourists at destinations; supporting each other in promoting specific tourism products of the region and each locality in the area; complete the regional tourism investment promotion system; create linkages and coordination between state management agencies in charge of tourism and tourism businesses, while ensuring harmony between the interests of each locality and promoting the joint tourism synergy of the whole country. Develop and regularly update a regional database on fundamental tourism development indicators, including the number of tourists (international and domestic); average expenditure and days of stay, the number of direct and indirect workers; total investment in tourism development (scale, structure by sectors and mobilized sources), compared with other tourist regions and the whole country. Exchange of socio-economic information among localities in the area on development situation, difficulties, and problems, requests for support and cooperation; study tourism development models and lessons learned from countries and territories around the world. Regularly organize exchange activities, exchange learning experiences between localities, tourism businesses, tourism associations in the region on professional activities, state management activities in tourism, tourism activities, tourism activities, tourism activities. Tourism development conferences and seminars to promote tourism advantages of each locality, each sub-region, and the whole region in the most effective way.

1.3.3. Human resources

Focus on training and developing human tourism resources, exceptionally high-quality vocational workers, and attracting highly qualified human resources, especially leading domestic and international experts working in tourism training institutions in the region. Strengthen linkages between training institutions, vocational training institutions, tourism enterprises, huge tourism groups, and enterprises to rapidly increase the scale and improve the quality of vocational training. At the same time, focus on high-quality vocational training according to the orders of businesses and national tourist areas in the region. Promote cooperation in training through various forms of association, linkage, and connection between training institutions, tourism research institutes, and related fields in the area and inter-region to open more specialties (Lordkipanidze, M et al., 2005). New training sectors, advanced training programs to exploit the resources of qualified and experienced teachers and lecturers; make use of existing facilities; exchange textbooks on scientific teaching methods to effectively develop highly skilled tourism human resources for the whole region. Focus on investing in reputable training institutions to form a high-quality human resource training system for the area and the country (Choi, H. S. C., & Sirakaya, E., 2005).

1.3.4. Transportation infrastructure

Cooperate in building a unified tourism space based on connecting tours, routes, zones, and tourist spots to develop diverse types of tourism (visiting, healing, ecology, extreme sports, etc.); exploit and preserve the natural and cultural heritage of the region; forming regional destinations with high competitiveness domestically, regionally and

internationally; linking key areas, national tourist zones, and spots, and urban areas in the region; establish a chain of tourism events in the region such as festivals, international cultural festivals, typical national festivals (Choi, H. S. C., & Sirakaya, E., 2005). To build new and modernize several international fairs, conventions, seminars, and general sports areas in localities in the region with sufficient infrastructure conditions and standards to organize cultural events, sports, tourism, and entertainment of regional and international stature. I am completing the tourism infrastructure system, especially the transport system for each locality in the region, connecting with the inter-regional, regional and international traffic systems and focusing on finding mechanisms for investment and development, and creating a breakthrough in the promotion and implementation of projects of significant influence, creating links in tourist areas. Based on the approved planning, localities in the region shall coordinate to build and perfect a regional tourism technical facilities system such as hotels, restaurants, and entertainment spots, forming a tourism system—synchronous technical facilities for tourism on a regional scale (McKercher, B., 2003). At the same time, upgrade traffic axes connecting with economic corridors and international border gates. Coordinate with Vietnam's national airline in promoting the opening of direct international routes to international airports in the region; opening more domestic routes connecting cities in the area with each other and with the national tourism center.

1.3.5. Government policy

Coordinate the development of regional policies and mechanisms for investment in tourism infrastructure and technical facilities, especially amusement parks and typical and high-quality shopping areas based on that facility is unified in planning specific tourism products of the region based on the advantages of each locality in the region (Ruhanen, L, 2013; Lee, T. H, 2013).

Therefore, the study hypothesized:

- H1: Tourism products have a direct impact on linking sustainable tourism.*
- H2: Branding strategy has an immediate effect on linking sustainable tourism.*
- H3: Human resources have a direct impact on linking sustainable tourism.*
- H4: Transportation infrastructure is having a direct impact on linking sustainable tourism.*
- H5: Government policy is having a direct effect on linking sustainable tourism.*

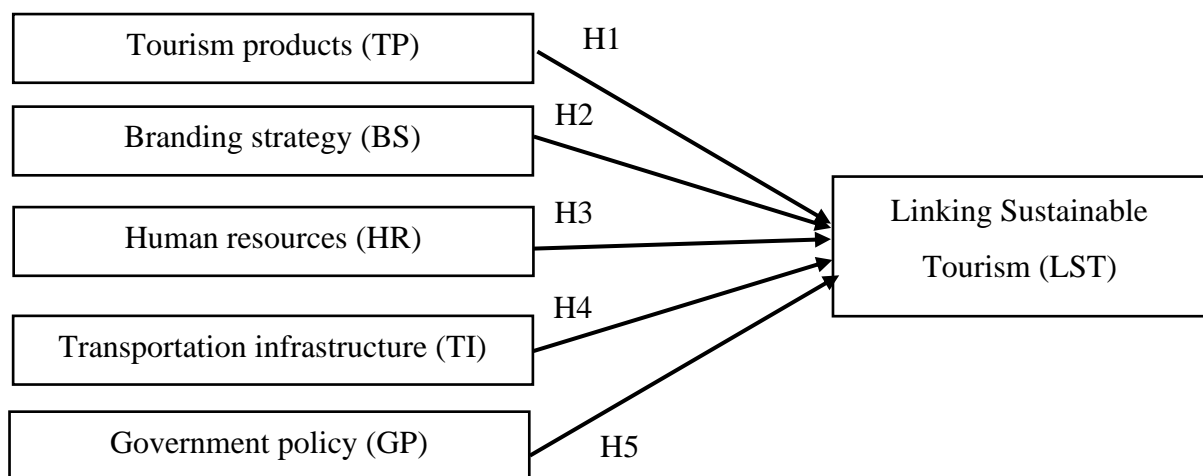


Figure 1. Model research

Source: Author suggests

2. Method

2.1. Research sample

According to Hair et al. (2014), the research sample is a significant factor in ensuring the research's quality. The minimum sample size should be ten times the maximum number of arrowheads pointing at a latent variable anywhere in the PLS path model (Hair et al., 2014). We collected 350 samples of survey questions from different managers of tourism companies in the North Central Region.

Table1. Respondent information

		Frequency	Percent (%)
Gender	Male	186	53.14
	Female	164	46.86
Age	21-30	35	10.00
	31-40	125	35.71
	41-50	136	38.86
	51-60	45	12.86
	60+	9	2.57
Occupation	State cadres	58	16.57
	Business	184	52.57
	Lecturer/Researcher	65	18.57
	Others	43	12.29

Source: Author's calculation

The survey and interview subjects included two groups of subjects: (1) experts (that is, tourism experts working at universities, research institutes, and state management agencies both at the central and local level, businesspeople, tourism business staff; (2) tourists (domestic and international visitors)

For the expert group, it is expected that the number of questionnaires and interviews will be 100 votes. Experts are selected selectively to ensure accurate information is collected. On the other hand, subjects were interviewed in many different locations rather than focusing on one place and different occupations to obtain diverse demographic information.

For tourists, 250 tickets are expected for both domestic and foreign visitors. The time to collect tourists' opinions chooses the time when it is crowded at tourist attractions in the North Central region. The principle of selecting tourists to interview randomly. (See Table 1)

2.2. Data analysis

Our research has provided empirical evidence for a framework that identifies critical aspects of linking sustainable tourism. After collecting the survey questionnaires, the data was encrypted, cleaned, and then imported into SPSS for reliability analysis and EFA discovery factor analysis. Then, we used a comprehensive, valid, and reliable tool (SPSS 26 and SmartPLS 3.0 software) to evaluate rigorous statistical tests, including convergence validity, discriminative validity, reliability, and AVE, to analyze and verify the gathered data the hypothesis developed.

3. Results

3.1. Reliability and Validity of Model

Construct validity, determined through the presence of convergent and discriminant validity, demonstrates how well the measurement items related to the constructs. To confirm convergent validity, we used three tests: item reliability, composite reliability, and AVE. Cronbach's alphas also provide evidence of composite reliability, and values above 0.6 demonstrate that it is adequate. Table 2 showed that all the composite reliabilities for our constructs were above 0.7, and all the Cronbach's alphas were above 0.6. The AVE represents the number of variances a construct captures via its items relative to the number of variations due to measurement error. We found that each construct's variance extracted was above the recommended value of 0.5 (Hair et al., 2016).

Table 2. Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Tourism products	0.877	0.880	0.916	0.731
Branding strategy	0.810	0.820	0.875	0.638
Human resources	0.885	0.892	0.920	0.743
Transportation infrastructure	0.854	0.862	0.902	0.698
Government policy	0.824	0.827	0.883	0.654
Linking Sustainable Tourism	0.891	0.893	0.915	0.606

Source: Author's calculation

Thus, we have concluded that all our constructs had satisfactory convergent validity. For testing the discriminant validity, we used two tests for discriminant validity: comparison of item loadings with item cross-loadings and comparison of the variance extracted from the construct with shared variance. Each item should load more highly on its intended construct than other constructs. The leading coefficients larger than the correlation coefficients in the same column (Fornell-Larcker matrix coefficient) have satisfied the condition suggested by Henseler et al. (2015). The result from Table 3 showed that all items met the requirement of discriminant validity.

Table 3. Discriminant validity (Fornell-Larcker Criterion)

	Branding strategy	Government policy	Human resources	Linking Sustainable Tourism	Tourism products	Transportation infrastructure
Branding strategy	0.799					
Government policy	0.648	0.808				
Human resources	0.636	0.801	0.862			
Linking Sustainable Tourism	0.716	0.742	0.777	0.778		
Tourism products	0.712	0.613	0.623	0.765	0.855	
Transportation infrastructure	0.676	0.669	0.668	0.819	0.709	0.835

Source: Author's calculation

3.2. PLS Structural Model Results

We next examined the overall explanatory power of the structural model. We explained the variance by the independent variables and the magnitude and strength of its paths, where each of our hypotheses corresponds to a specific structural model path. We used R Square Adjusted to measure the model's explanatory power, interpreted similarly as regression analysis. The analysis revealed that the structural model explained about 80.3% of the variation in linking sustainable tourism, suggesting that the structural model provided an adequate explanatory (see Table 4).

Table 4. R Square

	R Square	R Square Adjusted
Linking Sustainable Tourism	0.806	0.803

Source: Author's calculation

To evaluate the structure model, we conducted the test with a sample size Bootstrapping N = 5000 (Henseler et al., 2015). With p-value <1%, 5%, and 10%, the proposed hypotheses are considered statistically significant at the 99%, 95% and 90% reliability levels. The result is as follows:

Table 5. Hypothesis results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Hypothesis results
H1: TP→LST	0.227	0.224	0.040	5.613	0.000	Supported
H2: BS→LST	0.077	0.080	0.035	2.172	0.030	Supported
H3: HR→LST	0.269	0.269	0.045	6.006	0.000	Supported
H4: TI→LST	0.365	0.366	0.042	8.603	0.000	Supported
H5: GP→LST	0.093	0.080	0.035	2.001	0.046	Supported

Source: Author's calculation

The result from Table 5 and Figure 2 indicates that three in 5 hypotheses in our conceptual model are fully supported. H1 shows that tourism products have a positive relationship with linking sustainable tourism ($\beta = 0.227$, $t = 5.613$, $P < 0.000$). H2 shows that branding strategy has a positive relationship with linking sustainable tourism ($\beta = 0.077$, $t = 2.172$, $P < 0.030$). H3 shows that human resources have a positive relationship with linking sustainable tourism ($\beta = 0.269$, $t = 6.006$, $P < 0.000$). H4 shows that transportation infrastructure has a positive relationship with linking sustainable tourism ($\beta = 0.365$, $t = 8.603$, $P < 0.000$). H5 shows that government policy has a positive relationship with linking sustainable tourism ($\beta = 0.093$, $t = 2.001$, $P < 0.046$).

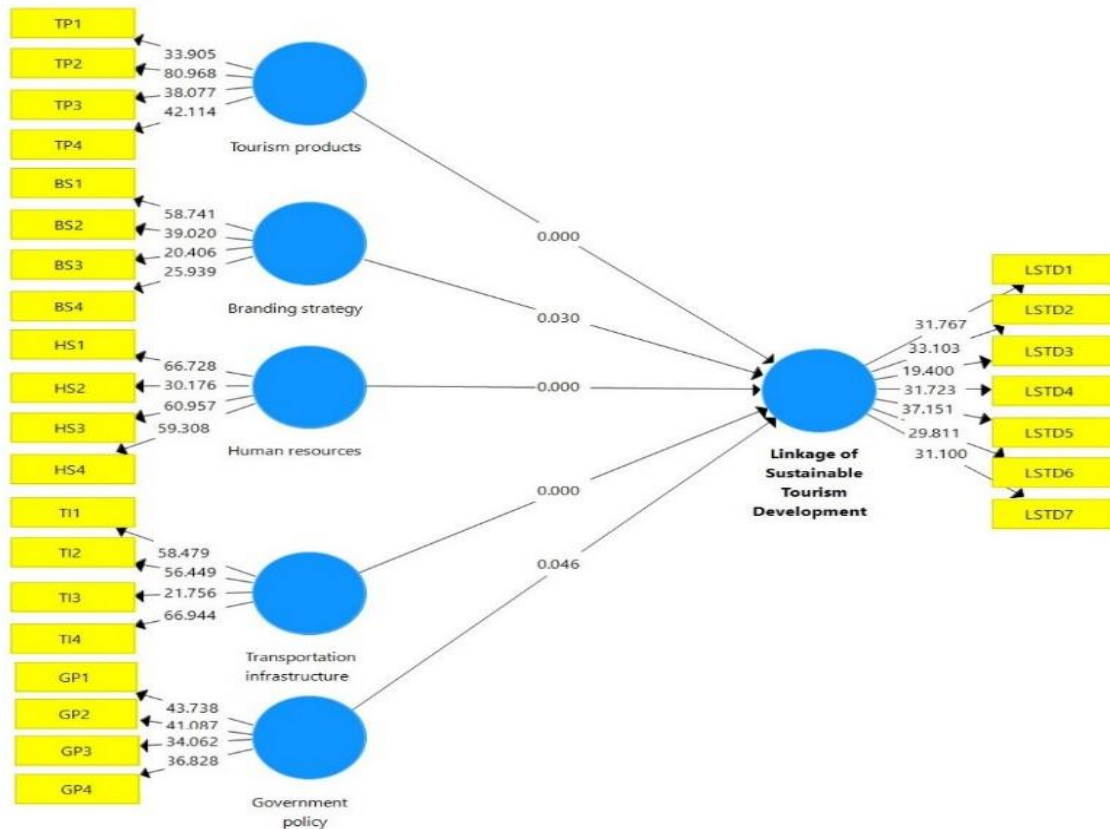


Figure 2. Research model results

Source: Author's calculation

4. Discussion and Conclusion

Although the tourism association program in the North Central provinces has initially been formed, the coordination on many important contents has not been implemented or qualified for implementation. The joint activities are mainly based on the annual meeting mechanism of the Steering Committees. The linkage programs still lack institutions and policies on regional linkage, and there is no effective mechanism for creating connections and implementing coordination commitments. Commitments between member provinces and localities, and businesses lack legally binding, mainly based on the voluntariness and awareness of the parties. Therefore, in some activities, the coordination between localities is still formal and administrative. On the other hand, the programs are challenging to operate due to the lack of resources (human resources, funding, and essential facilities).

The coordination between localities in implementing policies and plans for tourism linkage still emerges with many problems. The "strong, everyone runs" situation between provinces creates competition and racing to attract investors. Investors compete to "roll out the red carpet" to invite investors to their locality. Many forms of incentives are applied (tax reduction, land tax reduction, and even reduction of environmental conditions), reducing the benefits of overall tourism at the national level and in each tourist area and each locality in the region. According to the province in our country today, that is also the consequence of the thinking, management mechanism, and budget decentralization. Due to the lack of a

policy mechanism that is inter-regional and sub-regional by the specificities of the whole region and each sub-region, a joint governance institution for coordination on a global scale has not yet been established. Therefore, tourism activities are still basically closed in each locality. Due to weak linkages, tourism in the North Central provinces has not yet formed real growth poles that are strong enough to attract and spill over to other localities. Many tourist centers in the heart of the city have a new growth potential in the form of potential but have not yet been invested into the strong points of the region and sub-region, so they lack the spillover effect; There is no close link between the North Central region and national tourism centers and relations with neighboring countries such as China, Laos, Thailand and countries in Southeast Asia.

In the coming period, the view of the region's advantages and tourism resources in the international integration environment needs to change. This must be considered a property belonging to humans, the nation, not the locality in the region. The exploitation and enjoyment must be based on the global vision, within the national framework, in the regional and inter-regional linkages, at the international and national levels. To achieve that goal, businesses in the region need to take several measures as follows:

Firstly, develop a diversified tourist market, and promote the simultaneous development of domestic and international tourism. The domestic tourism market focuses on beach resort guests and source tourism. , weekend break, and spiritual festival; To encourage the development and expansion of the eco-tourism and official-duty tourism markets. As for the international tourist market, vigorously develop the almost Southeast Asian market, especially the needs in the East-West and Northeast Asian economic corridors, Increasing exploitation of traditional high-end markets from Western Europe, Northern Europe, North America, Oceania...

Second, focus on developing unique and diverse tourism products suitable to market needs, ensuring environmental and ecological sustainability. Based on the region's natural resource advantages, focus on developing cultural and historical tourism products to effectively exploit the region's world heritage system and cultural, historical - revolutionary relics; build beach resort tourism products. Diversify products to overcome the seasonality of tourism activities. Strengthen linkages to develop tourism products between localities in the area and neighboring localities such as Da Nang, Quang Nam, Ninh Binh, and other countries on the East-West Economic Corridor.

Third, increase the attraction of investment in tourism development: Having an appropriate investment strategy to promote the efficiency of investment capital, creating a favorable investment environment for development commensurate with its role as one of the vital economic sectors. Invest in building a system of high-quality, high-class, synchronous tourism facilities (accommodation, entertainment-sports facilities, means of transport, tourist service facilities, etc.). Other travel plans) to qualify to serve the needs of high-paying travelers.

Fourth, have mechanisms and policies to promote investment in infrastructure, especially infrastructure connecting tourist attractions of the region; have an open, airy, preferential tool to encourage businesses and people to actively and actively participate in

tourism infrastructure investment, idea creation, and resource investment to form tourism products. Tourism products: develop a coordination mechanism for regional linkage to jointly solve common problems to ensure the goal of harmonizing interests and equal competition among provinces in the region, implementing the role of a pervasive driving force in the North central region.

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SOME SOLUTIONS TO IMPROVE INCOME ASSOCIATED WITH THE DEVELOPMENT OF GREEN ECONOMY FOR PEOPLE IN SONLA PROVINCE

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Abstract

Sonla is a province with large territory, diverse terrain and climate, creating favorable conditions for agriculture and tourism to become strengths to develop a green economic model. However, Sonla is still a poor mountainous province, people's lives are difficult, low per capita income, high percentage of poor households. Therefore, it is necessary to give practical solutions to hunger eradication, poverty alleviation and increase incomes to gradually improve the quality of life of ethnic minorities here. In particular, improving the income associated with developing green economy is a practical solution in the current context of Sonla province.

Keywords: *Green economy, Income, Sonla.*

1. Introduction

After 36 years of renovation and opening up for development, Vietnam has escaped from the top of poor countries and classified as middle-income countries, but Vietnam also has to pay the price for the decline of natural resources and environmental pollution. school. In line with the general development trend of the world economy with the adjustment of development models and changes in industry structure, Vietnam has become a member of the World Trade Organization (WTO). Therefore, the economic development of Vietnam must follow the general principles of commitments with the WTO in the development trend of Global Integration. Moreover, Vietnam is listed as one of the five countries most affected by climate change, so moving towards the "Green Economy" model is a reasonable choice.

For Son La province - although there have been many efforts from local authorities and people to improve people's living standards, by 2020 the province's per capita income will still be low compared to the average of the whole country. country. The rate of multidimensionally poor households is still very high, ranking 2/4 in the Northwest province, 4/14 provinces in the Northern Midlands and Mountains and 4/63 provinces in the country [5]. Son La's per capita income/month is very low, ranking 3/4 in the Northwest, 13/14 in the Northern Midlands and Mountains and 62/63 in the country. Therefore, the problem of

researching and analyzing the current situation of per capita income of the people of Son La province and proposing some solutions to improve income associated with green economic development for Son La province is a task, absolutely necessary. The research results will be the foundation in the process of assessing the current situation of people's living standards in Son La province, and an important scientific basis for state agencies to plan policies to reduce income disparity, import and improve the living standards of the people of Son La province in a sustainable way.

2. Method

Information data of the article is collected and synthesized by the author from: reports of Son La Provincial People's Committee, Son La Ethnic Minority Board, Department of Labor, Invalids and Social Affairs; decisions of the Ministry of Labor - Invalids and Social Affairs; the statistics of the Statistics Department of Son La province, the General Statistics Office; primary data through the author's sociological investigation.

This study uses the method of analyzing secondary documents, processing statistics based on available studies on households in Son La. The statistics are carefully processed and analyzed by the author. These are important proofs of the author's conclusions. The study also uses comparative methods to compare and evaluate research results, recommended solutions from reports with recommendations and solutions from State management agencies.

The study also uses the field method combined with sociological investigation to find out the actual situation and compare it with available documents. In addition, the author also uses the method of consulting experts and stakeholders: experts, managers and people living in Son La province. All of the above research methods are the foundation to help the author thoroughly analyze the income situation of the people of Son La province, thereby having a valid scientific basis to propose solutions to improve income associated with the situation, associated with green economic development for residents of Son La province.

3. Results

3.1. Actual situation of per capita income of residents in Son La province

Although Son La province's GRDP ranks first among the four provinces in the Northwest sub-region (VND 47,223 billion in 2020 – actual price), accounting for 39.7% of the sub-region, ranking fifth out of 14 provinces in the Northern Midlands and Mountains and 40/63 provinces and cities nationwide. However, due to the large population, Son La's GRDP/person in 2020 ranks 2nd/4th in the Northwest province (after Hoa Binh), 9th out of 14 provinces in the Northern Midlands and Mountains, and 57th out of 63 cities and provinces, country; and only 51% of the national average. And Son La's GRDP growth rate is the lowest in the country at 5.59% (in 2020).

As for the per capita income per month of the whole Son La province is very low, equal to 63.6% of the Northern Midlands and Mountainous region, only 45.8% of Thai Nguyen province (the province with the highest per capita income), highest in the Northern Midlands and Mountains) and equal to 41.1% of the national average.

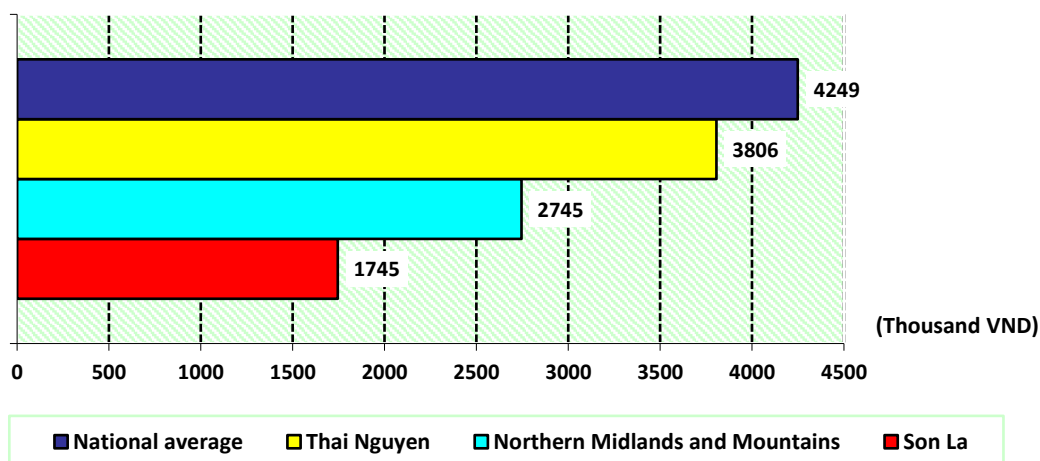


Figure 3.1. Per capita income/month of Son La province and comparable objects in 2020 (current prices)

Source: author processed from [5]

When ranking, the per capita income per month of Son La province compared to other provinces in the Northern Midlands and Mountains shows that: Son La has a very low per capita income per month, ranked first. 13/14 provinces in the Region (just above Dien Bien province). Similarly, when compared with other localities in the country, Son La's per capita income/month is also ranked at the penultimate position at 62 out of 63 provinces and cities. In Son La, in 2020, the number of poor households is 62,068, leading the country. The rate of multidimensionally poor households is 21.6%, ranking fourth in the country and in the Northern Midlands and Mountains [2].

3.2. Some solutions to increase income associated with green economic development for Son La province

Firstly, it is necessary to raise people's awareness and consciousness towards production development

Through renewing economic thinking, implementing a new way of thinking and doing (through the survey, 41.9% of households still lack understanding of how to do business) are the key requirements in improving income. income associated with green economic development for residents of Son La province [4]. Specifically need:

Propaganda on commodity production, production linkages between producers and the state, scientists, insurers, banks, distributors... Forming a mentality of using high technology and participating in the whole world globalization for the people. Developing production according to value chains and agro-industrial, forestry-industrial production complexes, etc., etc., Son La province should regularly organize dialogue conferences to remove difficulties for production. agriculture for households, owners of agricultural cooperatives, aquaculture, etc.

Strengthening the organization of Brand Festival and honoring agricultural products such as Moc Chau Shan Tuyet tea, Song Ma longan, Yen Chau mango, Mai Son coffee, Phu Yen orange. With the project of developing fruit trees on sloping land, the whole province needs

to continue to reduce the area of corn cultivation with an income of only about 10 million VND/ha, switch to fruit trees, income from several tens to hundreds of millions of VND/ha.

Son La's new production approach must not only stop at the requirement of high quality and quantity of goods and ensure food safety, but also solve the problem of product consumption markets. up to 51.9% of households surveyed lack a place to consume products). The province needs to continue to transform specialized farming areas, produce raw materials, and build four large fields to link production with product consumption. Farmers have production land associated with enterprises with technology and product processing. Currently, the province has 6 large-scale factories processing vegetables, fruits, milk, tea and sugar cane. TH Group has started construction of a fruit processing factory with a total investment of 1,200 billion VND in Van Ho district, with the goal of becoming a large passion fruit production area for export to the European and American markets.

The province needs to have more preferential policies to encourage the development of agricultural production cooperatives, and supply chains of safe vegetables, fruits, meat and seafood. It is necessary to sustainably maintain agricultural products bearing the "Son La brand" to continue to maintain and dominate markets in Hanoi and other provinces in the region. In particular, maintaining export markets for agricultural products that require high quality in foreign countries that the province has access to, such as: exporting green mangoes and longan to the Australian market, passion fruit to the Australian market. French market, the label to the US market. The path of sustainable economic development and sustainable improvement of people's living standards has been opened up from the potential of the province.

Second, develop high-quality human resources

High-quality trained human resources is a particularly important factor in improving labor productivity, thereby contributing to income improvement. Developing high-quality human resources is a big, important, basic, long-term and pressing issue in the process of industrialization and modernization in Son La province today as well as raising income associated with economic development. green economy.

**** Professional labor development***

It is necessary to associate training and development of vocational workers in Son La province with enterprises and at the same time take into account the supply and demand factors of the labor market on the basis of fundamental and comprehensive innovation in vocational training. Expanding policy beneficiaries for ethnic minorities to contribute to poverty reduction, socio-economic development in ethnic minority areas, and attracting ethnic minority students to participate in vocational training is extremely important. necessary.

Exemption of tuition fees for vocational training is an important solution to create conditions for apprentices and attract apprentices, especially there is a need for a tuition fee waiver mechanism for all disadvantaged subjects when participating in vocational training. Son La province needs to support vocational training and job support for workers changing careers in agricultural and rural areas, which are necessary activities to prepare human resources for economic restructuring income improvement in order to raise living standards and change the face of rural areas.

In the resettlement areas, it is necessary to continue to pay more attention to social infrastructure, especially labor training, job creation, consulting, and support for people in production and business, cultural preservation, good national identity, not only concerned about the economy, taking care of three meals. It is necessary to "give the fishing rod, not the fish" because if you give a sum of money, rice, build infrastructure but do not organize production and create jobs, when people run out of rice, no money will return to poverty. To build agricultural and handicraft cooperatives in resettlement areas, industrial and agricultural extension centers, and support community tourism.

** Business Development*

Entrepreneurs in Son La have made an important contribution to the formation of a new social structure and social relations, a value system and a lifestyle suitable to the conditions of industrialization and modernization and international integration. The new social structure in Son La has added thousands of entrepreneurs with an important role in socio-economic development. They are an indispensable link in socio-economic links and cooperation, including the "5-house" link (the State, entrepreneurs, scientists, banks and farmers). Therefore, to develop a team of entrepreneurs, it is necessary to implement the following solutions:

It is necessary to be aware of the position and role of the business team. Create favorable conditions; promote the development of businesses and entrepreneurs in Son La, so that they truly become the core force, taking the lead in the cause of industrialization - modernization and economic integration, ensuring independence, economic autonomy.

Publicity and transparency of socio-economic development orientations and plans, support policies to ensure investment interests and reduce business risks for entrepreneurs and enterprises; and at the same time limit corruption, bribery, and group interests between businessmen and policy makers.

Promote the role of organizations representing the business community and the entrepreneurial team. Through a representative organization to gather opinions, aspirations and initiatives of businessmen, thereby advising Son La province in formulating and implementing socio-economic development policies, ensuring the interests of enterprises, businesses, entrepreneurs, employees, community interests and national interests.

Build business standards: patriotism, creativity, passion for business, proactive integration, dare to think, dare to do, responsibility to employees, the community, culture and compliance law enforcement. Formulate policies to promote enterprise development in rural, mountainous and ethnic minority areas; encouraging the use of local workers, ethnic minority workers, female workers, children of policy families, and people with disabilities. Encourage and support entrepreneurs to invest in technological innovation in the direction of "green technology", innovating products and services, and strengthening business links, focusing on building, honoring, promoting and affirming values goods and trademarks of Son La.

Third, have appropriate policies to raise the level of economic development

** Modernize the economic structure with key products of high volume, high quality and added value; Promote economic restructuring within each industry group*

In agriculture - forestry - fishery. Producing crops in the direction of intensive farming, bringing new varieties with high yield, quality and efficiency into production; building a belt of food, vegetables and beans in a clean direction for the city of industrial zones and moving them to the lowlands; focus on developing fruit trees such as plum, mango, longan, tangerine, persimmon... associated with the consumption market.

Select crops suitable to the terrain, soil, and highland climate (maize, coffee, tea...) with economic value in order to improve agricultural production efficiency. In Moc Chau district (especially Chieng Son and Loong Sap communes) and Muong La (especially Hua Trai and Ngoc Chien communes) the life of the Mong and Thai ethnic minorities in the border highlands here is very difficult. However, these localities have cold soil and climate conditions that are very suitable for growing temperate flower varieties with high economic value and rapid income improvement. Therefore, Son La province and districts need investment in capital and flower care techniques for the Mong and Thai people here.

It is necessary to strongly transform the structure between cultivation, husbandry and services in the direction of increasing value, actively applying technology to create great value of goods, ensuring sustainable agricultural development. To step up the development of livestock raising for goods with high economic value on the basis of taking advantage of mountainous provinces, continuing to focus on developing buffalo and cow herds (Moc Chau, Song Ma, Sop Cop, Bac Yen); pigs (Mai Son, Moc Chau, Song Ma, Son La city); goats (Thuan Chau, Mai Son, Bac Yen); poultry farming on a farm or household scale (Song Ma, Mai Son, Moc Chau). Besides, it is necessary to survey, test and invest in poor districts of Muong La, Bac Yen, Van Ho, Sop Cop so that the Thai, Khang, La Ha, Mong, and Muong ethnic minorities here know how to feed, breed animals suitable for local conditions.

Building a system of special-use forests, a system of watershed protection forests, combining new planting and zoning for regeneration, developing a system of production forests including forests of paper materials for industrial wood, anise, fruit, bitter tea, etc. bring forest cover to over 60% by 2025.

Exploit existing water surface area, especially effectively exploit hydroelectric reservoirs in Quynh Nhai, Bac Yen, Muong La, Moc Chau... Build more irrigation reservoirs combined with concentrated aquaculture for the purpose of producing goods, building fish hatcheries to serve the needs of the locality and neighboring provinces.

To attach importance to the development of commodity agriculture for poor areas, border areas, areas with many ethnic minorities; especially the two districts with the lowest per capita income are Van Ho district (especially Tan Xuan, Xuan Nha, Muong Men and Song Khua communes with mainly H'Mong ethnic groups), Sop Cop district (especially Dom). Cang, Muong Va, and Pung Banh are mainly H'Mong, Kho Mu and Lao ethnic groups. Need help and support farmers here with capital, seedlings and especially production experience.

In industry – construction. Exploiting and processing minerals, ensuring no destruction and causing environmental pollution, economical and efficient use of all kinds of minerals, encouraging investment in mining associated with the processing industry.

Continue to invest to further develop the food and food processing industry based on the advantages of locally available raw materials. Paying more attention to high value items such as dried fruit jams; wines, liquors, fruit juices; dairy products...

Hydropower development: survey, plan and promote the exploitation of hydropower potential in rivers and streams in the province, propose mechanisms and policies to attract investors to build hydroelectric power plants medium and small. Complete and put into operation the Xim Vang 2 and Muong Sang 2 hydropower plants in association with forest development and socio-economic development in rural areas.

Priority will be given to establishments producing high-value industrial products, making great contributions to the province's industrial production value such as: Moc Chau milk processing factory, tea processing factories in Moc Chau, Nickel ore processing factory, Mai Son cement factory, ... Attracting investors, industrial production facilities focus on Mai Son Industrial Park, industrial clusters, ...

Preserve and develop handicraft industries, restore traditional craft villages. Develop existing cooperatives such as brocade weaving in Son La city and welding mounds in Quynh Nhai. Traditional industries and occupations of ethnic minorities in Son La need to be developed, such as brocade weaving of Thai, Muong and Dao ethnic groups; weaving (making chests, boxes, trays, tables and chairs... out of rattan) of Thai, Kho Mu...; pottery and building materials (brick, tile) of Thai, Tay and Hoa people; forging and making production tools of the Mong and Dao people; jewelry making (silver rings and earrings of the H'Mong and Dao people; buttonholes and crossbones of the Thai people). These traditional products are not only to serve the daily needs of the people or sell to the Kinh people, but now they are also goods of high economic value when sold at attractions and tourist sites. This is a very feasible direction to create jobs and increase income for ethnic minorities in Son La.

In the service industry. Increasing investment in trade infrastructure, upgrading markets and shopping centers, promoting foreign trade by upgrading national border gates of Long Sap and Chieng Khuong based on a number of key export products. resources (agricultural products: corn, cassava, seaweed, fruits...).

Restore, maintain and well organize traditional festivals (Mong culture week, Love market in Moc Chau; Ban flower festival - Thai people in Son La city; Moi festival - Muong ethnic group in Phu Quoc) Yen; Mah grò festival - Kho Mu ethnic group...). Developing cultural and historical tourism (Son La Prison, Provincial Museum, Co Noi Victory Monument, Son La Hydroelectricity...); eco-tourism, landscape tourism (Moc Chau pine forest, Dai Yem waterfall, Moc Chau valley of love, Moc Chau tea village, Da river lake tour...), community tourism (Moc Chau, Van Ho, Son La city...), resort tourism (hot mineral springs in Muong La, Son La city...)

Upgrading infrastructure and further promoting financial, banking, insurance, post and telecommunications activities in localities, especially in four poor districts of the province... contributing to promoting product development export and business of the province.

** Modern production organization. Encourage cooperatives, organizations, and individual enterprises to organize production in a modern direction (according to value chains, to groups, to modern production forms) and to expand linkages outside the province.*

In Son La, from building a brand, applying science and technology to improve productivity and quality, has created local products of national significance such as: Moc Chau Shan Tuyet Tea exported to many countries in China Winter; Yen Chau green-skinned mango has been exported to the Australian market; Son La coffee is exported to some countries such as Japan, EU...

Develop programs, organize investment promotion, invite businesses inside and outside the province to participate in investing - raising - processing - consuming aquatic products. Towards effective exploitation of surface water in Song Da lake area of Son La hydroelectricity and Hoa Binh hydroelectricity to develop cage and raft fish farming with a focus on sturgeon; associated with market search, export promotion.

Building and replicating the model of safe production and food supply chain, agro-forestry-fishery products, applying VietGAP agricultural production process, forming a system of stores, trading and distributing agricultural and aquatic foods safe product.

The province needs to step up tourism promotion and promotion activities, develop tourism services associated with cultural and spiritual factors, lake-bed tourism and hydropower plants. Mobilize and attract resources to increase investment in tourism infrastructure and techniques in key tourist areas such as: Moc Chau National Tourist Area, Son La hydropower reservoir, tourist attractions community,... Associating tourism activities with commercial and service activities to promote the potential and advantages of tourism products (resort tourism, ecotourism, community tourism, tourism) historical culture, conference tourism – organization of events, adventure tourism). Building tours between Moc Chau National Tourist Area and Hanoi, with neighboring provinces (Lao Cai, Yen Bai, Thanh Hoa,...), with Sam Nua town, Hua Phan province, and the ancient capital of Luang Prabang Tape of the Lao People's Democratic Republic.

** Building geographical indications for goods and products*

The quality, prestige and reputation of the goods are due to the geographical origin. The registration for protection of geographical indications for agricultural products for key products of Son La is very important to promote sustainable production development, bringing Son La agricultural products to serve the needs of consumers. widely consumed domestically and entered the export market. Therefore, Son La needs to implement a continuous model between production, processing and preservation of high-tech agricultural products and to replicate economically efficient models associated with geographical indications and product branding. Son La strives to have 19 trademarked construction products with geographical indications by 2025.

Son La has now published guidelines for four products: Shan Tuyet Moc Chau tea, Yen Chau mango, Song Ma longan and Son La coffee. Son La needs to continue to focus resources to accelerate the progress of brand building for the province's key products, including: sturgeon in Son La hydroelectric lake, fish in the Da river lake (Quynh Nhai) and

custard apple. Son, Moc Chau avocado, Muong Va sticky rice (Sop Cop), medlar - apple meo (Bac Yen, Muong La), Phong Lai tea and Cu Cang taro (Thuan Chau).

According to the assessment, Son La has nearly 200 products of high economic and commercial value, which are favorable conditions for the development of the "one commune, one product" program (OCOP), which has attracted the participation of many people. enterprises, cooperatives, production and business households. Up to now, the province has 83 local specialty agricultural products certified by OCOP.

** There are priority policies for hi-tech application agriculture*

To well organize the implementation of preferential mechanisms and policies according to the State's regulations for high-tech agriculture, such as policies to support activities of high technology creation, development and application of high technology in agriculture. Karma; Policies to support the development of high-tech agricultural application enterprises; Support policies for hi-tech agricultural zones and zones; Policies to attract and use human resources... Especially policies in land management and use for the development of hi-tech agriculture.

Son La province needs to promote intensive farming, increase crops, apply science and technology, advanced farming processes and new varieties with high yield, quality, and resistance to pests and diseases into production. Developing and replicating models of safe vegetables and high-quality flowers in Moc Chau, Son La and Muong La cities and other areas with suitable natural and climate conditions, forming a chain of production and consumption, linked with domestic and regional markets. Converting some inefficient crops in the area to planting trees with high economic value.

Continue to implement the project to support the application of drip irrigation technology combined with soluble fertilizer application according to Israeli technology to improve productivity and export value of Arabica coffee in Son La and Mai Son cities. Thuan Chau.

Fourth, bring into play the potential and advantages of natural conditions

Most recently in 2017, Son La province had to experience two historic flash floods, causing heavy loss of life and property, total damage amounting to VND 2,600 billion. For a poor province with slow economic development, people's production life is still difficult, this is a big loss. Therefore, promoting together with the protection of natural resources and ensuring a sustainable environment is a very important requirement in moving towards a stable income standard of living for the people of Son La province.

About land: The province still has nearly a quarter of flat land and a part of hilly land that can be exploited to serve agricultural production and develop long-term industrial crops such as coffee, tea, fruit trees, etc. livestock... to improve income levels. In addition, it is necessary to strengthen the management of land.

Regarding hydrology: it is necessary to continue to make good use of surface water, especially in reservoir areas containing hydroelectric power plants for aquaculture. Continue to survey, evaluate and use hydroelectric potential of major rivers in Son La.

In terms of climate: the terrain is deeply and strongly divided, forming many climate sub-regions, allowing the development of a rich agro-forestry production. In particular, developing resort tourism in localities with high terrain, contributing to changing the structure and increasing income for people.

Regarding forest resources: it is necessary to hand over the entire forest area to households for self-management, care and protection. This job is not only important for the environment, but also has great significance in the fight against hunger and poverty reduction, contributing to improving the living standards of the people.

Fifth, replicate green economic models to create effective livelihoods

Table 1. Effective livelihood models need to be replicated in Son La

Model		Objects
By city - rural area	<i>City</i>	Service and trade industries Travel Handicraft
	<i>Countryside</i>	Producing clean agricultural products Exploration travel, resort travel, Home stay Handicraft
By ethnic group (by sub-region – topographical characteristics)	<i>Mong, Dao, Xinh Mun, Khang, La Ha, Laos (Upland, border – high terrain)</i>	Forestry Agro-forestry combination Handicrafts and handicrafts (forging, silver jewelry making, bamboo and rattan, ...) Breeding specialty fish that prefer cold water (salmon, sturgeon, ...)
	<i>Thai, Kho Mu, Muong (The area along the Da river - low hill and valley terrain)</i>	Planting special, clean fruit trees Breeding indigenous breeds (duck, black chicken, ...) Nutritional agriculture Breeding fish in cages Travel to explore the lake bed, community tourism Handicrafts and handicrafts (brocade weaving, bamboo and rattan)
	<i>Kinh, some other ethnic groups (The area along National Highway 6 – low terrain)</i>	Tourist Resort Processing clean agricultural products Planting high quality flowers

Cage fish farming model: With the goal of developing cage fish farming in an effective and sustainable direction, Quynh Nhai district has established a fisheries advisory group, directly supporting and consulting cooperatives, looking for some simple solutions. organizations and enterprises to consume products for cooperatives; mobilize, support and orient cooperatives to raise fish in cages on the lake bed according to VietGAP standards; promote the role of the Union of Fisheries Cooperatives to link cooperatives to support each other from the selection of breeds, to the care and consumption of products, especially the production of the cooperatives must be carried out. performed in the form of a pillow service to always ensure the quantity and quality supplied to the market. The district is supporting the district's Union of Fisheries Cooperatives to build a house for preliminarily processing and preserving fish to pack products to send to the provinces; building Da river fish brand, bringing Da river fish products to participate in fairs inside and outside the province...

Model of community tourism: According to the adjustment of the master plan for tourism development in the province to 2030, community tourism products are oriented to develop in 18 communes in 6 districts and cities: Moc Chau, Van Ho, Quynh Nhai, Muong La, Phu Yen, Son La city. In particular, focus on investment in infrastructure, environmental landscape suitable to the conditions and topography of each district and each location to attract more and more tourists to community tourism destinations. With synchronous solutions in developing development plans and promoting local products, community tourism activities in the area will have many changes, attract more visitors, and create stable jobs for tourists. labor in rural areas.

Some other sustainable livelihood models

The field of “Nutritional agriculture” needs to be developed in one of the most remote and poor ethnic minority areas in Sop Cop. These areas are very far from central areas, so the government needs to help people to become sustainable self-sufficient, while improving access to nutritious food especially for infants and women with low income. in the context of forests and natural resources being degraded.

The government supports knowledge and techniques for people to develop organic agriculture, produce clean agricultural products, and promote Son La's strengths in fruit production. In particular, guide people not to use pesticides as widely as today, especially people in the districts of Bac Yen, Mai Son, Song Ma, etc.

4. Conclusion

The analysis results show that at present, Son La is still a poor mountainous province, people's life is still difficult, the average income of the population is low. Therefore, the issue of raising income is still a very urgent requirement, requiring the attention of all levels, sectors and the whole society. In which, in the long term, changing the development mode towards the development of a "green economic model" is an approach that is suitable with the general development trend of the global economic system. And in Son La, in order to move towards a green economic model, it is necessary to rely on two pillars of strength: agriculture and tourism.

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Some pictures of green economy in Son La



Ang village pine forest lake tourist area



Community tourist area - Ngoc Chien hot mineral spring (Muong La)



High-tech agriculture in Son La



Fishing at Ho Quynh Fisheries Cooperative (Chieng On, Quynh Nhai)



Passion fruit exported to France (Moc Chau)



Pure ground coffee - certified 5-star OCOP product



Brocade weaving products of Thai people

A STUDY ON THE FOREIGN DIRECT INVESTMENT STRUCTURE INTO HANOI CAPITAL REGION TOWARDS SUSTAINABLE DEVELOPMENT GOALS

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Abstract

The process of attracting Foreign Direct Investment (FDI) after more than 30 years (1998-2021) in Vietnam has achieved many positive results. However, the quality of FDI inflows has not yet met the requirements of the country's development process. Based on the research viewpoint which considers the FDI inflows structure as the core of quality, the researcher thereby determined a set of criteria for evaluating capital flow structure from the view of regions receiving capital investment. With a relatively detailed analysis of the current state of capital flow structure into the provinces of Hanoi, the researcher discovered issues related to the structure of FDI inflows into the capital region. Therefore, the researcher proposes some recommendations with an "open" orientation to improve the quality of FDI inflows towards sustainable development goals in the upcoming time.

Key words: *FDI, capital flow structure, sustainable development, Hanoi capital region*

1. Introduction

Attracting Foreign Direct Investment (FDI) has become an objective trend in the economic development strategies of many countries; and FDI is recognized as one of the important factors to promote economic growth and sustainable development. All countries in the world compete to attract more Foreign Direct Investment capital by constantly improving the national investment environment, creating the most favorable business and investment environment for foreign investors. In this context, Vietnam's accession to the World Trade Organization (WTO); the negotiation and signing of Free Trade Agreement (FTA) have created a strong investment wave in Vietnam. Many countries and investors have shown their interest in Vietnam and invested in various economic sectors. The fact that after more than 30 years of receiving FDI inflows since 1998 has made a significant contribution to Vietnam's socio-economic development.

“Accumulated to 2020, the whole country has had 33,070 valid projects with a total registered capital of nearly 384 billion USD. The cumulative capital of Foreign Direct Investment projects reached 231.86 billion USD (equivalent to 60.4% of the total valid registered capital). There have been 139 countries and territories with valid investment projects in Vietnam. Among that, Korea is at the top with a total registered capital of over 70.6 billion USD (accounting for 18.4% of total capital). FDI enterprises have invested in 19/21 industries in the industrial classification of national economic activities, in which the processing and

manufacturing industry accounts for the highest proportion with 226.5 billion USD (accounting for nearly 59% of the total investment); real estate activities came in second with nearly 60.1 billion USD (accounting for 15.6% of total capital investment); electricity supply with 28.9 billion USD (accounting for 7.5% of total capital investment). FDI capital has presented in all 63/63 provinces and cities in the country; among which Ho Chi Minh City still topped the list in attracting foreign investment with 48.2 billion USD (accounting for 12.5% of total capital investment)” (Ministry of Planning and Investment, 2021).

Hanoi Capital Region includes the capital Hanoi and 9 surrounding provinces: Hai Duong, Hung Yen, Vinh Phuc, Bac Ninh, Ha Nam, Thai Nguyen, Phu Tho, Hoa Binh, and Bac Giang with the total area of 24,314.7 square kilometers, population size is about 18.2 million people. This is a region of general economic development, with the Hanoi being the national politics and public administration center, a major center of culture, education, science and technology, economy, international transactions of the country, and an important international significance in the Asia-Pacific region. It is also the focal point for the national transport system and technical infrastructure, has an important position in terms of national security and defense, is the driving force of the national economic development, making a great contribution to the national budget and attract a large amount of FDI inflows into Vietnam. In recent years, the Hanoi capital region has still been an area that attracts a large amount of FDI inflows compared to the whole country. According to statistics on attracting FDI from the provinces in the Hanoi capital region up to now, there have been 8,521 FDI projects authorised to invest in the region with a total registered capital of 85.3 billion USD, accounting for about 38% of the number of projects and 29% of the registered capital compared to the whole country (in which Hanoi is still the leading place in terms of the number of FDI projects and registered capital, Hoa Binh is the place with the lowest number of FDI projects and registered capital in the region).

FDI inflows mainly focus on manufacturing industry, using a number of unskilled labors and low value of technology transfer, leading to the inability to maximize the benefits that FDI inflows can bring to the Hanoi capital region. FDI inflows rely on advantages in cheap labor costs and natural resources, concentrate in low value-added stages such as processing and assembly operations, and are unlikely to create positive spillover effects regarding technology. The structure of FDI flows is still uneven among investment sectors, especially in the service sector. Besides, there is a lack of connection and cooperation among domestic enterprises and FDI enterprises to form global value chains. Particularly, in the context of the Covid-19 pandemic occurring on a global scale, the strong impacts which stem from the shift of FDI inflows to countries with more favorable conditions have created competition in attracting quality FDI flows among countries craving for this capital flow in their development process. This requires a thorough research and assessment of the quality of FDI inflows into the socio-economic development of the Hanoi capital region.

Stemming from the aforementioned issues, it is apparent that there is a need for policy adjustments to attract quality FDI inflows with the aim of improving its quality, in order to promote the effectiveness of FDI's contribution and to achieve the sustainable development goals of the capital region in the upcoming time.

2. Literature Review

Quality issues and quality improvement have been mentioned repeatedly in economic books in Vietnam and around the world. Quality is both a familiar and controversial concept. Depending on the subject studied, the word "quality" has different meanings.

From the perspective of a manufactured product, the concept of product quality is understood as the beneficial values of products and services and is a complex concept, depending on the level of the economy, and on the perspective of the observer. *According to this perspective, quality is the degree to which regulations and standards are achieved for products or services that are suitable for the benefits of interested parties under certain conditions.*

From the perspective of services provided, it can be understood that service quality is the result of an accumulated evaluation of customer based on the comparison between the expected (or predicted) quality and the quality of service delivery. In other words: Service quality is always compared with the level of satisfaction of customers' needs after consuming the service. According to the above concept, *Service quality is expressed in the level of satisfaction of consumers compared to their expectations.*

The researcher does not view on the two aspects above, but from the perspective of economics development and dialectical philosophy. As mentioned above: quality is one of the two factors constituting development (quantity factor and quality factor), it "is an internal attribute of development, reflecting the structure, efficiency and the impact of that development on benefit-oriented objects" (Ngo Thang Loi, Development Economics for Post Graduate Study, Publishing House of Politics and Public administration, 2013). Based on this concept, the researcher's point of view on the quality of FDI inflows to the regions is: *"the internal attribute of FDI inflows, which is reflected in capital flow structure, capital flow efficiency and its impacts on the socio-economic development of the invested region"*.

Particularly in terms of capital flow efficiency: From the perspective of capital flows itself (which are foreign investors), it is the efficiency that this capital flow brings to investors themselves and the ability to maintain and develop this capital flow in the long term.

From the perspective of regions receiving FDI inflows, perhaps the efficiency of FDI inflows and its spillover effects are the efficiency of capital flows in the implementation of the local socio-economic development goals. These goals are associated with each stage of the local socio-economic development; however, they must be aligned with the trend of the sustainable and effective development process of the economy. The satisfaction of regions receiving FDI inflows is generally reflected in the efficiency of capital flows and the spillover effects of this capital flow on local socio-economic development.

The researcher will study the latter perspective that belongs to regions receiving FDI to study the quality of FDI inflows. Therefore, there are two noticeable points when studying the quality of FDI inflows:

First, the efficiency of FDI inflows will not be the financial efficiency of FDI enterprises, because that is the efficiency of investors. Instead, the perspective of economic efficiency of this capital flow for regions should be taken into account, which means how capital inflows contribute to local economic efficiency.

Second, the spillover effect of FDI inflows needs to be examined from the perspective of the whole economy, which are the objects affected by capital flow in regions, including economic, social and environmental spillovers.

Therefore, the researcher introduces the concept that “*Quality FDI is FDI that makes positive contributions to the sustainable development of the regions receiving investment in a modern direction, in line with the local development level in specific context and goals*”.

The quality of FDI inflows includes the structure of FDI flows and the efficiency of capital flows in invested regions. In this study, the researcher only analyzes and evaluates the structure of FDI inflows from the perspective of an internal attribute that reflects quality capital flows. The structure of FDI inflows is classified and evaluated according to the following criteria:

(1) Structure of FDI inflows according to the capital size: Normally, FDI inflows can enter a country or a region with different capital sizes. Basically, it is necessary to alternately spend these capital flows depending on the needs and development level of the invested countries or regions. Nevertheless, in terms of capital flow quality, larger-scale FDI projects will have increase opportunities of higher efficiency achievement, and the abilities to deliver more "original", modern and clean technology, and the spillover effect of large-scale FDI will be higher. The key performance indicator of the proportion of FDI by capital size will assist the evaluation of FDI quality from the view that if the proportion of large-scale FDI is increasing, the quality of capital flows will prove better.

According to the 2019 Public Investment Law, projects are classified to groups A, B and C. Regarding ordinary industrial production projects, the scale of Group A projects is over 1,000 billion VND; Group B is from 60 billion VND to less than 1,000 billion VND; group C projects are under 60 billion VND. Such classification of projects by capital size is appropriate and applied by international and domestic organizations. The researcher based on statistics to classify FDI projects by capital size, including 3 types: large-scale projects with a total registered capital of over 45 million USD (equivalent to about 1,000 billion VND); medium-scale projects with total registered capital from 2.5 million USD to under 45 million USD (equivalent to about 60 billion VND to less than 1,000 billion VND); small-scale projects with a total registered capital of less than 2.5 million USD (equivalent to less than 60 billion VND).

(2) Structure of FDI inflows from the perspective of investors: is the ratio of large investors to the total number of foreign investors to regions. Attracting FDI from partners with strong economic potential and advanced technology, the disbursement rate is usually on time and technology transfer is also higher, while helping the region to receive advanced and modern technology, increasing labor productivity and minimizing the negative impact of FDI on the environment, on the local economy and community benefits. Large companies with strong financial potential today are multinational companies, transnational corporations, or companies from countries with developed economies such as G7 countries (including the United States of America, Great Britain, France, Canada, Germany, Italy, Japan, Korea,...) these are the companies that countries as well as regions want to attract because of the benefits that they bring to the economy.

(3) Structure of FDI inflows by industry and business sectors: is the receipt of FDI inflows into three important sectors in the national economy, including: agriculture, industry and construction, service sectors. This criterion will show the structure of FDI inflows in each specific sector. Hence, we know how the investment trend of FDI inflows comes from investors. Industries and fields with high profit margins will often attract more investors than those with low profit margins or those dependent on weather and environment. If more FDI inflows are invested in manufacturing and processing industries, it will create spillover effects to other sectors to develop together.

(4) Structure of FDI flows by technological features: including proportion of FDI at different technology levels (low, medium, high), FDI based on clean technology (no pollution, technology or low energy consumption) or dirty technology (causing large environmental pollution and consuming a lot of energy). This indicator often uses the ratio of investment projects using high technology in investment projects in the locality; or the proportion of high technology in total technology in the regions with or without FDI. This will analyze whether technological capacity has been improved by FDI activities or remains at the original level. This criterion measures the impact of FDI on technological capacity improvement, comparing the local technology level with FDI inflows and the local technology level without FDI inflows. Here, the proportion of projects with high, modern and energy-saving technology compared to the total number of FDI projects in regions is considered. In fact, there is a situation of transferring outdated machinery, equipment and technology, weak competitive advantages, and even causes to environmental pollution.

3. Results

(1) Structure of FDI inflows according to the capital size

Table 1. Number of FDI projects to the capital region, until 2021

No.	Cities/ Provinces	Projects	Proportion %	Registered capital (Million USD)	Proportion %	Disbursed capital (Million USD)	Proportion %
1	Hanoi	6.381	59,77%	36.472,00	37,68%	23.487,00	32,68%
2	Hai Duong	542	5,08%	7.883,20	8,15%	6.288,80	8,75%
3	Hung Yen	487	4,56%	5.264,70	5,44%	4.100,00	5,70%
4	Vinh Phuc	410	3,84%	6.127,18	6,33%	3.507,59	4,88%
5	Bac Ninh	1.627	15,24%	20.000,70	20,67%	17.693,30	24,62%
6	Bac Giang	511	4,79%	6.065,50	6,27%	4.476,10	6,23%
7	Ha Nam	327	3,06%	4.337,00	4,48%	3.157,97	4,39%
8	Thai Nguyen	162	1,52%	8.583,99	8,87%	7.374,61	10,26%
9	Phu Tho	186	1,74%	1.474,80	1,52%	1.486,20	2,07%
10	Hoa Binh	43	0,40%	574,19	0,59%	300,53	0,42%
	Total	10.676	100%	96.783,26	100%	71.872,1	100%

Source: General Statistics Office of Vietnam

The capital region is a dynamic area, having a favorable geographical position, synchronous transport infrastructure, high quality human resources with the Hanoi as the core to spread to other provinces in the region. Therefore, the capital region has attracted a large amount of FDI inflows into the provinces and cities in the region. By 2020, the provinces and cities of the Hanoi capital region had attracted 10,676 FDI projects with a total registered capital of 96.8 billion USD, disbursed capital investment so far has reached 71.8 billion USD (equivalent to 74.2% of the registered capital).

Compared to the whole country, FDI inflows into the capital area accounted for 32.3% of the number of projects and 25.2% of the registered capital. FDI flows mainly focus on Hanoi (accounting for 59.77% of FDI projects and 37.68% of registered capital) and Bac Ninh province (accounting for 15 24% of FDI projects and 20.67% in registered capital). The remaining provinces account for a small proportion with 24.99% of FDI projects, but the registered capital accounts for a relatively high proportion with 41.65%. Hoa Binh is the province attracting the lowest FDI inflows in the region with 43 projects and 574.19 million USD of registered capital. This shows that the number of FDI projects is unevenly distributed among provinces and cities in the region.

Based on the criteria analysed above, the researcher categorises FDI projects by capital size into 3 types, specifically shown in the following table 2:

Table 2. Scale of FDI projects in the capital region, until 2021

No.	Cities/ Provinces	Scale of projects						Average project size (million USD)
		< 2,5 million USD	%	from 2,5- 45 million USD	%	> 45 million USD	%	
1	Hanoi	5.807	91%	506	8%	68	1%	5,72
2	Hai Duong	209	39%	311	57%	22	4%	14,54
3	Hung Yen	227	47%	239	49%	21	4%	10,81
4	Vinh Phuc	197	48%	198	48%	15	4%	14,94
5	Bac Ninh	1.194	73%	388	24%	45	3%	12,29
6	Bac Giang	296	58%	185	36%	30	6%	11,87
7	Ha Nam	97	30%	214	65%	16	5%	13,26
8	Thai Nguyen	70	43%	79	49%	13	8%	52,99
9	Phu Tho	76	41%	103	55%	7	4%	7,93
10	Hoa Binh	11	26%	29	67%	3	7%	13,35
	Total	8.184	77%	2.252	21%	240	2%	9,07

Source: Ministry of Planning and Investment, Foreign Investment Agency

The majority of the FDI projects invested in the Hanoi capital region are small-scale projects (under 2.5 million USD) with 8,184 projects, accounting for 77% of the total number of investment projects in the region. table. Medium-scale projects from 2.5 million USD to under 45 million USD have 2,252 projects, accounting for 21% of the total number of

investment projects in the area. Large-scale projects account for only 2% of the total number of investment projects in the area with 240 FDI projects.

In general, FDI inflows into the capital region focus on small-scale and medium-scale projects (accounting for 98% of the total number of projects). This shows an imbalance in the structure of FDI inflows regarding scale into the capital provinces when FDI capital flows will not focus highly on investing in modern machinery, equipment and technology, but most of them only made use of leasing cost and cheap labor. The average size of the project's capital into the provinces and cities in the capital is quite high, reaching 9.07 million USD/FDI project. However, compared to the whole country (the average size of the project's capital is 11.6 million/FDI project) it is a significantly smaller number. This is also a limitation on the structure of FDI capital flows according to the size of capital investment in the capital region.

(2) *Structure of FDI inflows by investors:*

The provinces and cities in the Hanoi capital region receiving direct investment from many different countries and territories around the world. Accordingly, the researcher categorises FDI flows according to investors coming from countries with modern science and technology such as the G7 and Korea - a country with a fast pace of developing science and technology level. In addition, capital flows from ASEAN countries also play a vital role in forming a strong economic bloc in the region, benefiting from Free Trade Agreements in which Vietnam is also a member. The investment structure of FDI projects in the region by country of investment is shown in the following table:

Table 3. FDI structure by countries with investment, until 2021

No.	Country, territory	Total			
		<i>Project</i>	<i>%</i>	<i>Register Capital (million USD)</i>	<i>%</i>
I	<i>G7 countries</i>	<i>2.390</i>	<i>17,27%</i>	<i>21.909,60</i>	<i>15,96%</i>
1	The United States	202	1,89%	780,76	0,81%
2	The United Kingdom	122	1,14%	724,22	0,75%
3	France	120	1,12%	379,34	0,39%
4	Canada	10	0,09%	252,13	0,26%
5	Germany	92	0,86%	285,63	0,30%
6	Italy	10	0,09%	183,86	0,19%
7	Japan	1.834	17,18%	19.303,66	19,95%
II	<i>Korea</i>				
1	Korea	4.286	40,15%	33.135,38	34,24%
III	<i>ASEAN countries</i>	<i>774</i>	<i>5,59%</i>	<i>18.588,91</i>	<i>13,54%</i>
1	Thailand	114	1,07%	922,78	0,95%
2	Indonesia	19	0,18%	265,03	0,27%

No.	Country, territory	Total			
		Project	%	Register Capital (million USD)	%
3	Malaysia	122	1,14%	4.510,63	4,66%
4	Singapore	519	4,86%	12.890,47	13,32%
IV	Others				
1	China	1.195	11,19%	3.755,04	3,88%
2	HongKong	417	3,91%	5.156,85	5,33%
3	Taiwan	399	3,74%	4.177,34	4,32%
4	India	11	0,10%	50,44	0,05%
5	Australia	107	1,00%	223,43	0,23%
6	British Virgin Islands	95	0,89%	1.531,10	1,58%
7	Netherlands	70	0,66%	952,81	0,98%
8	Belgium	16	0,15%	363,60	0,38%
9	Luxembourg	9	0,08%	1.317,00	1,36%
10	Switzerland	7	0,07%	219,30	0,23%
11	Poland	10	0,09%	291,00	0,30%
12	Samoa	51	0,48%	1.145,68	1,18%
13	Cayman Islands	18	0,17%	319,40	0,33%
14	Other nations	821	7,69%	3.646,38	3,77%
	Total	10.676	100	96.783	100

Source: General Statistics Office of Vietnam

For the past years, there have been many countries and territories investing directly in the capital, making the FDI situation in the region more and more dynamic. Among the countries and territories investing in the Hanoi capital region, capital flows from G7 countries with developed economies, modern science and technology accounted for 17.27% of the total amount of projects with 2,390 projects and accounts for 15.96% of the total registered capital with 21.9 billion USD, the average investment rate is 9.17 million USD/FDI project. Among G7 countries, FDI inflows from Japan accounted for the majority with 1,834 FDI projects (17.18% of the number of projects) and \$19.3 billion of registered capital (accounting for 19.95% of the total registered capital).

FDI inflows from Korea also accounted for the majority of FDI capital invested in the capital provinces, accounting for 40.15% of the number of projects with 4,286 projects, the total registered capital accounted for 34.24%. with 33.13 billion USD, the average investment rate is 7.7 million USD/FDI project. FDI inflows from countries in the ASEAN region accounted for only 5.59% of the number of projects with 774 projects, but the total

registered capital accounted for 13.54% with 18.6 billion USD, averagely 24 million USD/FDI project. Meanwhile, the capital flow is mainly from Singapore with 12.9 billion USD, the average investment rate is 24.8 million USD/FDI project. In addition, FDI inflows from countries with large economies such as China and India also make an important contribution to the structure of FDI inflows in the provinces and cities of the capital.

In general, the structure of FDI inflows by investment partners is relatively good and highly effective. In the upcoming time, with open investment policies being implemented, especially the shift of FDI flows from other countries into Vietnam to exploit the strengths of signed free trade agreements, provinces and cities in the capital region will be the area to attract more and more FDI inflows from investors across countries and territories around the world, especially investors from developed countries.

(3) Structure of FDI inflows by industry and business sectors:

FDI inflows into the provinces and cities of Hanoi capital region are classified according to 3 basic sectors of the economy: agriculture, industry and construction, services. FDI inflows mainly focused on industry and construction and services. The structure of FDI inflows into the provinces and cities by economic sectors is shown in the following table:

Table 4. FDI structure by investment sectors, until 2021

No.	Invested fields	Total			
		Projects	%	Registered capital (million USD)	%
I	Agriculture				
	Agriculture, fishing and aquaculture	39	0,37%	204	0,21%
II	Industry and construction	5.430	50,86%	69.962	72,29%
1	Mining and quarrying	3	0,03%	29	0,03%
2	Processing and manufacturing industry	4.455	41,73%	64.767	66,92%
3	Electricity, gas, steam and air conditioning supply	27	0,25%	242	0,25%
4	Water supply, sewerage, waste management and remediation activities	30	0,28%	1.639	1,69%
5	Construction	915	8,57%	3.285	3,39%
III	Service	5.207	48,77%	26.618	27,50%
1	Wholesale and retail trade; repair of motor vehicles and motorcycle	1.838	17,22%	2.313	2,39%
2	Transportation and storage	222	2,08%	1.177	1,22%

No.	Invested fields	Total			
		Projects	%	Registered capital (million USD)	%
3	Accommodation and food service activities	403	3,77%	2.249	2,32%
4	Information and communication	672	6,29%	1.972	2,04%
5	Finance, banking and insurance activities	51	0,48%	688	0,71%
6	Real estate activities	220	2,06%	15.194	15,70%
7	Professional, scientific and technical activities	1.166	10,92%	1.139	1,18%
8	Administrative and support service activities	237	2,22%	310	0,32%
9	Education and training	241	2,26%	287	0,30%
10	Health and social work activities	40	0,37%	611	0,63%
11	Arts, entertainment and recreation	37	0,35%	409	0,42%
12	Other service activities	74	0,69%	262	0,27%
13	International organizations activities	0	0,00%	0	0,00%
14	Household paid-job activities	6	0,06%	8	0,01%
	Total	10.676	100%	96.783,59	100%

Source: General Statistics Office of Vietnam

The agricultural sector attracts very small amount FDI inflows with 39 investment projects of 204 million USD in registered investment capital, accounting for only 0.37% of the number of projects and 0.31% of the registered capital to Hanoi and Bac Ninh.

The industry and construction sector attracted the majority of FDI inflows to the capital provinces with 5,430 investment projects and 69.96 billion USD of registered capital, accounting for 50.86% of the number of projects but accounted for 72.29% of the registered capital. Among all fields, FDI inflows into the processing and manufacturing industry accounted for the largest proportion (accounting for 41.73% in terms of the number of projects and 66.92% in terms of registered capital). FDI inflows into the Construction sector accounted for 8.57% of the number of projects and 3.39% of the registered capital.

FDI inflows into the commercial service sector in the capital provinces with 5,207 investment projects and 26.6 billion USD of registered investment capital, accounting for 48.77% of the number of projects but only 27.5% of the registered capital. FDI inflows focused on *Wholesale and retail trade; repair of motor vehicles and motorcycle* accounted

for 17.22% of the number of projects and 2.39% of registered capital; *Professional, scientific and technical activities* accounted for 10.92% of the number of projects and 1.18% of the registered capital. FDI inflows into the field of real estate activities only accounted for 2.06% of the number of projects but accounted for 15.7% of the registered capital. The reason is that real estate projects require higher capital investment than projects in other fields. This is an area that has attracted a large amount of FDI inflows in recent times to regions in the capital, especially in Hanoi with the strong development of real estate projects and fast pace of urbanization.

(4) *Structure of FDI flows by technological features:*

FDI inflows into the capital provinces are classified according to 3 different technological levels (low technology, medium technology and high technology) in the total number of FDI projects in the field of processing industry. Investment in manufacturing and investment in the provinces of the capital is shown in detail in the following table:

Table 5. FDI inflows to technological level in the field of processing and manufacturing, until 2021

No.	Cities/ Provinces	Projects	FDI inflows to technological level in the field of processing and manufacturing					
			<i>Low technology</i>	%	<i>Medium technology</i>	%	<i>High technology</i>	%
1	Hanoi	499	201	40,28%	123	24,65%	175	35,07%
2	Hai Duong	296	137	46,28%	51	17,23%	108	36,49%
3	Hung Yen	259	83	32,05%	77	29,73%	99	38,22%
4	Vinh Phuc	268	36	13,43%	57	21,27%	175	65,30%
5	Bac Ninh	845	138	16,33%	293	34,67%	414	48,99%
6	Bac Giang	318	53	16,67%	91	28,62%	174	54,72%
7	Ha Nam	185	65	35,14%	47	25,41%	73	39,46%
8	Thai Nguyen	79	9	11,39%	28	35,44%	42	53,16%
9	Phu Tho	107	48	44,86%	37	34,58%	22	20,56%
10	Hoa Binh	21	9	42,86%	1	4,76%	11	52,38%
	Total	2.877	779	27,08%	805	27,98%	1293	44,94%

Source: General Statistics Office of Vietnam

FDI inflows into the manufacturing and processing industry in the capital provinces are mostly low- and medium-tech (accounting for 55% of the total number of projects). The number of projects using high technology accounts for 45%. Compared to the whole country, this is an area with great advantages for projects using high technology compared to the whole country due to its favorable geographical location and quality of human resources. Among all the provinces and cities in the capital region, Vinh Phuc, Bac Giang and Thai Nguyen provinces have a large number of FDI projects using high technology (over 55% of FDI projects in processing and manufacturing industry).

As for technology and equipment imported from overseas, the survey results of the National Economics University in Hung Yen province (in the capital region) in 2020 show that, "the majority of enterprises receiving technology and equipment originating mainly from China (accounting for over 90%), due to its low cost (10-30 times higher than technology from other countries), operating costs, appropriate transfer, versatility, low replacement cost". This result is also consistent with and similar to the recently announced results of the Ministry of Science and Technology (2016) on the origin of technology received and transferred from foreign countries by Vietnamese enterprises. Accordingly, Vietnamese enterprises mainly import machinery and equipment from abroad in which machinery and equipment are mainly from China (35%), the proportion of imports from other technologically advanced countries (such as Japan, EU, and the United States) are dramatically low (17%, 12% and 4.5%). It can be seen that the advanced and modern level of technologies and equipment imported by Vietnamese enterprises is still limited, mainly at the average level compared to the world.

Based on analysis, it can be assessed that FDI inflows into the provinces and cities in the capital region in recent years have contributed to the improvement of production capacity, labor productivity, valuable contribution to GRDP, industrial production value and export value for the provinces, contributing to budget revenue, creating jobs, increasing income and improving the quality of human resources in the capital region. At the same time, FDI inflows have spillover effects to other economic sectors in the region through the connection among FDI sectors and other regions; technology and business capabilities are also transferred.

However, FDI inflows also reveal some limitations such as the imbalance in capital flow structure by industry and location, some FDI projects have low investment efficiency, use a lot of unskilled labor and has not yet created high added value, limited technology and role in technology transfer, mainly outsourcing and assembly projects, so the source technology is not transferred to Vietnam. At the same time, FDI inflows also appear negative social manifestations as well as negative impacts on the environment.

4. Recommendation and Conclusion

4.1. Some recommendations

With the widespread of the 4.0 industrial revolution, the trade war among major countries, the wave of FDI movement into Southeast Asia, assurance of sustainable development. Economic development is closely associated with social development, economic growth is associated with equity, social progress, and economic development is associated with environmental protection and ecological balance. Provinces and cities in Hanoi capital need to have "open" orientations to improve the quality of FDI inflows. Some of the directions are as follows:

Firstly, focus on the direction of implementing attractions to capital flows with high technology content: Prioritize the development of the industrial production of products with high technology content, focus on developing and attracting investment in industries and

products with high technology content and high-added value. Investment attraction projects always place high technology factor as the top attraction criterion, along with implementing the highest preferential policies and mechanisms for this type of project as prescribed by the law on technology high tech.

Second, prioritize FDI inflows into the development of trade, service, and tourism industries: Encourage FDI into a number of advantageous, highly knowledge-rich service industries and sectors and a number of other fields. Selected services include: banking and finance, insurance, research and application of science and technology, research and development (R&D), consulting services for transportation infrastructure construction projects that require modern and complex techniques; the field of social services such as: health care, education and training, production and supply of clean water for daily life; a number of projects to develop key tourist areas of the region.

Third, focus on partners with FDI inflows that meet local requirements: Partners capability of bringing advanced technology, high technology, modern management system, creating positive spillover effects to the development of the domestic economic sector; contribute to the construction and formation of spearhead industries. Partners have great financial capacity and long-term experience have stable and long-term investment capabilities; the world's leading multinational corporations; investors come from developed economies, G7 source technology owners and emerging economies such as Korea, India, Russia, Brazil, etc.

Fourthly, focusing FDI inflows into key areas: in the upcoming time, it is necessary to take extensive measures to attract FDI inflows into difficult provinces such as Hoa Binh, Phu Tho, etc. to ensure the harmoniously balanced economic development among regions. FDI projects in the provinces and cities in the region must be consistent with the regional spatial development orientation and regional functions approved by the Prime Minister in Decision No. 768/QD-TTg dated on May 6, 2016 on the construction planning of the Hanoi capital region to 2030, with a vision to 2050.

4.2. Conclusion

It can be seen that attracting FDI inflows is considerably important to the development process of each country. Through this study, we can once again confirm the important role of FDI inflows in the socio-economic development process of the provinces and cities in the capital region, economic restructuring towards industrialization and modernization, creating jobs for local workers, increasing revenue for the provincial budget, increasing export turnover, transferring science and technology. State management agencies in charge of FDI in Hung Yen province need to be aware of the importance of improving the quality of FDI inflows in the process of attracting investment projects into the area, diverting from passively receiving to actively welcome foreign investors; this, hence, is to actively promote investment, mobilize large foreign investors to invest in the provinces and cities of the Hanoi capital region.

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CHALLENGES OF PPP MODEL APPLICATION FOR THE URBAN WASTEWATER SECTOR IN VIETNAM

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Abstract

Public-private partnerships (PPPs) are considered as an effective mechanism for governments seeking to achieve better value for money and fund the investments needed to provide wastewater infrastructure and manage wastewater services. This paper examines the PPP model application in the wastewater sector in the context of Vietnam's urbans. It also pointed out major shortcomings related to institutional, financing and public partners' competencies that hinder PPP application process. The paper then provided some suggestions to foster this process.

Key word: *Challenge, PPP, wastewater sector*

1. Introduction

Acceleration of population and urbanization in cities in developing countries have created growing pressure on infrastructure including wastewater infrastructure. More fund for wastewater infrastructure development is needed to reduce the adverse effects of environmental pollution due to the discharge of sewage. However, there is a significant gap between available investment fund from the governments and the investment required for the provision of services (Shrestha et al., 2019). Lack of wastewater treatment and proper sanitation facilities have a significant impact on the urban environment and the health of citizens and sustainable economic development of cities (Yang et.al, 2015). The private public partnership (PPP) model, serving as one of the fastest-growing mechanisms for public infrastructure and service provision in recent decades, is considered to be an effective way to alleviate the pressure of government funding shortages and to improve the efficiency of sewage treatment, especially in developing countries (Lima et.al., 2021). Researchers (eg. Carbonara& Pellegrino, 2014; Ismal, 2013) presented various advantages of PPPs such as private financing and project acceleration, integrated solutions for public services, risk transfer to private sectors, potential of accruing efficiency and value for money, rubric to measure cooperative ventures between state and private business.etc.

The PPP model application to replace the public provision of infrastructure and services in the wastewater sector has become increasingly common. In Germany, one-third of all urban sewerage treatment projects are based on the PPP models. In China, by February 2016, there were 630 sewerage treatment projects (Yang et al., 2016).

Vietnam urbans' environment is under severe pressure because of economic growth, urbanization and state budget shortage. Having recognized importance of wastewater

infrastructure and service, the Vietnamese government has encouraged and supported the participation of the private sector in the provision of the wastewater infrastructure and services. In 1997, the government issued Decree 77/Government to attract private sector participation in public goods through BOT. The decree has been improved and adjusted many times. In 2020, PPP law has been promulgated to replace all previous PPP regulations. Though PPP models introduced since 1997, to date, number of PPP model projects in urban wastewater sector are very few.

This paper aims at exploring the PPP application in Vietnam's urban wastewater sector in order to highlight challenges for PPP model application in this sector. To do this, paper will analyse three key dimensions that affect the PPP adoption and implementation, namely the institutional, financing and payment dimension, and related parties' competencies. The findings of this study may benefit practitioners to further enhance PPP implementation by eliminating or minimizing the negative factors that impede the benefits of using PPP in the wastewater sector.

PPP concept and Literature review

PPP is a broad concept used to refer to a partnership between the municipal government and a private investor in the provision of infrastructure in a country. Though the meaning of PPP is clear,

there is no single definition of PPP. World Bank (2017) defined PPP as a long-term contract between a private and a public partners, for providing a public asset or service, in which the private partners bears significant risk and management responsibility, and remuneration is linked to performance. Yang et.al., (2016) defined PPP as follows: Through cooperation among public sectors and private departments, a contract should be signed to provide public goods, share risk and profit, and to generate all types of social capital to actively participate in providing public goods and services, thereby achieving a win-win situation. According to Vietnam's National Assembly (2020) PPP investment is forms of investment based on term basis cooperation between the State and the private investor through signing and conducting PPP project to attract the private investor participating PPP project.

PPP covers a range of different structures which can be used to deliver service. Depending on the country and the politics of the time, PPP can cover a spectrum from relatively shortterm management contract (with little or no capital structure); through concession contract (which may encompass the design and build of substantial capital assets along with provision of a range of services and the financing of the entire construction and operation) to joint ventures and partial privatization where there is a sharing of ownership between the public and private sectors (World bank, 2017).

Compared with other public service infrastructure sectors, the field of wastewater service is characterized as a large capital investment in infrastructure. Wastewater assets also have a very long life of several decades or longer, and are often installed well in advance of demand. In addition, most of the wastewater field's assets are barried (Jennifer, 2005). That may cause information asymmetry and high risk that are challenges in PPP application.

Application of PPP model has attracted a lot of attention from both practitioners and scholars. Many researchers (eg. Al-shareem, 2014, Ismail, 2013, Babatude et.al. 2012) examined critical success factors for a PPP project. Examples of success factors are appropriate risk allocation and sharing, favourable condition, favorable legal framework, well organized public agency, government support and competencies, commitment of public and private party, strong private consortium, availability of financial market, transparency and competition in procurement and so on. This study groups factors into three dimensions: 1) institutional dimension, Financing and payment dimension; and related parties' competencies.

Institutional Dimension

Casady et al. (2020) stress that institutional constructs such as legitimacy, trust, and capacity are crucial to mature PPP market formation. Because institutions are influenced by a combination of regulative, normative, and cultural-cognitive pressures. Institutions establish the 'rules of the game' in society (North, 1990). Strengthening institutions is thus crucial for fostering private sector participation in PPP models (Carbona and Pellegrino, 2014). Prager (1994) believes that degree of private participation depends on their belief in the transparency and fairness of the government in the bidding process, and the implementation of commitments in contract enforcement. Thus, the institutions need to be transparent to create confidence in the fairness of the bidding process. In addition, Monga & Sharma (2016) argue that competition among bidders is very important, it increases the power of the principal and is the driving force for bidders to offer lower or improved contract prices, better service quality. Competition combined with competitive bidding reduces losses arising from collusion, corruption, and other abuses of position and power. Therefore, competition in bidding contributes to budget savings for urban authorities. This implies that the government needs to have policies to encourage and attract the private sector to participate in the field of public services and create a fair competition among bidders. Consistent with previous researchers' arguments (eg. Prager, 1994), Ngullie et.al (2021) listed factors including lack of regulatory or policy framework, lack of sufficient transparency and openness in the procurement process, and lack of public awareness, lack of fair competition, vague contracts, absence of competitive bidders, shortcoming of fixing qualification criteria, flaws in tendering process that have adversely impacted the performance of PPP projects in India.

Financing and payment mechanism Dimension

Compared with conventional provision, a PPP is characterized as a single long-term contract including investment and service provision. The PPP contract typically lasts several decades, the concessionaire manages and controls the assets, usually in exchange for user fees and government transfers, which compensate for investment and other costs. At the end of the concession, the assets revert to government ownership (Engel et. al., 2013). Large scale wastewater infrastructure investment with very highrisk level tends to present challenges. Investors only participating in PPP projects if they can access to an adequate financing (Ngullie et.al., 2021). Thus, on the one hand, investors' financial capacity themselves is very important. On the other hand, the availability and accessibility to

attractive and flexible instruments like equity, debt, securities, is also a critical factor facilitating private investor participation (Ngullie et.al., 2021).

As regards payment mechanism, there are various methods used to pay private parties for providing services to users. The fund used to pay can come entirely from users' fee, or be provided only by public partners, or combined by the two methods (World bank, 2017). In context of state budget's shortage, fund from users' fees is very important. There is a global trend "the polluters pay" and wastewater tariff systems that are on cost recovery basis are designed to transfer costs to users (Lima et.al., 2021). The payment mechanism is considered as central to a public-private partnership contract, providing the agreed means of allocating risk between the public and private sector partners

Related PPP parties' competencies dimension

All three stages of a PPP project including pre-bid stage; 2) the contractor selection stage; 3) contract monitoring phase are all complicated. The need for unique skills and competencies to effectively manage PPP arrangements is an important issue, especially for public partners. PPP contracts are generally medium or long term, so conflicts can arise if public partners fail to prepare adequately for projects, design contracts badly and neglect to develop effective monitoring plans (Ameyaw and Chan, 2015). Thus, for public partners, sufficient competencies of public relative authorities help reduce the risk of adverse selection, it enables to select the "right" contractors.

Mistarihi et.al., (2012) indicated four groups of competencies: 1) personal qualities and attributes; 2) experiences; 3) knowledge and 4) training and qualifications needed for both partners to effectively manage PPP arrangements. Specifically, for personal qualities and attributes, adaptability and flexibility, and patience and self-motivation were important. The PPP managers need a set of skills such as social and interpersonal skills, 'scoping in/out' ability, conceptual skills, project management skills, and communication and coordination skills. PPP managers should have sufficient technical and project management experience, as well as experience in negotiation and arbitration. In addition, PPP managers should be knowledgeable and qualified to manage the construction, operational and the financial aspects of the PPP project. They should also be familiar with, and use specialized programming and scheduling techniques.

The above analysis allows to develop an analytical framework on dimensions affecting the PPP model application. The analytical framework will orient the discussion on the current situation and causes of shortcomings in PPP model application in the urban wastewater sector of Vietnam.

2. Method

The research objective is to analyze the current situation and challenges in application of PPP models in the urban wastewater sector in Vietnam. The research applies a combination of methods, including policy analysis, interviews with experts and practitioners, and the author's practical experience from working with urban administrations and service providers in the urban wastewater sector. Specifically:

As regards policy analysis, the author analyzes regulations related to PPP application in general and for the wastewater sector, to assess institutional factors, consistency and clarity in policy.

As regards interviews, the author conducted interviews with GIZ project experts, leaders and officials of the Department of Construction of some provinces and cities under the GIZ projects

Collected data is aggregated, compared and analyzed in accordance with the dimensions shown in the analysis framework.

3. Results

3.1. Current status of physical wastewater infrastructure in Vietnamese urbans

In Vietnam, urban drainage infrastructure lags regional countries such as Indonesia, Thailand. Urban drainage systems in most cities in Vietnam are combined systems of storm water and wastewater and have no wastewater treatment plant. Until now, the State budget is the main financing source for construction, renovation and upgrading of wastewater infrastructure and also for operation (World Bank & AUSAID (2013). Due to budgetary constraints, the capacity of the system in urbans are lagging behind increasing requirements driven by the rapid urbanization and economic growth. That results a low service coverage of average 40-50 percent (MOC, 2016) and there is about 10 percent of wastewater has been treated. Poluted wastewater has been negatively impacting town people's health.

Vietnam is facing high demand for wastewater infrastructure. According to Lambert (2021), investment need to close the infrastructure gap (including wastewater infrastructure) in Vietnam is significant. By 2030 will need about \$237 billion for infrastructure investments that budget cannot afford it. Thus, PPP for infrastructure in general and for the wastewater sector could help to address the shortages.

3.2. Institutional setting and PPP application in the wastewater sector

PPP application has been implemented since 1997 in accordance to decree 77 (Government, 1997) and it is then amended several times. On June 18, 2020, the National Assembly of Vietnam passed the Law on Public-Private Partnership (PPP Law) which establishes an umbrella legal framework for all PPP projects and aims to attract more private investment to the development of Vietnam's infrastructure including urban wastewater infrastructure. The PPP Law was effective since January 1, 2021, and replaces the previously issued PPP regulations.

In line with international practice, the PPP Law no longer recognises the Build-Transfer model (BT) of PPP investment under which investors could recover their investment by exchanging BT projects for land use rights to be used for other projects. As a result, there are now seven types of permitted PPP investment models: Build-Operate-Transfer (BOT), Build-Transfer-Operate (BTO), Build-Own-Operate (BOO), Operations and Maintenance (O&M), Build-Transfer-Lease (BTL), Build-Lease-Transfer (BLT), and mixed contracts combining (a) BOT, BTO, BOO or O&M and (b) BTL or BLT.

As off January 2019, there was 336 PPP projects with total investment capital of VND 1,609,335 billion, of which PPP in transportation accounted for majority of 220 project with VND 672,345 billion. Of 336 PPP projects, there were 140 BOT, 188 BT and 8 others.

PPP contracts related to infrastructure were mainly paid by cash or by land (BT). Water, wastewater and environmental sector accounted for small part with 18 projects and VND 21,716 billion (MOC, 2021). Up to date the wastewater sector is not attractive for PPP contracts. There are few private companies participating BT contracts that that are land exchange for infrastructure and contractors were directly appointed but not through bidding process. Related to implementation, practical evidence showed that there are existing interest conflicts between the public and private sector due to not good contract preparation, not effective risk sharing mechanism and loose contract's terms.

3.3. Challenges for PPP application in the wastewater sector in Vietnam

The previous regulations and now PPP Law have paved the way for PPP application in the wastewater sector. However, evidences from the research indicated that there have been many difficulties and challenges for this process as follows:

Institutional challenges

The government has issued general policies to PPP application since 1997. However, legal framework is immature and still evolving. There is lack of specific incentive policies for firms participating into the wastewater sector. In addition, PPP project's implementation is affected by other laws and regulations such as Budget Law, Public investment law, Enterprise Law, Construction Law etc., and there are gaps, inconsistencies and overlaps in the policy and regulatory framework. Interviewees said that in bidding process, criteria for contractor selections are based more on input but not output factors of public goods and services. This limited competition as many investors can not meet requirements related to PPP project's experiences. In addition, regulated selection criteria are general for all sectors but not specific for the wastewater sector. This is difficult for application. Interviewees contended that there is still lack of transparency and in many cases, direct contracting arrangements instead of competition is still the major method to choose the contractor. That leads to some irrelevant contractor selection and reduce beliefs of investors

Financing and Payment challenges

Most private firms in wastewater sector are small and medium enterprises with limited financial capacity. In order to able to participation in PPP projects, accessibility and availability to financing sources are important. However, commercial loans from domestic commercial banks are not used extensively in the wastewater sector. In cases, domestic private investors can borrow from domestic commercial banks, they were charged with high interest rates of 9 to 11 percent meanwhile international investors can borrow in international capital markets with much lower interest rates of about 5 to 6 percent (MOC, 2021).

Though, bond and equity are methods commonly used to raise fund for municipal infrastructure in developed countries. However, capital market is still under-developed, application of these financing methods is limited in Vietnam, especially for firms in the wastewater sector. In addition, according to experts, under PPP law, introduction of minimum investment requirements and the removal of step-in rights for lending banks, investor's rights to transfer its rights and/or obligations under a project contract may affect the ability of investors to raise funds for a PPP project in private and international lending markets.

The government (2014) stipulated the application of wastewater tariff to replace the very low environmental fees (environmental fee as regulation to not exceed 10 percent of water tariff) to mobilise contributions from service users and increase capital for the wastewater sector and reduce municipal budget's pressure. However, to date most urbans still apply environmental fees of about less than VND 500 per m³ of water. Some urbans introduced wastewater tariff. However, most applied wastewater tariff is still low and can cover 30 to 50% of operation and maintenance costs. In addition, standard profit stipulated by MOC (2015) for contracts in the wastewater sector must not exceed 5%. Meanwhile, revenue guarantee, borrowing guarantee under PPP Law is still unclear. Experts believe that these factors are also the reasons, PPP models are not attractive for private investors' interest.

Challenges related to related partners' competencies

Though PPP models are commonly used over the world. This is still not popular in Vietnam. One important barrier is that relative parties both public parties and domestic private parties have very little knowledge, experience and skills related to PPP project management. This is more problematic for public parties. In Vietnam, most expertise for PPP and infrastructure is at the central level. However, province and city administrations do not have the capacity and human resources to effectively prepare PPP contracts including the calculation of the contract value.

The cost norms for O&M activities for all elements of the drainage/sewerage system are either lacking or inappropriate. This limits effectiveness and efficiency for provincial authorities to review and appraise the annual O&M costs and contract value. In addition, there is lack of clearly defined and measurable outcomes. The technical specifications for O&M of drainage/sewerage systems is a key obstacle. However, the existing specification are out-of-date or do not cover all elements in the drainage/sewerage system.

4. Conclusion

Application of PPP models for provision of wastewater infrastructure and service is a trend around the world. It is considered as efficient method for better service at lower costs at the same time reducing budget pressure for government. Nevertheless, there are still challenges related to institutional, financing and administration's competencies that make the PPP model application in the urban wastewater sector of Vietnam not attractive.

In order to foster PPP model application in the wastewater sector in incoming years, the government should enhance PPP legal framework. Policies, support mechanisms should be specific, transparent and feasible for the wastewater sector.

As regards financing channels, development of alternative financing scheme for the sector should be implemented. Specifically, wastewater tariff based on "cost recovery principles" should be widely applied to replace low environmental fees, capital markets including bond and stock markets should be improved and developed.

As regards the public sector, public administrators, especially at provincial and city level should be equipped with knowledge, skills to develop standard contract templates and draft PPP contracts, implement and control contracts through training courses. Lessons learned from best practices of PPP application in the sector around the world be also helpful.

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INFRASTRUCTURE PLANNING AND IMPLEMENTATION IN VIETNAM

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Abstract

Massive funds have been injected in infrastructure construction in developing countries to support economic growth and their integration into global markets. However, whether these funds would improve the nation's public infrastructure in the long-run depends on how well infrastructure is planned and built. Based on an extensive literature review, this paper identifies a number of deficiencies in the planning and policy making process, as well as in the implementation of infrastructure plans. This paper aims to show policymakers that the critical challenge faced by developing countries in infrastructure construction is thus not about the funding but should be more about effective planning and implementation for long-term benefits.

Key words: *urbanization, planning, infrastructure*

1. Introduction

Infrastructure is core to growth process in different regions across the globe. The outcome of economic growth due to advancement of infrastructure has welfare enhancing effects in a country and lowers inequality levels (Bhattacharya et al., 2015). Increased infrastructure development can promote economic growth by at least 2 percent per year; this is true for different developing economies in Africa, Latin America and Asia (Calderon and Serven, 2010). It increases the productive capacity and sustains development. Infrastructure consists of capital-intensive natural monopolies, physical or organizational structures, which are needed for the operation of a society and functioning of an economy. Examples include communication systems, highways, water and sewer lines, health, education and transportation facilities etc. Most of these systems are owned by government. Economic infrastructure includes transportation and communication facilities, whereas water and sewer lines, health centers and educational institutions are included in social infrastructure. However, the poor quality and inadequacy of infrastructure thus become one of the major development challenges in many developing countries. Considerable financing is required to meet large scale infrastructure expansions in developing economies. As a result, the literature is dominated by studies focusing on potential difficulties in project financing for infrastructure development (Davis, 2008; Arnold, 2011).

Globally, government investments accounted for 78% of total investments in infrastructure construction from 1994 to 2003 (Estache, 2006; Kenny, 2007). However, the empirical analysis by Flyvbjerg (2007) indicated that cost overruns, benefit shortfalls and

waste were found in most infrastructure projects around the world. The low efficiency and quality of public investments in infrastructure found in these studies suggest that there are important issues beyond the difficulties in project financing for infrastructure development. A focus on financing issues therefore does not provide a comprehensive answer to the infrastructure development problems in developing countries.

Some studies focus on the planning and policy making aspect of infrastructure development (Mustajab, 2009; Marshall, 2011). Other empirical studies show that there are still a number of issues (for example delay, cost overruns, quality, safety and productivity) in infrastructure construction to transform these master plans into physical infrastructure capital (Toor and Ogunlana, 2008; LaFraniere, 2011). Reviewing the literature on problems in infrastructure planning and delivery in developing countries thus would be important for the governments to cut down costs and waste, thus enhancing the efficiency of public investments in infrastructure, and meeting development goals.

Problems in infrastructure planning in developing countries

There are a number of issues relating to the quality of infrastructure planning outcomes, including the absence of an adequate problem analysis, lack of alternatives, ambiguities about the effects of improved infrastructure on the development of a wider area, inadequate research of the interaction across infrastructure sectors, and underestimated costs and overestimated benefits (Estache and Fay, 2007; Priemus, 2010). The poor quality of infrastructure planning outcomes would thus result in bad policy choices, which subsequently have a wider effect on the economy. Although infrastructure planning tools have recently been developed (Schweikert and Chinowsky, 2012; World Economic Forum, 2012), there are deficiencies in the capacities required for using these tools. Tackling deficiencies in planning and policy making capacities of governments can therefore play a crucial role in determining the efficiency of public investments in infrastructure for trade and economic growth in developing countries. Reviewing the literature on government planning, especially in the area of infrastructure development, the following factors can be attributed to deficiencies in the infrastructure planning and policy making process.

Capacity for estimation and monitoring of rates of return of projects

Unexpected infrastructure planning outcomes can first be explained by the lack of capacity for estimation and monitoring of rates of return of projects, including limitations of forecasting methods and appraisal techniques; inadequate data; inherent problems in predicting the future and monetizing external and indirect effects; lack of experienced forecasters; lack of quality checks on planning outcomes; and inadequacy in routinely ex post analysis and external audits on whether policies and projects meet objectives (Short and Kopp, 2005; Collier and Venables, 2008).

Politicized decision making

Besides these technical factors, failures of the planning process could be explained by the political factor (Devarajan and Swaroop, 1993; Todaro and Smith, 2003). Political leaders and government bureaucrats can use investments in infrastructure construction as a tool for securing political positions or competing for scarce funds. Lack of commitment of

political leaders and government bureaucrats to national goals could therefore make infrastructure planning and decision making politicized rather than rationalized. In addition, powerful groups with vested interests can create pressure to affect the planning that serves their own interests (Todaro and Smith, 2003).

Transparency and accountability

Infrastructure planning and policy making processes are rarely fully transparent to the public. Forecasting methods, criteria of project selection and the determination of planning objectives are often not made available for consultation with the interested or affected individuals or groups. Independent peer reviews and quality checks on forecasts and planning outcomes by independent-review bodies and the scientific and professional community are not sufficient. Lack of penal systems to enforce penalties on those that deliberately and consistently produce deceptive forecasts is also attributable to the accountability problem (Short and Kopp, 2005; Flyvbjerg, 2007).

Institutional weaknesses in planning

Since planning and policy making for infrastructure is a multi-actor process, nurturing of an institutional capacity that coordinates efforts and resources is considered one of the determinants of infrastructure development (Mody, 1997). However, there are a number of institutional weaknesses of the planning processes of most developing countries, including the poor communication between the planning agency and the day-to-day decision-making machinery of government; intersectoral rivalries; lack of interaction between political leaders, planners with non-governmental actors; incompetent and unqualified civil servants; as well as complicated and bureaucratic administrative systems (Todaro and Smith, 2003).

Problems in delivery of infrastructure in developing countries

While there may be widespread agreement with a policy of supporting the increase of infrastructure investments for trade and economic growth, there are concerns in infrastructure construction. In recent years, governments, especially those in developing countries, such as China and India, have initiated ambitious infrastructure investment plans (Arnold, 2011). Empirical evidence in developing countries has shown that even if sufficient investments are raised, there are still a number of issues in infrastructure construction (for example, delay, cost overruns, quality, safety and productivity) to transform these master plans into physical infrastructure capital (Long et al., 2004; Le-Hoai et al., 2008; LaFraniere, 2011). To improve the quality and efficiency of infrastructure investment and planning, these issues in the implementation of infrastructure development plans need to be examined.

Political commitment

Studies on infrastructure development in East Asia have emphasized that sustained and powerful government leadership is crucial (Mody, 1997). Infrastructure development involves a long-range vision that sustained commitment from the government is essential to support the development of a concrete strategy and subsequent actions. Lack of political commitment thus could have direct effects on the implementation of infrastructure

development plans (Waterston, 2006). Lack of political commitment could be the result of political discontinuity, political inconsistencies at the national level and between different tiers of governments, and lack of a high-powered government institution that provides an effective mechanism for implementing national infrastructure plans (Priemus, 2010).

Corruption in infrastructure construction

Construction, in particular infrastructure construction, continues to be ranked as one of the most corrupt sectors worldwide. Corruption in the sector occurs in all stages from securing government contracts to the delivery of infrastructure. Major impacts of corruption in infrastructure can lead to poor construction, limited occupational safety and low returns to government infrastructure investments (Kenny, 2007). There are a number of causes of corruption in infrastructure construction, including the lack of transparency and competitiveness in bid processes, the discretionary power of individual bureaucrats involved in the award of contracts, inadequate financial and physical auditing, and inadequate capacity of regulatory bodies to enforce regulations (Kenny, 2007, Dabla, 2011).

Land acquisition

Problems in land acquisition can cause substantial delays and cost overruns in infrastructure construction (Priemus, 2010). In many developing countries, land acquisition is considered one of the major barriers to governments' plans to develop infrastructure (Agrawal, 1999; Morris, 2007). Major problems in land acquisition for infrastructure in developing countries can include poor compensation and undervalued market price of land. Several causes for these problems can be identified, including lack of a negotiating mechanism to make land acquisition compensation more market-oriented; bureaucracy in settling land disputes and claims; lack of a land acquisition compensation monitoring system; and lack of clarity about compensation valuation methods, lack of law enforcement to regulate land price speculation (Chan, 2003; Raghuram et al., 2009; Widhiarto, 2011).

Building capacity of local firms

Various construction components, including finance, technology, management, materials and labour are required in the construction of infrastructure projects. The inadequate capacity of the domestic construction firms in developing countries to meet the level of construction activities required for the construction of infrastructure could thus affect the implementation of infrastructure development plans. Moreover, the inadequate capacity of the domestic construction firms could lead to increasing foreign participation, which in turn could limit the opportunities for local firms to win contracts and for the local labour to gain employment (Raftery et al., 1998). Current issues pertaining to the capacity that domestic construction firms in developing countries are facing include poor level of efficiency and quality of work; poor level of professionalism and entrepreneurship; and resources shortages, especially in construction technology, management and finance (Howes and Robinson, 2005; Ofori, 2012).

Institutional and legal weaknesses in infrastructure construction

Other concerns involve institutional and legal weaknesses in infrastructure construction, including obsolescence of building regulations, changing and inconsistent law

and regulations, ineffectiveness of implementation of existing statutes and codes, and bureaucracy in formal procedures relating to project planning, construction permissions and administration (Raftery et al., 1998; Ofori, 2012).

2. Method

Article implementing qualitative research methods, based on data and documents from ADB, WB, other agencies and organizations, the author synthesizes, analyzes, compares, evaluates, draws comments and recommends solutions according to the goals of the article.

3. Results

Quality infrastructure is central to economic development. Despite spectacular progress over the past two decades, Vietnam will need to invest more and better to catch up with more advanced countries in terms of infrastructure development. This will require spending existing resources more efficiently by improving the planning and execution of projects, including procurement, and greater attention to maintenance spending, which has been neglected.

The success of a country is often measured by the quality of its infrastructure. Prosperity requires connective infrastructure and good access to services such as electricity and water. All high-income countries are unambiguously among the economies with the best infrastructure (figure 1). The strong and positive correlation between infrastructure level and economic growth (as well as poverty alleviation) has been well evidenced by a number of empirical cross-country studies, which have estimated that a 1 percent increase in physical infrastructure stocks, given other variables, temporarily raises GDP growth by as much as 1 to 2 percentage points, although the growth acceleration gradually tapers off as the economy approaches its long-term per capita income.

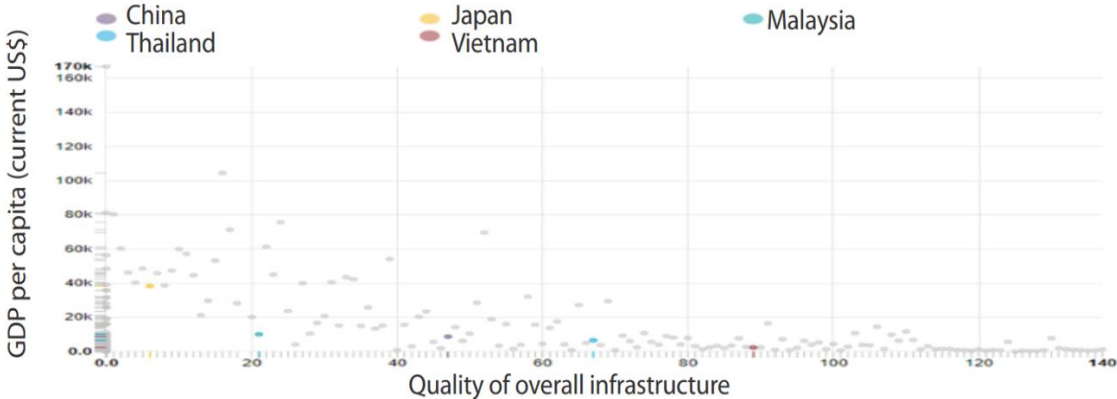


Figure 1. The close and positive correlation between infrastructure quality and economic development, 2017

Source: World Economic Forum

Vietnam has made spectacular progress over the past two decades, building roads and ports and making access to electricity almost universal. However, the country will have to respond to the fast-growing demand for infrastructure services due to the rapid economic

growth and demographic transition. For example, current demand projections for electricity show a dramatic increase from 47.9 gigawatts of installed capacity in 2018 to 60 gigawatts in 2020 to 129.5 gigawatts in 2030. Vietnam will also have to invest more and better as it still lags more advanced comparators in most infrastructure indicators. According to the World Economic Forum’s Global Competitiveness Index, the quality of Vietnam’s infrastructure ranks about 80th out of 137 economies worldwide, ahead of some neighboring countries such as Cambodia, the Lao People’s Democratic Republic, and the Philippines, but behind other regional peers such as China, Indonesia, and Thailand.

To deliver more and better infrastructure, Vietnam is facing several strategic decisions. In an ideal world, infrastructure should be provided to everyone and everywhere. Yet, countries are facing difficult budget constraints that force them to make choices. For Vietnam, infrastructure needs are estimated at US\$25 billion to US\$30 billion per year over the past decade, which is greater than the government’s financing capacity, which has been about US\$15 billion to US\$18 billion per year in recent years (or around 7 percent of GDP, which is 3 percentage points higher than the world average). While these projected figures are debatable, they strongly suggest that improving the efficiency of spending, and ensuring adequate financing, will be critical in the coming years (figure 2).

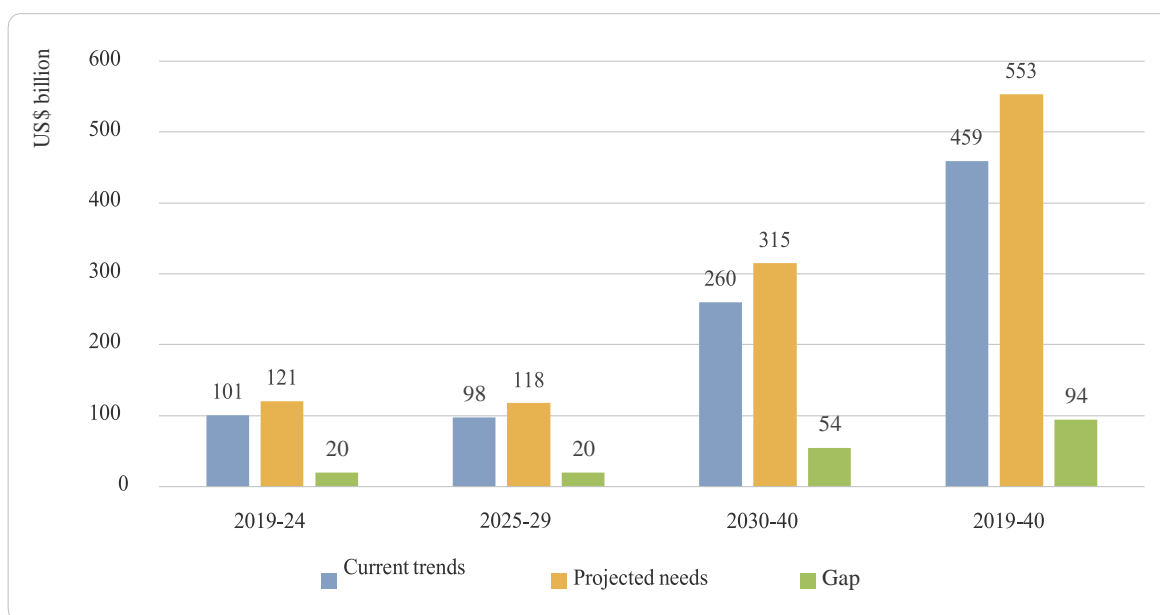


Figure 2. Investment needs and financing, 2019 - 2040

Source: Global Infrastructure Outlook, <https://outlook.gihub.org/countries/Vietnam>

There is abundant evidence that Vietnam’s infrastructure investments are not as efficient as they could be. If the government has spent a large proportion of its budget on infrastructure— as much as 10 percent in 2010 and an average of 7 percent in recent years— the results have not been positive in all sectors. Benchmarking Vietnam’s utilities across other Asian economies shows that Vietnam has done relatively well in the energy sector, with good coverage of domestic needs, even though the transmission network still suffers from underinvestment and poor maintenance. The performance of the transport sector is also

viewed as reasonably good, with major improvements reported in roads, ports, and airports during the last decade. Weak planning and coordination across jurisdictions have, however, contributed to lower efficiency. For example, highway projects that provide access to inland container depots, marine ports, and airports are seldom planned and implemented as integrated systems. By contrast, reliability of the water supply has declined in recent years as more customers are experiencing water outages (from 3.2 percent to almost 10 percent) and suffer from a deterioration of quality. The performance on wastewater collection, treatment, and reuse is one of the worst in the region, with only 4 percent of urban households having piped sewerage, and only half of the wastewater collected being treated.

The uneven performance of the infrastructure sector in Vietnam is rooted in two major causes. The first cause is the selection and implementation of infrastructure investment projects that are not always adequately screened, well prepared with alternative analysis, coordinated to ensure their economic viability, or implemented at least cost. The second cause is the systematic shortfall in infrastructure maintenance, which increases lifecycle costs.

There is an unequal application of least-cost planning approaches in Vietnam. The selection of efficient projects is generally achieved through least-cost planning, which is a process in which demand is estimated and the most cost-effective interventions for meeting that demand are systematically identified. Ideally, demand management approaches should be considered alongside supply expansion as alternative ways of achieving supply-demand balance. Least-cost planning calls for strong local capacities to examine all available options in a comprehensive and even-handed manner. Good sector data and modeling tools provide a solid basis for least-cost planning. The analysis should use whole life cost accounting to ensure that solutions are found that are cost-effective to build and operate.

While such approaches are applied in the power sector, they are not used with consistency in other sectors. The main reason appears to be in the fragmentation of the decision processes between the central and local governments. Today, despite recent efforts to rationalize processes, the planning system in Vietnam is characterized as institutionally complex with overlapping and overproduction of plans—around 20,000 plans, guided by more than 70 legal documents and 70 decrees. These plans are prepared by different ministries or departments, often based on different schedules, and use inconsistent data and projections for planning. There are virtually no effective mechanisms for interprovincial, intercity, or inter-district coordination, resulting in over-competition for resources and duplication of infrastructure such as ports, airports, and industrial parks.

Another reason for the inefficiency in the infrastructure sector lies in the limited capacity of local governments and the lack of coordination among the different levels of governments. Local authorities are now responsible for 60 percent of total public expenditures, up from 35 percent in 1996 and well above the average of 25 percent in developing economies. While local autonomy and competition contributed greatly to the dynamic economic and social progress at the local level in Vietnam, it also exacerbated the need to strengthen planning and management capacity at the local level and to improve coordination across regions and between the local and national levels. Unfortunately, as recognized by top policy leaders, little progress has been realized in Vietnam.

Institutional fragmentation and limited local capacity greatly complicate the infrastructure planning process, and failures to coordinate across spatial or sectoral jurisdictions can lead to costly mistakes in project selection. This problem is particularly salient when it comes to transportation networks, because, while the transport network needs to function as a national multimodal integrated system, the division of institutional responsibility further prevents the relevant decision makers from optimizing and planning infrastructure accordingly. Vietnam has recently advanced its decentralization agenda, with a focus on planning and programming of infrastructure investments to the provincial level. However, recent studies suggest a significant disconnect between planned investments and effective demand. Individual provinces tend to identify and undertake their own infrastructure plans and projects, which end up competing against each other rather than being strategically coordinated. Worse, there is rarely adequate coordination of planning between port facilities and critical connecting infrastructure such as road and rail. In water supply, where cross-province solutions are required, the legal, regulatory, and institutional frameworks to share water resources are also lacking. Similar challenges arise in the planning of urban infrastructure and even irrigation, which is explained below.

Even when the right projects are selected, many suffer from long delays and excessive costs during implementation. These inefficiencies arise from different sources, but a problematic area appears to be procurement. Competitive procurement is legally the default mode of public procurement in Vietnam, but it is not typically adhered to. For example, in 2017, almost 70 percent of all public contracts were directly contracted, accounting for about 13 percent of the total value of public contracts. The preliminary results of an ongoing World Bank study on a sample of contracts indicate that even when competitive bidding was used, the level of competition was low due to a limited number of accepted bids. Furthermore, some legal documents issued for specific sectors still allow wide use of direct selection, which explains why direct selection accounted for 69.2 percent of the total number of contracts awarded, while the saving percentage from this procurement method is only 2.62 percent, much lower than the average of 6.98 percent. Another practice that compromises the value for money is the manipulation of evaluation criteria or choice of inappropriate contract types to allow adjustment of unit prices. While the application of e-Procurement (e-Bidding and e-Shopping) has generated some savings (on average 8.2 percent), the volume of contracts subject to competitive procurement was only 28 percent in 2018.

Insufficient maintenance spending of existing projects

Operational efficiency is achieved when the costs of running an infrastructure service are kept close to the technically feasible minimum. Once capital investments have been made, the resulting assets are used to deliver a variety of infrastructure services, typically incurring additional costs to operate the system. In the case of infrastructure, a major component of operating costs is asset maintenance. Good maintenance generates substantial savings, reducing the total life-cycle cost of transport and water and sanitation infrastructure by more than 50 percent, and also increases the lifetime of assets. As an illustration, a recent study by the OECD suggests that each additional US\$1 spent on road maintenance saves US\$1.5 in new investments, making better maintenance a very cost-effective option.

Despite high levels of infrastructure investment in Vietnam, maintenance budgets have typically not been adequately funded. Every time a new infrastructure asset is built, an ongoing maintenance liability is created, which is not factored in during procurement. The rule of thumb is that maintenance needs are approximately half of investment needs in the water and transport sector, which is far from reality in Vietnam. For example:

- **Water.** In inland waterways, despite the recent increase in the level of Vietnam Inland Waterways Administration operations & maintenance (O&M) funding allocated through the state budget, the backlog is significant and falls well short of the sector's needs. Similarly, the irrigation systems in Vietnam are servicing well below their designed capacities in part due to deferred maintenance. In fact, about 70 percent of the total O&M budget provided by the government is currently used to cover the administrative costs of irrigation management entities, and only the remaining 30 percent is used for maintenance activities, which is inadequate.

- **Transport.** While Vietnam has a complete road network with a relatively high road density of about 0.87 kilometers of road per square kilometer, the full potential of such a network is hindered by its poor condition due to low levels of maintenance and maintenance financing. The current level of maintenance expenditures is estimated at around 10 percent of capital investments in this sector, far from the 22 percent in Bangladesh, 30 percent in OECD countries, and 37 percent in Indonesia. This maintenance shortfall exists despite the dedicated Road Maintenance Fund in Vietnam established in 2012.

Vietnam has been relying primarily on public investment to finance infrastructure expansion, with private investment in infrastructure limited to less than 1 percent of GDP over the last decade, which was captured almost entirely by the energy sector. The government has justified its reliance on public investment on the grounds that it has a strong commitment to improve infrastructure and, thus, meet the basic needs of the population. It has also justified its reliance on the large amount of concessional financing made available by development partners, representing up to half of public financing in these sectors during the past decade.

However, this reliance almost exclusively on public financing may have reached its limits, for at least two reasons. First, the authorities have opted to disproportionately favor current users at the expense of taxpayers and future generations, by applying low tariffs and by subsidizing them. Second, concessional financing has almost disappeared for Vietnam as the result of its graduation from the World Bank and Asian Development Bank concessional lending programs. Going forward, the authorities will have to pay market rates to finance their investment program in capital markets.

4. Discussion and Conclusion

To meet the huge demand for infrastructure, increasing infrastructure investments are encouraged in developing countries. However, empirical evidence has shown that these development objectives might not be realized as expected due to the low efficiency and quality of administering these public investments. Several studies have found that the low efficiency and quality of public investments in infrastructure could be attributed to

deficiencies in the planning and policy making process (Todaro and Smith, 2003; Flyvbjerg, 2007; Priemus, 2010). In addition, there are concerns about the implementation of infrastructure development plans that could affect the quality and efficiency of public investments in infrastructure (Kenny, 2007; Dabla-Norris et al., 2011). This highlights the importance of bringing these issues in both planning and implementation processes together and looking at them through the role of the government as coordinator and facilitator of overall economic development. A number of issues were identified, notably inadequate capacity for estimating and monitoring of rates of return of infrastructure projects; politicized decision making; transparency and accountability problems; institutional weaknesses in decision-making; lack of political commitment in the implementation of infrastructure development plans; corruption in infrastructure construction; problems in land acquisition; local construction firms' capabilities and resource shortages; and institutional and legal weaknesses in infrastructure construction. In order to improve the efficiency of government funding invested in infrastructure to support trade growth and economic development, these issues must first be resolved.

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LAND PRICES IN VIETNAM: INADEQUACIES, LIMITATIONS AND SOLUTIONS

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Abstract

The purpose of the study is to clarify the current situation of residential land prices in Vietnam, the shortcomings and limitations of prices, and the valuation methods being applied in Vietnam; Identify the causes that lead to the difference between the regulated land price and the market land price, the shortcomings in the land valuation methods currently being applied in Vietnam, and then propose solutions to overcome the above shortcomings and limitations. The proposed solutions include: completing and comprehensively renewing the land valuation system; completing the legal framework to promote the implementation of land auctions for all purposes; researching to create official information channels, reliable enough, to meet practical needs to timely reflect fluctuations in market prices; strengthening the inspection and inspection of the implementation of the land use planning; detecting and promptly handling acts of using land in contravention of planning and using land for improper purposes.

Keywords: *Land values; Land price; Land price in Vietnam*

1. Introduction

According to (Verheye, 2009) land is one of the assets of great value. Land prices are determined by supply and demand mechanisms and profitability. Land prices are the primary basis for valuing real estate, determining the influence of the economy on land use policy, and calculating taxes on real estate revenues (David and Gabriel, 2013). The land price is determined by the economic principle of highest and best use of land which produces the highest net return in any term, over a period of time (Dang and Nguyen, 2005; Phan et al., 2017). The lack of reliable nationwide databases on land transactions also makes it difficult to estimate land price exactly (Phan et al., 2017). In Vietnam, the land is owned by the entire people, land price is the value of land use rights, calculated per unit of a land area prescribed by the State or formed in a land-use right transaction. Therefore, the implication of land price is not the same as that of countries with multiple land ownership (Phan and Pham, 2020). There are two types of prices, including land prices regulated by the state and land prices successfully traded in the market, also known as market prices. Both types of land prices mentioned above are closely related and influence each other, they are affected

by the laws of the market economy, in which the market land prices are usually established before land prices regulated by the state. State land prices are set in a relatively static state, while market prices are usually in a dynamic state (Ho, 2005). There is always a difference between the land price regulated by the state and the market price, the land price list next year is often higher than the previous year (Bui, 2004). Therefore, this article will illustrate the current situation of land prices in Vietnam and clarify the shortcomings related to land prices in Vietnam, thereby proposing solutions to limit the above shortcomings.

2. Method

Data related to land prices were collected from scientific articles, and research works published in prestigious domestic and international journals. In addition, the study also used official documents issued by state agencies. The study also used analysis, synthesis, and comparison methods to evaluate the strengths and limitations related to land prices in Vietnam as a basis for recommendations.

3. Results

3.1. Land price and some regulations of land prices in Vietnam

3.1.1. Land price

Price is a parameter to express the value of an object or a property. Price, expressed in money, is the generally accepted means to compare values in a market (Verheye, 2009). According to Walters (1983), the price of land corresponds the value of ownership of stipulated rights in perpetuity and is equal to the estimated present value of the expected future appropriations of rents. According to Phan et al. (2021), in countries with market economies, land prices are understood as an expression of the value of land ownership. However, it is also affected by uncertainties about net rent, interest rates and inflation. In other words, the value of land depends as well on the evolution of rent (Walters, 1983).

In Vietnam, according to the provisions of the Land Law 2013, land belongs to the entire people with the State acting as the owner's representative and uniformly managing land. The State shall grant land-use rights to land users. Thus, the land price means the value of land use rights, not the value of land ownership. Value of land use rights means the monetary value of land use rights over a specified land area during a specified land use term (The National Assembly, 2013). Many studies have shown that land value and land price are not synonymous but are closely related (Morris, 1979).

3.1.2. Some regulations of land prices in Vietnam

In Vietnam, the State shall prescribe the principles and methods for land valuation. Article 4 of Decree 44/2014/ND-CP stipulates 05 methods of land valuation: (i) direct comparison method; (ii) subtraction method; (iii) income-based method; (iv) surplus-based method; (v) land price coefficient using method. With each method of land valuation, the State has specific regulations on conditions to apply land valuation accordingly. However, there are still many shortcomings related to land prices, posing great challenges to the field of land management. The State shall promulgate land price brackets and tables, and decide on specific land prices (State regulated prices). Besides these prices, there are also market land prices.

The land price bracket shall be formulate by Ministry of Natural Resources and Environment and request the Government to promulgate it every 5 years. If the common

market price of land increases by 20% or more in comparison with the maximum land price in the bracket or decreases by 20% or more in comparison with the minimum land price in the bracket, the Government shall adjust the land price bracket.

Land price tables is also issued every 5 years. Provincial-level People's Committees, based on local realities, are allowed to set the maximum land price in the land price list, the adjusted land price list is no more than 20% higher than the maximum price of the same type of land in the land price bracket. Provincial-level People's Committees, based on local realities, are allowed to determine the maximum price in the land price list, the adjusted land price list according to the provisions of Decree No. 44/2014/ND-CP. The land price list is publicly announced on January 1 of the first year. During the implementation of the land price list, when the Government adjusts the land price bracket or the common land price in the market fluctuates, the People's Committee of the province shall adjust the land price list accordingly.

Specific land price is the land price determined according to a specific valuation method for a definite land parcel, at a specified time, to serve as a basis for determining financial obligations or for other purposes as prescribed by law. The specific land price is decided by the Provincial People's Committee on the basis of investigation and collection of information on the land parcel, market price of land, information on land price in the land database, and application of the suitable land valuation method.

Market land price is formed in the transfer of land use rights or the winning land price at the land use right auction when the State allocates or leases land or the land price is determined based on income from land use. The market price of land is one of the bases for determining specific land prices and determining financial obligations from land in specific cases as prescribed by law (Phan et al., 2021; Ho and Nguyen, 2006; Trinh et al., 2013). The specified price will be close to market value when certain assumptions are satisfied such as: there is no coercion on the buyer or seller in an attempt to force a buy or sell; knowledgeable buyers and sellers and acting in their own best interests; reasonable time for the transaction to take place; payment in cash (Eckert et al., 1990).

3.2. Some existence and limitations in the residential land prices in Vietnam

The Land Law 2013 stipulates that the land price in the framework must be equal to the market price, but the residential land price set by the State is separated from the market price, only about 30-70% of the market price (Tran and Nguyen, 2020; Ho et al., 2020; Phan et al., 2021). Besides, the site clearance work has been faced the difficulties due to land price to calculate compensation is too low compared to the market price. This causes many conflicts between land user and the State, complaints and lawsuits related to land. Although, the 2013 land law stipulates that the compensation land price is the specific land price along with many innovations in the principles and method of land price determination. However, the land price for compensation and support in most projects is inappropriate. The reason is that the land price determination lacks reference information. According to Point c, Clause 1, Article 112 of the 2013 Land Law, the principle of land valuation is to be "consistent with the popular land price in the market", but in reality, it is difficult to determine what the actual transaction price in the market is. Currently, there is no database to manage market land prices in all localities. Decree No. 117/2015/ND-CP dated 12/11/2015 stipulates that the

database on the local real estate market must include information on transaction volume and real estate transaction price. However, at present, even the provinces that have built information systems on housing and real estate market do not have this kind of information. Besides, the application of income-based method in agricultural land valuation is also a reason for low agricultural land prices.

Low compensation land price is one of the reasons for delay in project implementation. According to the Ministry of Planning and Investment, there are about 2.6% of investment projects in 2020, corresponding nearly 1,900 projects suffer from behind schedule and among them there are 1100 projects faced in "bottlenecks" of site clearance (Nguyen, 2021). According to the report of the Chief Justice of the Supreme People's Court in 2020, through the handling and adjudication of administrative cases, the causes are mainly related to complaints about administrative decisions and administrative acts. on land management (Supreme People's Court, 2020).

The Land Law 2013 stipulates that the land price bracket is applicable for 5 years. When the land price fluctuates by more than 20%, adjustments should be made. In fact, since the promulgation of the law, the Government's land price bracket has never changed even though housing prices in the market are constantly fluctuating, even increasing abnormally in land prices (Pham & Nguyen, 2022). Therefore, at any time, the prescribed land price is always far below the market price. Besides, the regulation on land price tables issued by the People's Committee of the province is used for a period of 5 years and can only be adjusted in case of the popular land price in the market increases by 20% compared to the maximum land price or 20% or more reduction from the minimum land price for a period of 180 days or more. In fact, the administrative procedures for adjusting the land price list are very complicated, such as having to go through the People's Council of the province, so the adjustment of the land price list in some localities is not timely while the change of land use purpose is not timely. Land use still active every day will cause great loss to the state budget or in some cases for the benefit of groups, but in some areas, when the market price of land increases, the locality still does not adjust the land price table to calculate land use levy from the change of land use purpose, recognition of land use rights of households and individuals for land areas in excess of land use quotas.

The land valuation methods are being implemented in Vietnam also used in countries around the world (except for the land price adjustment coefficient method). The methods of land price valuation in Decree No. 44/2014/ND-CP are methods of land pricing according to the market mechanism and are applied in the market economy, in which the subject of transactions is on the market is the land ownership (not land use right). Therefore, when applied in specific conditions in Vietnam, it is impossible not to avoid inadequacies and limitations. In addition, the application of land valuation methods brings about a large disparity in results, especially for lands with large added value (due to receive the high commercial advantages in urban areas, areas that are investing and developing infrastructure).

3.3. Solutions complete lang price valuation

To comprehensively reform the land pricing system, so that the land price set by the State must match the land price in the market, it is necessary to consider and perfect the renovation: to

overcome the shortcomings of the input factors of valuation. land; land price management method based on land price registration; perfecting the system of land valuation organization.

In order to ensure the principle of being consistent with the prevailing market price, consider abolishing the content of the government's regulations on land price brackets in Article 113 of the 2013 Land Law so that provinces and centrally run cities can determine land prices themselves. in accordance with the market price as prescribed by law. Promote decentralization for local authorities to proactively determine land prices. Increase the use of services of valuation enterprises. Valuation to conduct land valuation in the area to serve the construction of a specific land price list, closest to the market price. Associated with that is to form an effective mechanism to monitor the implementation of the construction of land price lists in order to eliminate the cases where a lower land price list is prescribed to attract investment, reduce compensation and support when the State land recovery according to regulations.

Research to create official information channels, reliable enough, to meet practical needs in order to timely reflect fluctuations in market prices. Accordingly, towards the completion of the land price system in the National Price Database, in which the data fields will be mainly formed on the basis of collecting prices through real transactions to ensure reliability. reliable for reference with the collected and survey results of the consulting unit.

Strengthening the rectification of the state management of land, strictly managing real estate projects; publicize information on master plans and plans; strictly comply with regulations on registration of land use right transfer and change of land use purpose.

4. Conclusion

The land price in Vietnam is the value of the land use right. There are two types of prices, the land price set by the state and the land price successfully traded on the market, also known as the market price, which is priced according to the land price. land valuation methods are prescribed in Article 4 of Decree 44/2014/ND-CP, specifying 05 methods of land valuation, including direct comparison method, subtraction method, income-based method, surplus-based method and method of using land price coefficient. At any time, the land price regulated by the state and the market price always has a large difference, causing many inadequacies in land management practice, especially in determining land prices for compensation and site clearance.; determine financial obligations in land allocation, land lease, land use right transfer, etc; In addition, it also leads to other socio-economic consequences such as the appearance of many speculators, land accumulation, pushing up land prices, arising long-lasting land lawsuits, compensation and settlement work. Delayed ground clearance, and loss of the state budget... led to many difficulties in the State management of land prices. There are many land valuation methods, each of which gives different results. Regulations on specific land price determination methods are not clear and reasonable, leading to the situation that localities arbitrarily choose land valuation methods, so there is no synchronization and consistency in the management of land. land price. Therefore, it is necessary to improve the land pricing system, and legal corridor, and invest in building official information channels, reliable enough to meet practical needs to timely reflect changes in land prices. market. Strengthen inspection and supervision of overland price determination, and at the same time develop sanctions to penalize violations of law in land price management and construction.

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ECONOMIC GROWTH IN THAI NGUYEN PROVINCE 2015 - 2020

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Abstract

For many years, the Party committees and authorities of Thai Nguyen province have determined that the motto of Party building is the key, economic development is the focus, since then there have been resolutions that are close, correct and suitable to the characteristics of locals creating a synergy that contributes to efficiency in all fields and enhances trust among the people. In particular, the industrial sector of Thai Nguyen was selected as a key to promote economic development in the area.

Built in 1959, Thai Nguyen iron and steel industrial park with the country's first closed integrated iron and steel production line which is considered a pioneering step for the province's heavy industry. Regarding the "smokeless industry", Thai Nguyen – as known as famous tea land is considered to have great potential for tourism development, which is expected to become an attractive tourist destination in the near future. While resource from the government budget was still limited, Thai Nguyen had been aware of mobilizing various investment resources for significant projects. On the other hand, the provincial government always takes care and supports businesses, creates equal opportunities for businesses to access to resources, especially emphasizes the creation of small and medium enterprises with the motto "3 accompanies, 5 supports".

Keywords: *Growth, Thai Nguyen, economy*

1. Introduction

Thai Nguyen province is the political and economic centre of Viet Bac region in particular, of the north-eastern midland and mountainous region in general, and a gateway for socio-economic exchanges between the Northern midland & mountainous region and the delta; the North of Thai Nguyen is adjacent to Bac Kan province, the West is adjacent to Vinh Phuc and Tuyen Quang province; the East is adjacent to Lang Son and Bac Giang province and the South is adjacent to Hanoi capital (80 km away); The natural area is 3,562.82 km². Thai Nguyen province has 9 administrative divisions: Thai Nguyen and Song Cong city; Pho Yen town and 6 districts: Phu Binh, Dong Hy, Vo Nhai, Dinh Hoa, Dai Tu, Phu Luong. The total includes 178 communes, including 137 communes, 32 wards and 09 towns.

2. Method

Methods of information gathering: Data and information about economic growth in Thai Nguyen province. The method of information synthesis and processing: All collected data and information will be classified, divided into groups to connect elements which make up a synthesis to build up theoretical basis and evaluate actual economic growth of Thai Nguyen province from many different perspectives, thereby making the most accurate judgments. The descriptive and comparative statistical methods aim to make statistics of the data and clarify the efficiency of the performance of the system according to the evaluation criteria as a basis for proposing solutions to change the growth quality of Thai Nguyen province in a sustainable way.

3. Results

3.1. Economic structure of Thai Nguyen

In the period of 2015 - 2020, the economic structure of Thai Nguyen province has had a shift of gradual reduction in the proportion of the agriculture - forestry and fishery sectors, and gradual increase in the proportion of the construction industry (Table 1). The average GDP growth of the province in the period 2015-2020 is 12.8%, showing that Thai Nguyen has achieved remarkable achievements in economic development, thereby creating a basis to improve people's living standards. In 2020, the province's GRDP scale will reach VND 116,008 billion, 1.8 times higher than in 2015, ranking 12th out of 63 provinces and cities in the country

Table 1. Thai Nguyen Gross Regional Domestic Product (GRDP)

Criteria	2015	2016	2017	2018	2019	2020	Average growth rate (%)
1. Segmentation by economic sectors according to current prices							
GRDP value (billion VND)	63.562,9 (100)	75.513,7 (100)	85.464,0 (100)	98.518,2 (100)	107.820, (100)	116.008,2 (100)	12,8
- Agriculture, forestry, fishery	9.587,20 (15,1)	9.862,30 (13,1)	9.890,40 (11,6)	10.690,0 (10,9)	11.060,0 (10,26)	13.391,0 (11,5)	7,2
- Construction industry	33.935,3 (53,4)	41.240,4 (54,6)	48.242,6 (56,4)	56.380,2 (57,2)	62.530,0 (57,99)	67.284,7 (58)	14,7
- Service	17.246,9 (27,1)	21.312,5 (28,2)	23.913,4 (28,0)	26.392,8 (26,8)	34.230,0 (31,75)	35.332,4 (30,5)	15,8
- Product tax minus product subsidies	2.793,50 (4,4)	3.098,50 (4,1)	3.417,60 (4,0)	5.055,20 (5,1)	4.765,0 (4,42)	4.640,0 (4,0)	12,2
2. Segmentation by economic sectors by ownership							
GRDP value (billion VND)	63.562,9 (100)	75.513,7 (100)	85.464,0 (100)	98.518,2 (100)	107.820, (100)	116.008,2 (100)	12,8
- State economic sector	14.259,5 (22,4)	15.381,8 (20,4)	16.355,8 (19,1)	17.706,5 (18,0)	19.227,5 (17,83)	21.811,7 (18,8)	8,9
- Non-state economic sector	27.218,6 (42,8)	33.969,3 (45,0)	37.083,6 (43,4)	42.302,9 (42,7)	46.077,5 (42,7)	49.101,8 (42,4)	12,7
- Foreign invested sector	19.291,2 (30,3)	23.064,1 (30,5)	28.607,0 (33,5)	33.723,6 (34,2)	37.750,0 (35,01)	40.364,7 (34,8)	16,0
- Product tax minus product subsidies	2.793,50 (4,4)	3.098,50 (4,1)	3.417,60 (4,0)	5.055,20 (5,1)	4.765,0 (4,42)	4.640,0 (4,0)	12,2

Note: Values in parentheses are contribution proportions (in %)

Source: Thai Nguyen Province Statistical Yearbook and the author's calculations

The economic situation of Thai Nguyen province in the period of 2015-2020 had changed remarkably. The average growth rate of the period reached 12.8%, in which the growth rate of construction industry together with the service industry contributed to the growth of whole province - which was a remarkable change of the construction industry. The shift from a purely agricultural province to an industrially developed province is due to the completing and running into production of the project of Samsung Electronics Vietnam Thai Nguyen (SEVT). The industrial added value of the province has suddenly rocketed, Thai Nguyen's economy is also associated with the growth of industries.

At the same time, it reflects the outstanding growth of the foreign-invested sector with an average growth rate of 16.0%, especially the contribution of Samsung Electronics Vietnam Thai Nguyen (SEVT) and hundreds of other satellite factories. In addition, the private sector and sole proprietorship have grown and contributed a large proportion to the overall growth of the province with an average growth rate of 12.7%. GRDP per capita in 2020 reaches 89 million VND/person - equal to 109% of the national average growth rate and 1.45 times higher than 2016.



Figure 1. Economic structure by sectors

In general, the province's economic sectors maintained their growth and development momentum, especially the industries, creating opportunities for economic restructuring towards industrialization. In terms of contribution levels of economic sectors, the non-state economic sector and the foreign-invested economic sector play important roles in the growth and development of the province. The requirement for Thai Nguyen is to have effective solutions to encourage all economic sectors in general and especially the foreign invested economic sector to invest and develop production and business.

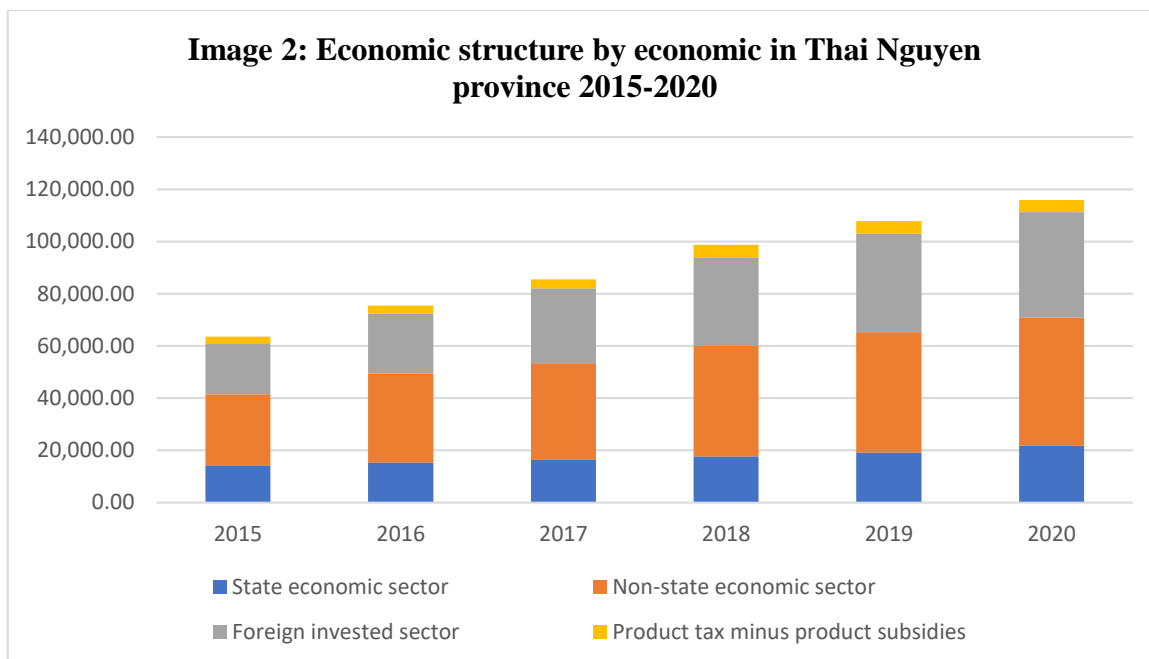


Figure 2. Economic structure by economic in Thai Nguyen province 2015 - 2022

3.2. Thai Nguyen economic growth situation

The average economic growth rate of Thai Nguyen province in the period 2015-2020 is 12.8%, higher than the average growth rate of the whole country (2015-2020) with the figure of 6.8%. Thai Nguyen is assessed in recent years to have made great strides in the process of socio-economic development, especially in attracting foreign direct investment.

3.2.1. Thai Nguyen economic growth by industry group

Table 2. Economic growth of Thai Nguyen province by sectors in the period 2015-2020

Unit: %

Criteria	2015	2016	2017	2018	2019	2020
Growth in Agriculture, Forestry and Fishery	6,88	6,18	2,17	4,15	3,48	4,15
Growth in Construction Industry	60,45	23,54	17,52	13,22	10,94	4,76
Growth in Service	11,59	8,04	7,58	13,68	6,62	3,03
Growth of whole province	33,21	16,35	12,75	10,44	9,4	4,24

Source: Thai Nguyen Provincial Statistical Yearbook (2020)

The growth rate of Thai Nguyen province in the period 2015-2020 shows that the province has an especially high growth rate in 2015 reaching 33.21%, the reason for this is due to the construction project of Samsung went into operation, at the same time, it brought ancillary businesses to invest heavily in Yen Binh and Pho Yen industrial zones. But economic growth in Thai Nguyen province tended to decrease partly when the Samsung factory went into stable operation, reached the designed capacity and had no extra investment. Especially in 2020, due to the impact of the Covid-19 epidemic, the growth rate decreased even more to only 4.24%.

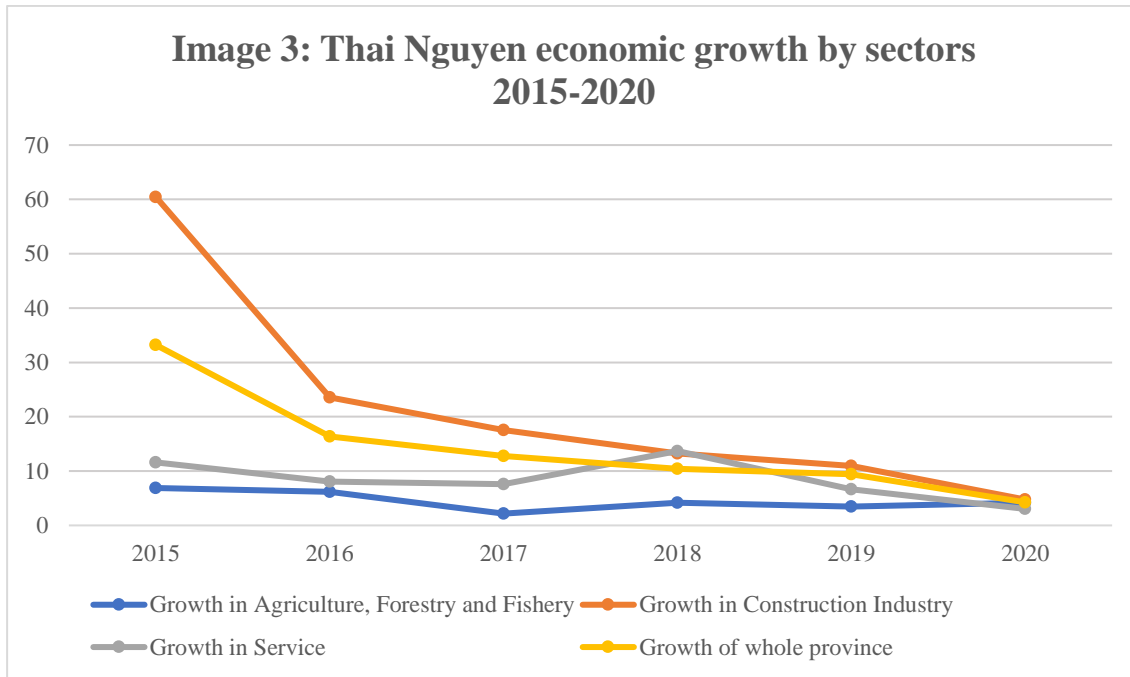


Figure 3. Thai Nguyen economic growth by sectors 2015 - 2020

The growth rate of economic sectors shows that in 2015, the economic growth rate of construction industry is the highest, with the data of 60.45 because of the remarkable investment of Samsung contributing to the overall growth rate of the province. However, the growth rate of this industry tends to fall sharply from 60.45% in 2015 to 4.76% in 2020, which indicates that the Samsung factory heavily influenced the growth rate of the construction industry and when the project was put into operation along with the terrible impact of the COVID pandemic, it had put a great burden on the industry. The province's economy is associated with the growth of this industry, however, the rapid growth of the industry makes the source of raw materials and supporting products in this area hard to keep pace with the demand. Therefore, industrial enterprises must import almost 100% of the value of raw materials and accessories causing depend on inputs from other countries; in 2020 the pandemic affected both input and output of the provincial industrial enterprises.

The service industry has an uneven growth rate, but there was a strong downward trend with the figure of 3.03 in 2020 due to the impact of the COVID-19 epidemic. So, after the epidemic, local governments should impose solutions to recover the awful situation which help the local economy take leaps and bounds. The Agriculture, Forestry and Fishery sectors account for a proportion which had been gradually replaced by other industries, partly due to economic restructuring which turn from Agriculture focus into industry and services focus. Besides, Agricultural sector tended to be high value agriculture, organic agriculture, and smart agriculture.

3.2.2. Economic growth of Thai Nguyen province by economic sectors by ownership

Thai Nguyen is now considered in terms of economic sectors contributing significantly to the growth of the province, including the state economic sector, non-state economic sector and the economic sector with foreign investment.

Table 3. Growth by economic sector by ownership in Thai Nguyen province in the period 2015-2020

	Unit: %					
Criteria	2015	2016	2017	2018	2019	2020
Growth of state economic sector	4,54	4,12	4,3	4,8	5,0	4,24
Growth of non-state economic sector	7,21	7,33	7,62	9,68	9,32	6,06
Growth of foreign invested sector	145,9	25,7	23,93	14,12	11,77	2,71
Growth of the whole province	33,21	16,35	12,75	10,44	9,4	4,24

Source: Thai Nguyen Provincial Statistical Yearbook (2019)

In the process of socio-economic development of Thai Nguyen province, each historical step from the economic sector has made significant contributions, for example, in the past, the state economic sector played a key role in growth. the province's economy, in recent years, when we integrate, open the door, and with open policies, with the principle of always reforming and improving the investment environment, the economic sector has investment capital. Foreign is the area with high growth rate and accounts for the proportion of value in the total value of the province.

Since the Samsung Factory Project went into operation, the growth rate of the foreign-invested group increased sharply in 2015 to 145.9%, then by 2020, the growth rate dropped heavily due to factors such as: Another important impact is the epidemic, the activities of the foreign-invested sector are only in moderation and maintained, but hopefully in the future there will be changes after we control the epidemic.

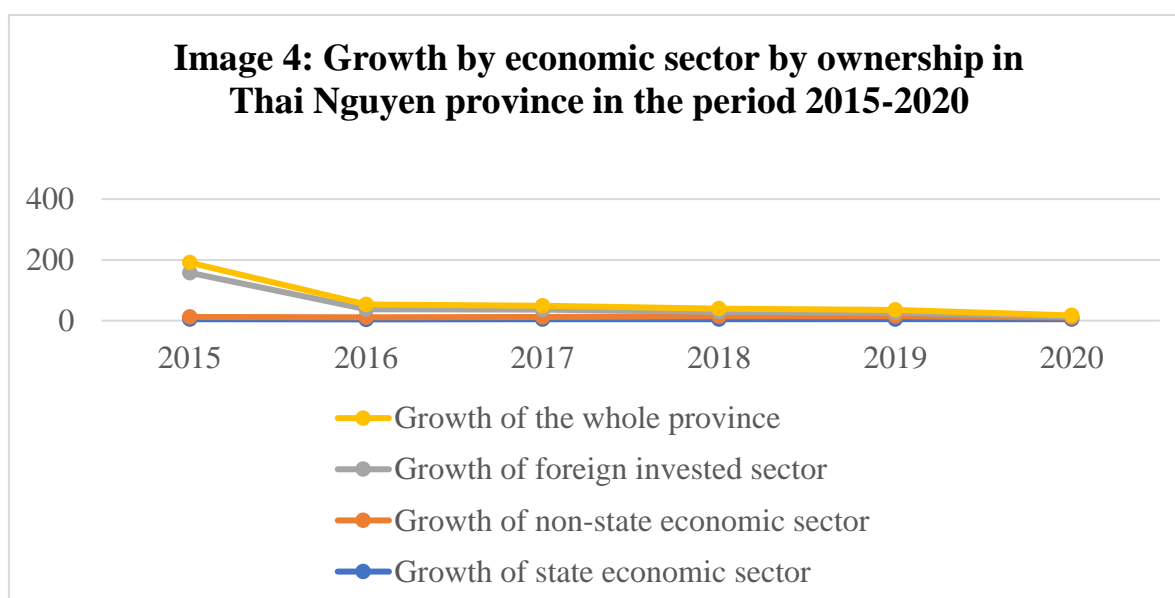


Figure 4. Growth by economic sector by ownership in Thai Nguyen province in the period 2015 - 2022

Economic growth in the non-state sector did not have large fluctuations and remained at a stable level, which also shows that most of the non-state enterprises have been operating in the province for quite some time. and has a stable operating environment, although it

accounts for a non-class proportion and the growth rate is not high, this is an indispensable component and also creates a lot of jobs for laborers in the province every year. contribute to the state budget of the province.

4. Discussion and Conclusion

Solutions to accelerate economic growth in Thai Nguyen province:

+ Focus on tourism development to become a key economic sector of the province

In the following years, Thai Nguyen tourism needs to be more professional and modern: Establishing a project of Culture and Tourism services in Thai Nguyen city center (according to the model of organizing a Night Market) with cultural activities, services, promotion and introduction of tea culture and well-known local products as a highlight to attract tourists and retain tourists staying in Thai Nguyen; along with policies research to promote the "night economy". Forming the Tourism Development Support Fund of Thai Nguyen province to provide resources to support businesses to invest in the tourism sector. Proposing to organize activities to implement Decision No. 203/QĐ-TTg of the Prime Minister approving the Project on Conservation and promotion of tangible and intangible cultural values of Thai Nguyen Tea. On the basis of the province's existing tourism potential, creating specific tourism products to attract tourists to Thai Nguyen (Eco-tour in Nui Coc Lake to exploit the landscape, resort to sports, especially golf courses); cultural tourism associated with activities, spiritual culture and cultural heritage; eco-tourism with tea cultural products, tourism to explore the landscape of East Tam Dao and Thai Nguyen caves).

Directing localities to well preserve and embellish historical and cultural relics, artistic architecture, scenic landscape associated with traditional festivals in localities to promote the value of historical sites to become an attractive destination for tourists (Monument of 60 martyrs of Vietnam Youth Union of 915 Company, special national relic complex of Dinh Hoa ATK; festivals: Communal House, Cau Muoi Temple, Temple Duom, Long Tong, Hang Pagoda, Van Mountain - Vo Mountain, etc). Professional training and improving the quality of human resources in tourism which focus on training people at the localities, especially in tourist sites; enhancing professional abilities, foreign languages and service skills for staffs and tour guides to ensure high professionalism. Training human resources according to the needs of enterprises, encouraging vocational training to shift labor from the agricultural sector to the service sector; attract high-quality human resources to quickly overcome the current weakness in the province's tourism industry.

With the characteristics of being the central province of Vietnam Northern midland and mountainous region, with 46 ethnic groups out of 54 ethnic groups living in Vietnam, Thai Nguyen is a land with rich revolutionary history and traditions throughout the warring periods to build and defend the country; a place for convergence and interference of many kinds of cultures with unique cultural features in the lives of ethnic minorities; nature endowed Thai Nguyen with many beautiful landscapes, etc., creating for Thai Nguyen a diverse tourism resource for the socio-economic development of the province in a sustainable way.

+ Reforming competitive indexes, attracting a strong wave of investment

Provincial authorities understand the situation to remove difficulties and obstacles for investors to promptly deploy through solutions and measures to speed up the

implementation of key projects; control prices of goods and services and efficiently use capital sources; promote administrative reform solutions, improve Provincial Competitiveness Index (PCI) and Provincial Governance and Public Administration Performance Index (PAPI); attract investment, organize conferences to implement new policies and mechanisms of the Government; inspect and review with specific solutions for delayed and prolonged projects in the area, step by step create idea conditions for enterprises to overcome difficulties and improve production and business efficiency. Many big investors have invested in the area, many big projects have been started; others have been completed and gone into production, contributing to improving production capacity, making great contributions to the economic growth of the province.

The province mobilizes the whole political system of the province to reform the investment and business environment; The provincial Department of Planning and Investment has applied the "inter-agency one-stop shop" mechanism. The Department of Natural Resources and Environment of Thai Nguyen province has applied the inter-agency one-stop-shop mechanism, so the time for the issuance of the first land use right certificate is reduced to less than 24 days, much lower than the provisions of the law...

To further promote the strength of agriculture

The agricultural development perspective of Thai Nguyen province has been determined in Resolution No. 10-NQ/TU dated October 21, 2019 of the 19th Provincial Party Committee on agricultural development in Thai Nguyen province in the period of 2019- 2025, orientation to 2030 and draft Resolution of the 20th Provincial Party Congress, term 2020-2025.

To be specific: Continuing to implement agricultural restructuring towards strengthening value addition, enhancing chain linkages and sustainable development in association with the goal of constructing a new rural area.

The main focus is on developing key agricultural commodities of the province; forming concentrated, large-scale commodity production areas, safe and organic agricultural production, applying high technology.

Improve the quality and value of tea and tea products. Encouraging and promoting all economic sectors which invest in the fields of agriculture, forestry, and fishery along with the concentration and accumulation of land which facilitate large-scale and high-tech agricultural production.

Forestry economy should be developed associated with sustainable forest management; improving the quality and effectiveness of the National target program on building new rural areas.

To synchronously develop agriculture with industry, commerce and services, there must be a close connection between governmental management agencies - enterprises - cooperatives - producers creating a link chain in production - processing - consumption market with branded products and high added value.

Agricultural development is associated with new rural construction, actively promoting the role of inhabitants in the process of restructuring and organizing production in the locality.

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**PART 6:
LAWS AND INSTITUTIONS**

IMPACT OF INSTITUTIONAL PRESSURE ON DECISIONS TO APPLY GREEN PRACTICES AT HOTELS IN VIETNAM

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Abstract

Green development is not only a way for hotels to reduce the negative impact of business activities on the natural environment, towards sustainable development, but also an option to meet the growing needs of society. The study was carried out to explore the impact of institutional pressure on the behavior of hotels applying green practices under the moderate influence of environmental attitudes of the managers. The results show that coercive pressure and mimetic pressure are two factors of institutional pressure affecting the decision to implement green practices in the hotel business in Vietnam. At the same time, the research results also confirm the moderating role of managers' environmental attitudes towards the relationship between institutional pressure and the behavior of applying environmentally friendly measures in hotels.

Keywords: *Green practices, Hotel business, Institutional pressure.*

1. Introduction

Research in behavioral science and sustainability issues is often focused primarily on the manufacturing industry (Ayuso, 2006; Bohdanowicz, 2003). Even so, the hotel business is largely depends on the physical environment. There are many resorts that have taken advantage of natural resources to become unique in their products. As a result, the hotel business has increased the threat to the environment through the consumption of large amounts of energy, water, and non-renewable resources (Sloan, Legrand, Tooman, & Fendt, 2009).

Although in recent years, enterprises' green behavior has attracted many scholars' attention, but most of the researches are done in European countries and developed countries (Hamdoun, 2020). Very few studies are contextualized in developing countries, and especially in transitional or emerging market economies like Vietnam. Developing countries face more difficulties and challenges than developed countries in dealing with environmental (and social) issues due to lack of environmental legal framework, pervasive poverty, weak governance system and social infrastructure (Gunarathne & Lee, 2019). Furthermore, economic and sometimes social instability in transition economies creates ambiguity and unpredictable fluctuations in the external environment, so that the transition between formal institutions and informal institutions is difficult (Hitt, Dacin, Levitas, Arregle, & Borza, 2000). Formal institutions still play an important role in transition economies. On the other hand, the majority of firms

operating in emerging markets are still young and have limited resources (DeCastro & Uhlenbruck, 1997), so decision making in these firms will also differ from those in the firms in other developed countries.

“Green practice” is a term used to describe environmentally friendly actions. Its aim is to reduce the impact of business processes on the surrounding natural environment and bring several benefits such as economic benefits, improve the relationships with stakeholders.... There are various approaches to classifying green practices. A common and widely accepted classification divides green practices into: (i) operational practices (or technical practices); (ii) organizational practices (or system practices) (Dief & Font, 2010; Gonzalez-Benito & Gonzalez-Benito, 2006; Gil, Jiménez, & Lorente, 2001). Operational practices are measures attached to a specific stage or the operation, which change the production system and products of the enterprise, and directly reduce the negative impact of business activities on natural environment. They are generally classified into three main areas: water saving, energy saving, and waste management (Erdogan & Baris, 2007; Kirk, 1995; Stipanuk, 1996). Meanwhile, organizational measures do not directly reduce the negative impacts of the hotel operation on the environment. Its goal is to design processes and policies, to support operational measures working effectively, and to ensure compatibility and systematics between different measures across the enterprise (Park, Kim, & McCleary, 2014).

Theoretically, several theories have been applied to explain the decision to apply green practices in hotels, such as efficiency-based theories, stakeholder theory, institutional theory.... Performance-based theories provide little help in situations where it is difficult to quantify the profitability of environmental actions or when these actions serve non-profit goals. Whereas a responsibility-based approach is often criticized for the lack of a coherent theoretical framework for data collection and interpretation. In addition, the Neo - Institutional theory is also often used in the study of organizational behavior. This theory proposes that businesses operate in an institutional environment where a set of implicit or formal rules are set by actors such as governments, professional associations, the media, etc. The institutional environment puts pressure on businesses through three mechanisms: coercive, normative and mimetic corresponding to the pressures exerted by regulatory authorities, industry associations, and competitors (DiMaggio & Powell, 1983). Coercive pressure restricts the choice of enterprises, forcing them to comply with institutional expectations and perform specific behaviors. Meanwhile, normative pressure orients the behavior of enterprises based on values and behavioral standards, changing the thinking of enterprises so that they believe in and support those requirements. And mimetic pressure occurs when businesses want to achieve legitimacy and compete in the market, and voluntarily imitate the behavior of reputable companies having good operation results in their industry (DiMaggio & Powell, 1983; DiMaggio & Powell, 1991). Businesses must follow these institutional rules to maintain legitimacy, and are secured the resources necessary for survival and growth. On the contrary, if it is against such regulations and requirements, the enterprise will certainly not be recognized, isolated and removed from that institution (DiMaggio & Powell, 1983; DiMaggio & Powell, 1991; Meyer & Rowan, 1977).

Although the neo-institutional theory perspective can explain decisions in organizations, the response and decision-making mechanisms are passive, based on pressures from the institutional environment. Therefore, using the neo-institutional theory in analyzing corporate behavior will encounter two weaknesses that are often criticized: (i) ignoring the impact of subjective factors and (ii) not being able to explain the diversity of enterprises' responses (Colwell & Joshi, 2011; Delmas & Toffel, 2008; Greenwood & Hinings, 1996). Therefore, it is necessary to analyze and explore the impact of internal factors that can moderate the relationship between institutional pressure and actual corporate behavior (Greenwood & Hinings, 1996).

Environmental scholars argue that environmental management decisions in companies depend on the manager's view of environmental issues (Banerjee, 2001; Park et al., 2014; Sharma, 2000). According to The Upper Echelons Theory by Hambrick and Mason (1984), decision making associated with green activities can be influenced by the perceptions and attitudes of decision makers – hotel managers. Although senior manager (general director, director...) has a very important influence in making decisions in the enterprise, middle managers, such as department heads, also play a certain role in the decision-making process. Therefore, the reason for adopting particular green measure instead of other measures depends on the attitude of hotel managers, because they are the ones who have the ability to make decisions about resource allocation to carry out efficient business operations. In other words, although operating in the same institutional environment, the choice of green practices between hotels is not the same, possibly due to the views/attitudes of other managers. In particular, in service industries characterized by product differentiation and less pressure from regulations, the power of senior manager becomes even more prominent (Finkelstein & Hambrick, 1990).

Environmental attitude is defined as the set of beliefs, emotions, and behavioral intentions of a person regarding environmental activities or problems (Schultz, Shriver, Tabanico, & Khazian, 2004). Thus, manager's attitude to environmental issues is the result of their individual cognitive and interpretive processes (Park & Kim, 2014). Based on their views and perceptions, managers can consider environmental problems as threats or opportunities (Sharma, 2000), thereby affecting the strong or weak commitment of enterprises to the environmental issues (Banerjee et al., 2003; Park & Kim, 2014). If a manager has a positive environmental attitude, enterprises are more likely to participate in green activities, because of institutional pressures in line with the vision of the managers and enterprises. Furthermore, managers with strong environmental attitudes will be aware of the potential benefits of government incentives as well as regulatory pressures. At that time, enterprises will not be limited to meeting minimum environmental regulations, but actively change production in a greener direction to gain supportive resources (Cao & Chen, 2019). Conversely, in the case that managers expressing less positive environmental attitudes, firms will use their resources against institutional pressures (Colwell & Joshi, 2011; Finkelstein & Hambrick, 1990). Thus, despite the same economic, political and business environment, different managers' views on the environment will lead to different environmental behaviors in enterprises. Managers will rely on the pressures that the institutional environment creates,

along with their values and attitudes for or against environmental issues, to decide whether to implement green actions. In other words, the relationship between institutional pressure and the behavior of applying green practices in hotel business is positively regulated by the environmental attitude of hotel managers.

From the literature reviews and theoretical framework, the author proposes the research model below, with two hypotheses:

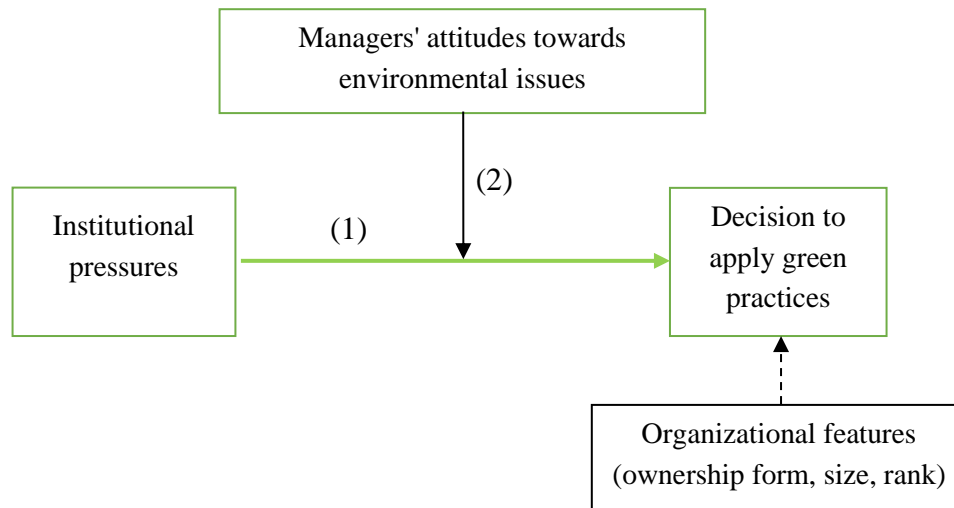


Figure 1. Proposed research model

Hypothesis H1: Institutional pressure has a positive effect on the decision to apply green practices in hotels.

Hypothesis H2: Managers' attitudes towards environmental issues have a moderating effect on the relationship between institutional pressure and the decision to apply green practices in hotels.

2. Method

A quantitative study was conducted by delivering directly questionnaires to hotel managers in 04 big and famous destinations in Vietnam, including Hanoi, Da Nang, Nha Trang, and Ho Chi Minh City. The items were mainly adopted from previous researches, with minor adjustments after interviewing managers of green hotels that were recognized for their efforts in protecting the environment.

The survey questionnaire aims to collect opinions of hotel managers on the factors affecting the decision to apply green practices in hotels. In addition to the introduction about the purpose of the survey, the questionnaire consists of three parts: part 01 asks about factors influencing the decision to apply green practices at their hotels includes (1) institutional pressure; (2) attitude to environmental issues; and green practices that the hotel is taking. The factors are rated using the Likert-7 scale based on the degree of agreement with several given statements. Green practices are ticked as 1 if their hotel have taken these actions, otherwise is 0. Part 02 includes questions to collect information about the hotel such as rank, management ownership, and number of rooms. Finally, the personal information of the respondents was collected in part 03, such as full name, age, gender, education level, and position.

Among 350 questionnaires that were sent, only 278 received answer sheets were valid, which formed data for the further research steps. The surveyed hotels are evenly distributed among different rankings, size and form of ownership, as well as geographical location. Specifically, the number of hotels 1-5 stars in ascending rank has 65, 67, 53, 42, 51 establishments respectively (corresponding to 23.4%, 24.1%, 19.1%, 15.1% and 18.3%). Independently owned hotels accounts for 186/278 hotels participating in the survey (corresponding to 66.9%), the rest are hotels owned by hotel chains. In terms of room size, there are 118 hotels with less than 50 rooms, representing the highest rate of 42.4%; followed by the number of large-scale hotels (over 100 rooms), 97 establishments, equivalent to 34.9%; and finally, there are 63 medium-sized hotels (from 50 to less than 100 rooms), accounting for 22.7% of the total sample. This ratio is quite reasonable because hotel business is quite new in Vietnam, so most of them are small and medium establishments, chain hotels or large corporations accounts for a small proportion. In terms of geographical location, each city of Hanoi, Da Nang and Nha Trang has about 60 hotels in the sample. The number of hotels in Ho Chi Minh City is about 1.5 times higher.

3. Results

3.1. Cronbach's Alpha and Exploratory Factor Analysis

After performing Cronbach's Alpha coefficient analysis, eliminating items have low item-total correlation, the measures of all 03 factors in the model ensure high reliability. Next, Exploratory Factor Analysis is conducted which results reveal that: (1) Institutional pressure to implement green practices in hotels in Vietnam includes only two groups of factors: coercive pressure and mimetic pressure; (2) Decision on application of green practices is divided into a decision on application of initial environmental practices and decision on application of enhanced environmental practices.

In contrast to some studies by Bansal (2005), Berrone, Fosfuri, Gelabert, and Gomez-Mejia (2013), or Wang, Wang, and Wang (2019), normative pressure has no impact on hotels' decision. Sustainable development and green is a fairly new topic for the hotel business, especially in a developing country like Vietnam. Although environmental issues have received the attention of the entire society, the values and standards of environmental management have not been formed and widely shared among businesses in the hotel sector. The lack of industry-specific regulations and standards is a major obstacle to corporate social responsibility, especially in developing countries, as pointed out by Christmann and Taylor (2001). Indeed, we often talk about service quality, comfort and convenience in hospitality, but not the ecological environment values. In Vietnam, the sustainable label "Green Lotus" was issued by the Ministry of Culture, Sports and Tourism in 2012, is considered a tool to evaluate environmental management among hotels. However, the program for granting the Green Lotus label has ended since 2015, and this set of criteria is currently used as a reference for hotels who wish to develop toward "Green". Therefore, it can be seen that normative pressure on the application of green practices seems to be absent for hotels in Vietnam. In other words, ecological values, norms and social expectations are not fully shared among hotel businesses in Vietnam.

Table 3.1. Result of EFA with independent variables

Items		Component		
		1	2	3
EA15	If things continue on their present course, we will soon experience a major ecological catastrophe.	,826		
EA14	Humans will eventually learn enough about how nature works to be able to control it (R)	,803		
EA13	The balance of nature is very delicate and easily upset	,764		
EA4	Human ingenuity will insure that we do NOT make the earth unlivable (R)	,761		
EA3	When humans interfere with nature it often produces disastrous consequences	,753		
EA2	Humans have the right to modify the natural environment to suit their needs (R)	,741		
EA12	Humans were meant to rule over the rest of nature (R)	,735		
EA9	Despite our special abilities humans are still subject to the laws of nature	,724		
EA1	We are approaching the limit of the number of people the earth can support	,721		
EA8	The balance of nature is strong enough to cope with the impacts of modern industrial nations (R)	,715		
EA5	Humans are severely abusing the environment	,698		
EA10	The so-called “ecological crisis” facing humankind has been greatly exaggerated (R)	,660		
EA7	Plants and animals have as much right as humans to exist	,634		
EA11	The earth is like a spaceship with very limited room and resources	,629		
EA6	The earth has plenty of natural resources if we just learn how to develop them (R)	,598		
IP4	Firms in our industry that did not meet the legislated standards for pollution control faced a significant threat of legal prosecution.		,799	
IP5	There were negative consequences for companies that failed to comply with the federal and provincial environmental laws.		,787	
IP2	The local government has set strict environmental standards, which our firm needs to comply with.		,746	

Items		Component		
		1	2	3
IP3	Firms in our industry were aware of the fines and penalties potentially associated with environmentally irresponsible behavior.		,731	
IP7	The local government provides project loan interest discounts or loan concessions for green hotels.		,679	
IP6	The local government establishes a complete tax incentive system for green hotels (tax reduction or return).		,665	
IP11	The leading companies in our industry set an example for environmentally responsible conduct.			,893
IP13	The leading companies in our industry worked on ways to reduce their impact on the environment.			,861
IP14	Our hotel investigates the environmental management practices applied by the leading hotels.			,803
IP12	The leading companies in our industry were known for their practices that promoted environmental preservation.			,790

Source: Author's research results, 2021

Based on survey data, the results of the EFA analysis have discovered two new groups of green practices: initial environmental practices and enhanced environmental practices. The naming of these two groups of practices is based on the priority order of implementation. Initial environmental practices include: (1) hotel uses energy-saving devices (energy-saving light bulbs, electronic card key system, sensors...) and other types of alternative energy (such as solar energy, LPG...); (2) hotel applies recycling and waste reduction measures (separation of waste at source; use of containers for shampoo, shower gel...); (3) hotel gives priority to buying environmentally friendly products (biodegradable, reusable, recyclable...); (4) hotel creates favorable conditions for customers to cooperate in environmental management (voluntarily changing towels...). The common feature of these measures is their high recognizability. Guests can easily recognize the efforts that the hotel is making to protect the nature through the presence of energy-saving devices, recycling bins, biological or recycled products. Moreover, in addition to the direct environmental benefits, the economic benefits of these practices are also easily predictable. Therefore, these are all actions that the hotel should prioritize to apply first.

In contrast to the initial environmental practices, the environmental and economic benefits of enhanced environmental practices are not clear, and their identification is also more difficult. Enhanced measures include: (1) hotel records, analyzes and reports on its environmental activities; (2) hotel quantifies savings as well as environmental costs in its annual budget; (3) there is an individual/group in charge of environmental issues in the hotel; (4) hotel trains staff on environmental issues. It can be seen that enhancement practices do not directly help reduce the negative environmental impact of business activities. Besides, hotels can hardly calculate the

profit of applying these measures. Regarding the ability to identify, if not environmentally conscious individuals or experts, the majority of stakeholders rarely pay attention to the fact whether the hotel has assigned an individual/group to be in charge of environmental issues, or regularly report on their environmental activities or not. For all these reasons, hotels underestimate these enhanced environmental practices. These measures are usually taken after the initial environmental practices, when the hotel's environmental commitment is big enough or they notice this behavior from reputable, leading enterprises in the industry.

Compared with the previous classifications, the grouping of green practices based on the priority is appropriate in the context of the nascent hotel industry in emerging economies. In Vietnam, hospitality really became a business in the early 90s. Compared with the history of establishment and development of other hotel industries in the world, this field is still new. In particular, the trend of green development has not really been popularized in the hotel business in Vietnam. Therefore, the classification based on the priority clearly reflects the reality of green behaviors in the hotel business in developing countries like Vietnam. Moreover, the classification also helps to assess accurately the influencing factors and their influence on the decision to apply green practices.

Table 3.2. Result of EFA with dependent variable

Items		Component	
		1	2
EP10	The hotel gives the employees training on environmental issues	0,852	
EP9	The hotel involves a manager or team in environmental management	0,835	
EP5	The hotel quantifies environmental savings and costs in its annual budget	0,781	
EP4	The hotel records, analyzes and reports environmental performance	0,695	
EP3	The hotel applies recycling and waste reduction activities		0,845
EP8	The hotel facilitates customer collaboration in environmental protection (voluntary changing of towels, etc.)		0,829
EP7	The hotel gives priority to purchasing ecological products (biodegradable, reusable, recyclable, etc.)		0,787
EP2	The hotel uses energy-efficient equipment and alternative energy sources		0,576

Source: Author's research results, 2021

3.2. Binary Logistic Regression and Hypothesis Testing

Logistic regression is analyzed for the dependent variable "Decision to apply initial environmental practices" and "Decision to apply enhanced environmental practices", respectively. If all the items in the group of dependent variable receive the value 0, the dependent variable will receive the value 0, this means that the hotel does not take any environmental measures. Conversely, if there is at least one item of the dependent variable with the value 1, the variable will receive the value 1, or in other words, the hotel has applied green practices in its business. The results of logistic regression are summarized in Table 4.3 below:

Table 3.3. Regression coefficients and Hypothesis testing results

Hypothesis results and			Hypothesis	IEP	EEP	Conclude
Decision on application of green practices	←	Coercive pressure	H1a H1'a	3,759 (***)	0,603 (*)	Accepted
Decision on application of green practices	←	Mimetic pressure	H1b H1'b	0,177	1,585 (***)	Partly accepted
Relationship between coercive pressure and decision to apply green practices	←	Environmental attitude	H2a H2'a	3,674 (***)	-0,421	Partly accepted
Relationship between mimetic pressure and decision to apply green practices	←	Environmental attitude	H2b H2'b	-0,609	0,687 (**)	Partly accepted

Notes: * is the corresponding statistical significance level $0.05 < p < 0.1$

** is the corresponding statistical significance level $0.01 < p < 0.05$

*** is the corresponding statistical significance level $p < 0.01$

Source: Author's research results, 2021

Institutional pressure has a positive influence on the decision to apply green practices in the hotel business in Vietnam. Among the institutional factors, coercive pressure is the most important factor affecting the decision to implement green practices (both initial and enhanced environmental practices). The coercive pressure is reflected in the actions of government agencies, such as establishing regulations and policies to control and prevent pollution; monitor the performance of enterprises through periodic inspection; impose penalties related to environmentally irresponsible acts or financial support measures for businesses that contribute to the environment management. Thus, the application of green practices helps hotels not only to receive support from the Government but also to avoid fines due to resistance or poor compliance with standards and regulations.

Moreover, the hotel's behavior of applying enhanced environmental practices is also affected by mimetic pressure. This is quite reasonable because, compared with initial environmental practices, the benefits derived from the enhanced measures are not clear. As a result, hotels tend to imitate the actions of leading, experienced and successful hotels in applying these enhanced environmental practices.

The impact of coercive pressure on the decision to apply green practices is more important than mimetic pressure. This greater influence is not only reflected in the scope (two groups of green practices versus one group of enhanced environmental practices) but also in the degree of impact (through the beta coefficient in the regression analysis). This is due to the fact that Vietnam is a transitional country, the power of government agencies is still very strong. They have the ability to establish a legal basis, impose economic penalties and even close businesses if they do not comply with the law. Moreover, in the initial stages when the environmentally friendly behavior is not really popular in business, the cost of

researching and applying green practices is still quite high, as well as the benefits are not clear, the enterprises tend to comply with the minimum legal requirements (Gunarathne & Lee, 2019), rather than follow the enhanced measures adopted by large enterprises. Therefore, the effect of coercive pressure is more direct and effective than mimetic pressure.

The relationship between institutional pressure and the decision to apply green practices is different among hotels, depending on the manager's attitude towards environmental issues. The higher the environmental attitude of hotel managers is, the greater the influence of institutional pressure on the ability to apply environmental measures. However, the moderating effect of the environmental attitude is only statistically significant with the relationship between coercive pressure and the decision to apply initial environmental practices. That is, if the manager's environmental attitude is at a high level, hotels are more likely to participate in initial green activities, and imitate enhanced environmental measures of reputable enterprises. Because at that time, the institutional pressure exerted by Government agencies and other leading enterprises are consistent with the vision of managers and businesses. Hotels will be more voluntary and proactive in applying these environmental measures.

Research results have not confirmed the influence of managers' environmental attitudes on the relationship between simulated pressure - the decision to apply initial environmental practices, or coercive pressure - the decision to apply enhanced environmental measures. In the first relation, since the benefits of the initial environmental measures are quite obvious, when hotel managers have a high environmental attitude, they are likely to use the business resources to explore and apply new environmental measures to gain competitive advantage, instead of imitating other enterprises. So in this situation, the environmental attitude of manager, instead of enhancing, can reduce the influence of simulation pressure. Secondly, with the difficult to recognize characteristics of enhanced environmental practices, even if the hotel manager has a positive attitude towards environmental issues, it is difficult for businesses to follow the coercive pressures. The finding is consistent with the "Agency theory" which holds that managers are representatives of shareholders whose interest is profit maximization. In other words, profit should be the sole concern of the managers when making decisions. Thus, there is a lack of consistency or a gap between environmental attitudes and the application of enhanced environmental practices in this case. This "good attitude" does not always translate into action because, as Schaper (2002) explains, even when business owners or managers have a positive environmental bias, the actual commitment of firms also depend on other factors such as consumer demand, availability of capital, information and time (Kasim, 2009).

4. Discussion and Conclusion

The purpose of this study is to explore the impact of institutional pressure on the behavior of deciding to apply environmental protection measures under the moderation effect of environmental attitudes of managers. The results of logistic regression analysis show that coercive pressure and mimetic pressure have positive impacts on the implementation of green practices in the hotel business in Vietnam. However, they can respond to this pressure differently, depending on the manager's attitude towards environmental issues.

The approach of the study complements institutional theory, as it suggests that managers' attitudes about the environment play an important moderating role in the impact of institutional pressures. This is a valuable resource for organizational behavior research in general and corporate social responsibility behavior in particular. In addition, the research results also reveal the mechanism that explains the actual behavior of hotels. Hotels primarily implement initial environmental practices in response to the requirements of institutional pressures. Meanwhile, enhanced actions heavily depend on mimetic pressures.

However, the study focuses on examining environmental behavior in hotels at the early stage of decision-making, with a top-down approach. Therefore, the following researchers may consider studying green decisions in hotels based on a bottom-up approach, such as surveying employees on factors affecting the implementation of green practices; or using longitudinal data to evaluate differences in the hotel's choice of environmental measures during different stages of development.

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THE ROLE OF PATENT VALUATION IN NEW TECHNOLOGY COMMERCIALIZATION IN VIETNAM: A CASE STUDY OF REMOTE WASTE TREATMENT TECHNOLOGY

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Abstract

Patent valuation is not a new matter in developed countries, but still a challenging task in Vietnam, due to the lack of practice and also inadequate regulation. The art and practice of patent valuation presents both an opportunity and a challenge in the process of new technology commercialization. On the one hand, some valuation of a patent is necessary for transacting parties to enter into a reasonable transaction regarding the use of the patent. But, valuations of patents on technology that has not been validated in the marketplace is fraught with risk that often hinders the negotiation of a patent transaction. In the US, patent holders and patentees don't rely mainly on patent valuations as the sole basis for license deals. A "pre-negotiation valuation" approach leading to a mutually designed "value capture/risk-sharing mechanism" (i.e., a license agreement) is a preferred path to commercialization of new technology. However, the difficulty in valuation of intellectual property assets is one of significant obstacles to the commercialization of patents, especially which are domestically developed by Vietnamese entities.

This paper describes the current practice in patent valuation and commercialization in Vietnam from a case study of remote waste treatment technology. This case study illustrates that in the current context of Vietnam, the valuation of a patent is still hard for the potential purchasers to accept, so the price should be adjusted flexibly through the negotiation, rather than a valuer providing a fixed valuation. Based on this case study, recommendations will be provided to improve the legal framework for patent valuation and commercialization.

Keywords: *patent valuation, remote waste treatment, technology transfer, commercialization of intellectual property rights*

1. Introduction

Following the development of the economy and the participants of foreign investors, the government is paying more attention to the status of domestic technology developed by Vietnamese entities, along with other aspects of intellectual property. However, the alarming fact is the Vietnamese inventors are facing many challenges in the exploitation and commercialization of their patents, although they are registered at the IP Office and assessed by independent valuers.

A typical case is the remote waste treatment technology invented and developed by Inventor Lai Minh Chuc in 2008 that was valued at US\$12.24 million by Dr. Robert Sanders in 2013. Unfortunately, despite the prospective value of the patent, the inventor took over 10 years to commercialize his technology, and the benefit generated from the transfer was not as expected.

The article clarifies the current practice in patent valuation and commercialization in Vietnam. Sections 2 and 3 provide a background on the literature review and legal framework for patent valuation in Vietnam. Section 5 studies the case of Mr. Lai Minh Chuc's invention, through an analysis of the need for an appropriate waste treatment technology and the main features of Mr. Lai Minh Chuc's technology. Thereafter, this section also describes the valuation for his patent number 12044 that was completed by Dr. Robert Sanders in 2013. The commercialization process of Mr. Lai Minh Chuc's technology was presented and followed up with additional discussions and findings. In section 6, the recommendations proposed included the long-term strategy for promoting domestic patent registration, as well as the restructuring of the legal framework for the establishment and operation of the intermediary organizations.

2. Literature Review

Patent valuation, and the legal framework governing patent valuation caught the attention of many scholars all over the world for decades. Most scholars discussed the three traditional valuation methods (i.e., cost, market, and income) and how they are applied to intellectual property rights in general. Dilip Sharma and Abhijeet Kumar (2021)¹³² summarizes modern valuation methods, including Monte Carlo, Royalty Rate, Loss of Profit Calculation, and Decision Tree Analysis. Specifically for patents, Prabuddha Sanyal (2005)¹³³ addresses patent valuation from the perspective of multinational enterprises (MNEs), while Maayan Perel (2014)¹³⁴ introduces a new approach to patent valuation which is to value patents based on the patent quality (i.e., "how well a patent meets the statutory requirements"). Alexander J Wurzer et al. (2012)¹³⁵ introduced tools for patent valuation (e.g., patent legal

¹³² Dilip Sharma and Abhijeet Kumar (2021), *Methods of Intellectual Property Valuation* in Irene Calboli and Maria Lilla Montagnani (editors), *Handbook of Intellectual Property Research: Lenses, Methods and Perspective*; Oxford University Press.

¹³³ Prabuddha Sanyal (2005), *Valuation of Patents from a Multinational Perspective*, 87 *Journal Patent & Trademark Office Society* 548

¹³⁴ Maayan Perel (2014), *An Ex Ante Theory of Patent Valuation: Transforming Patent Quality into Patent Value*, 14, *Journal of High Technology Law* 148.

¹³⁵ Alexander J Wurzer et al (2012), *Valuation of Patents* (1st edition, Kluwer).

factors, the modeling of license relations, payment streams, and risks) along with case studies in different contexts: management-, company law-, transfer-, and finance-oriented contexts.

Those foreign studies have clarified theoretical issues on valuation in patent transfer, i.e., theories on patents, patent transfer, valuation in patent transfer, intellectual asset valuation methods, the relationship between competition law, intellectual property law, and contract law on governing agreements on price in patent transfer contracts. Even so, few scholars took an economics-law approach to the analysis of patent valuation or addressed legal tools to govern patent valuation in their studies.

Vietnam

Over the past 15 years, many Vietnamese scholars have researched on the valuation of intellectual assets in Vietnam. Between 2006 - 2013, three entities under the Ministry of Science and Technology, i.e., the Department of Technology Appraisal, Examination and Assessment (2006),¹³⁶ the Vietnam Intellectual Property Research Institute (2009),¹³⁷ and the National Agency for Technology Entrepreneurship and Commercialization Development (2013),¹³⁸ conducted in-depth studies on theories, methods and protocols in valuing technologies, intellectual assets and specifically patents in Vietnam. Doan Van Truong (2011),¹³⁹ Tran Van Hai et al (2006),¹⁴⁰ Vu Thi Hai Yen (2008),¹⁴¹ and Tran Van Nam (2020)¹⁴² analyzed valuation of intellectual assets in different niche contexts, i.e., in multinational companies, in equitization of state-owned companies, in business activities, and in startups respectively.

¹³⁶ *Legal research and some methods of technology valuation* [Nghien cuu phuong phap luan và mot so phuong phap dinh gia cong nghe], Department of Technology Appraisal, Examination and Assessment – Ministry of Science and Technology of Vietnam, 2006.

¹³⁷ Nguyen Huu Can et al, *Theoretical and practical research in order to develop a patent valuation method applicable to Vietnam*. [Nghien cuu ly luan va thuc tien nham xay dung phuong phap dinh gia sang che ap dung cho Viet Nam], Vietnam Intellectual Property Research Institute – Ministry of Science and Technology of Vietnam, December 2009.

¹³⁸ *Theoretical and practical research to propose principles, approaches and processes for valuing intellectual property in Vietnam*, [Nghien cuu co so ly luan, thuc tien de de xuat nguyen tac, cach tiep can và quy trình dinh gia tai san tri tue ap dung tai Viet Nam], National Agency for Technology Entrepreneurship and Commercialization Development - The Ministry of Science and Technology of Vietnam, 2013.

¹³⁹ Doan Van Truong; *Collection of valuation methods for intangible assets, intellectual property rights, technology valuation and transfer prices inside multinational companies*, [Tuyen tap phuong phap tham dinh gia tri cac loai tai san vo hinh, quyen so huu tri tue, dinh gia cong nghe va gia chuyen giao ben trong cac cong ty da quoc gia], Science and Technology Publishing House, 2011.

¹⁴⁰ Tran Van Hai et al; *Some points to pay attention to when valuing intellectual property of enterprises in the equitization process* [Mot so diem can chu y khi dinh gia tai san tri tue cua doanh nghiep trong qua trinh co phan hoa]; Report of International Workshop: Vietnam in the process of becoming a member of WTO – Transforming state enterprises in Vietnam, Hanoi, March 2006

¹⁴¹ Vu Thi Hai Yen; *Intellectual property and methods of valuing intellectual property in commercial business activities of enterprises*, [Tai san tri tue va cac phuong phap dinh gia tai san tri tue trong hoat dong kinh doanh thuong mai cua doanh nghiep]; Thesis (2006), Hanoi Law University.

¹⁴² Tran Van Nam; *Identifying shortcomings in determining the value of intellectual property of startups in Vietnam today* [Nhan dang cac bat cap ve xac dinh gia tri tai san tri tue cua cac startup o Viet Nam hien nay]; Law and Practice Journal (Tap chi Phap Luat va Thuc tien); Hue University, Issue 39, 2020.

Hoang Lan Phuong (2012),¹⁴³ Duong Thi Thu Nga (2014),¹⁴⁴ and Le Minh Thai (2017)¹⁴⁵ pointed out some problems in the legal system of intellectual assets, specifically the incompleteness of regulations on intellectual assets' valuation in specific niche contexts (i.e., capital contribution, equitization of state-owned companies, and security interests), and the inconsistency in regulations or guidelines on the cost-based valuation method.

These studies managed to provide an overview of (i) intellectual asset valuation methods that are applied globally; and (ii) the valuation regulations and practice in Vietnam over intellectual assets including patents. They are also ambitious to fine-tune traditional methods of intellectual asset valuation to make them more workable and suitable for the Vietnam context. However, these studies have yet to address the distinctive legal and economic characteristics of patents and reflect them in their analysis and proposals.

3. Results

3.1. Vietnam's Legal Framework on Patent Valuation

By law, a patent means a technical solution in the form of a product or process which is intended to solve a problem by application of natural laws.¹⁴⁶ An invention must fulfill three criteria to be protected as a patent; novelty, inventive steps, and industrial applicability. However, an invention without inventive steps could be protected as a utility solution if it is not common knowledge and satisfies the other two criteria.¹⁴⁷ A patent can be protected in maximum 20 years from the filing date, while a utility solution can be protected in maximum 10 years from the filing date.¹⁴⁸

Vietnam has no specific regulation on patent valuation. However, Vietnam has general regulations on intellectual assets' valuation provided in different legal instruments. Such regulations can be categorized into four groups addressing the following issues: (i) circumstances where intellectual assets valuation is needed; (ii) methods of intellectual assets valuation; and (iii) entities providing intellectual assets valuation services. Circular No. 06/2014/TT-BTC¹⁴⁹ (Circular 06) provides valuation standard no. 13 specifically applicable to intangibles including technologies and patents. It remains the most comprehensive official guidance on the valuation of intangibles in Vietnam for purposes of

¹⁴³ Hoang Lan Phuong; *Overcoming the inadequacies of Vietnamese law on intellectual property valuation* [Khac phuc nhung bat cap cua Phap luat Viet Nam ve dinh gia tai san tri tue], Policy and Management of Science and Technology Magazine (Tap chi Chinh sach va quan ly Khoa hoc va Cong nghe), Vietnam National University, Vol 1 Issue 2, 2012, page 62-72.

¹⁴⁴ Duong Thu Nga; *Intellectual property valuation according to Vietnam laws*; "Dinh gia tai san tri tue theo phap luat Viet Nam", Master of Laws Thesis, Faculty of Law, Vietnam National University, 2014.

¹⁴⁵ Le Minh Thai; *Completing regulations on intellectual property valuation in the context of economic integration* [Hoan thien quy dinh ve dinh gia tai san tri tue trong dieu kien hoi nhap kinh te]; Journal of Finance (Tap chi Tai chinh), July 2017; <https://tapchitaichinh.vn/nghien-cuu-trao-doi/hoan-thien-quy-dinh-ve-dinh-gia-tai-san-tri-tue-trong-dieu-kien-hoi-nhap-kinh-te-127276.html>

¹⁴⁶ Article 4.12 Vietnam's Intellectual Property Law

¹⁴⁷ Article 58 Vietnam's Intellectual Property Law

¹⁴⁸ Articles 92.2 and 92.3 Vietnam's Intellectual Property Law

¹⁴⁹ Circular No. 06/2014/TT-BTC dated 7 January 2014, providing valuation standard no. 13.

inter alia sales, purchases, transfers mortgaging, mergers and acquisitions, capital contributions, profit division, disputes, and bankruptcy proceedings.

The Price Law¹⁵⁰ and Decree No. 89/2013/ND-CP guiding the Price Law¹⁵¹ (Decree 89) provide general principles on “valuation”. The Technology Transfer Law¹⁵² and Decree No. 76/2018/ND-CP guiding the Technology Transfer Law (Decree 76)¹⁵³ specifically define “technology valuation”,¹⁵⁴ specify cases where technology valuation is required (i.e., contribute technologies in investment projects using state budget),¹⁵⁵ and provide requirements an organization must satisfy to provide technology valuation services.¹⁵⁶

Joint Circular No. 39/2014/TTLT-BKHCHN-BTC¹⁵⁷ (Joint Circular 39) and Circular No. 10/2019/TT-BTC¹⁵⁸ (Circular 10) regulate and provide guidelines for valuation of intangible assets obtained from scientific and technological tasks using state budget. Joint Circular 39 generally mentions the protection status of the patent and risks in using the patent (e.g. cancellation, invalidation, economic/technological obstacles in application/exploitation/commercialization) as distinctive criteria that must be considered in valuing patent-employed assets.¹⁵⁹ Both instruments address three traditional valuation methods (i.e., cost, income and market), yet Circular 10 adds a distinctive method called “valuation based on the amount of investment in the respective scientific and technological task”.¹⁶⁰

3.2. The Fundamental Problem with Patent Valuation and New Technology Commercialization

Although patent valuation methods can lead to relatively accurate predictions of future market value, these methods suffer from extremely high-risk factors, and the assumptions used in the calculations of value. These risks and assumptions are a major hurdle for patent owners and potential licensees to overcome. Despite the sophistication and reasonable quality of information underlying the various valuation methods, potential licensors and licensees have significant difficulty in agreeing on a transaction price. An alternative route is the use of a “pre-negotiation valuation” as a starting point to an effective negotiation of mutually-shared risk and value capture. In patent valuation approaches, a price is set by a patent owner who then expects potential buyers or licensees to meet that price. In

¹⁵⁰ Law No. 11/2012/QH13 dated 20 June 2012 on prices, amended and supplemented in 2014 and 2020.

¹⁵¹ Decree No. 89/2013/ND-CP dated 6 August 2013, detailing the implementation of a number of articles of the Law on prices.

¹⁵² Law No. 07/2017/QH14 dated 19 June 2017 on Technology Transfer.

¹⁵³ Decree No. 76/2018/ND-CP dated 15 May 2018, providing guidelines for certain articles of the Vietnam’s Law on technology transfer;

¹⁵⁴ Article 2.18 Vietnam’s Technology Transfer Law.

¹⁵⁵ Article 8 Vietnam’s Technology Transfer Law.

¹⁵⁶ Article 48 Vietnam’s Technology Transfer Law 2017; Articles 32 and 33 Decree 76.

¹⁵⁷ Joint Circular No. 39/2014/TTLT-BKHCHN-BTC dated 17 December 2014, regulating the valuation of scientific research results and the development of technology and intellectual assets using the state budget.

¹⁵⁸ Circular No. 10/2019/TT-BTC dated 20 February 2019, providing guidelines for valuation of assets resulted from the scientific and technological tasks using state budget.

¹⁵⁹ Article 9.1 Joint Circular 39.

¹⁶⁰ Article 7 Circular 10.

a pre-negotiation valuation, the patent owner conducts a preliminary patent valuation and uses the patent's inventiveness, technology value proposition, and market share capture projections among other things to begin a fact-based, transparent and mutual design of a set of mechanisms that allow the parties to share the risk and value of new technology, unvalidated by the marketplace.

3.3. Case Study: Valuation of the First Remote Waste Treatment Technology in Vietnam

3.3.1. Current Status of the Treatment of Municipal Solid Waste (MSW) in Vietnam and The Need for Appropriate MSW Treatment Technology

Following the growth in economy and population, as well as industrialization and urbanization, municipal solid waste (MSW) has been produced quickly in developing countries, including Vietnam, and it is clear that MSW has severely affected the environment and community wellbeing¹⁶¹. MSW is defined as the wastes in solid form, which are generated in daily activities by households and commercial, industrial, and institutional establishments¹⁶².

Despite the efforts of the Vietnam Government, there is a concern that the National Strategy for MSW management is likely to fail¹⁶³. One given reason is the lack of appropriate technologies for MSW treatments in Vietnam, which is not easy to solve by importing advanced technologies from developed countries.

Particularly, the characteristics of MSW depend much on the socioeconomic features as well as the geographical area, so each local authority will have unique requests for the waste treatment process to fit with municipal and policy goals¹⁶⁴. In detail, some main characteristics of MSW in Vietnam are high humidity (in the range of 65-95%), the ratio of ash is about 25-30% of dry mass, the total volatile solid is about 70 - 75% of dry mass, and low caloric value (in the range of 900 - 1,100 Kcal/kg of wet mass)¹⁶⁵. Hence, the efficiency of imported technologies, which were developed for handling MSW with other characteristics, are still under question¹⁶⁶.

On the other hand, there are not many domestically developed technologies in the field of MSW treatment. On 06 February 2022, the authors searched for the keyword "solid waste" in the public database of the Vietnam Intellectual Property Research Institute at <https://ipplatform.gov.vn/database/sang-che/tra-cuu-nang-cao>, but found only about 40 granted

¹⁶¹ Ming-Lang Tseng, Tat-Dat Bui and Ming K. Lim, *Resource Utilization Model For Sustainable Solid Waste Management In Vietnam: A Crisis Response Hierarchical Structure*, Resources, Conservation And Recycling, 171 (2021)

¹⁶² Feng Ming Tsai and others, *A Causal Municipal Solid Waste Management Model For Sustainable Cities In Vietnam Under Uncertainty: A Comparison*, Resources, Conservation And Recycling, 154 (2020),

¹⁶³ X. Cuong Nguyen and others, *Call For Planning Policy And Biotechnology Solutions For Food Waste Management And Valorization In Vietnam*, Biotechnology Reports, 28 (2020)

¹⁶⁴ Feng Ming Tsai and others, *supra* note 35, at 4.

¹⁶⁵ Ministry of Natural Resources and Environment of Vietnam, *supra* note 36, at 24.

¹⁶⁶ Tran Van Nam and Lai Minh Chuc, "*Barriers To The Commercialization Of Inventions, A Practical View From The WTM Made In Vietnam Start-Up*", Hanoi Law University, Conference Proceeding on Commercialization of IPRs, 2021

patents and applications concerning MSW treatment under the name of Vietnamese entities (please see Appendix 1 – Result of patent search for the keyword “solid waste” under the name of Vietnamese entities). In addition, such domestic technologies are normally developed by the private sector, so their applications in practice are quite limited and being challenged¹⁶⁷.

In light of the foregoing, it is clear that the selection of appropriate MSW treatment technologies, which meet the specific requirements for handling MSW in Vietnam, is necessary, not only for cost-efficient but also for avoiding the threats to the environment and human health¹⁶⁸.

3.3.2. General Background of the Remote MSW Treatment Technology Invented by Lai Minh Chuc

Lai Minh Chuc is known as one of the leading inventors of MSW treatment technology in Vietnam¹⁶⁹. He is also the Director of the Centre of Research and Development of Environmental Technology for Construction (aka “CIRDETC”) as well as the President of the Board of members of Vietnam Environmental Science and Technology Co., Ltd. During his career, Chuc has participated in the creation of nearly 20 inventions and utility solutions, and at least 04 of them have been protected under the Patent Nos. 1-0012044-000, 2-0001218-000, 1-0026501-000, and 1-0024299-000 (as the date of 07 February 2022), officially granted by the IP Office of Vietnam. Please find Appendix 2 – List of Author Lai Minh Chuc’s inventions and utility solutions extracted from the World Intellectual Property Organization (WIPO) Publish database of the IP Office of Vietnam at <http://wipopublish.ipvietnam.gov.vn/wopublish-search/public/patents>.

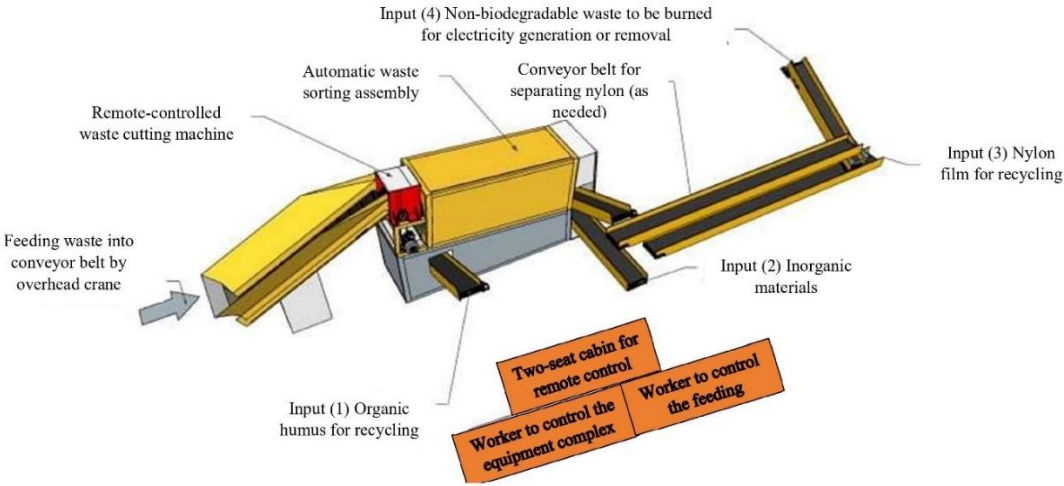


Figure 1. Model of automatic waste sorting equipment complex with remote control invented

Source: Inventor Lai Minh Chuc

¹⁶⁷Tran Van Nam and Lai Minh Chuc, supra note 36, at 4.
¹⁶⁸ Nguyen Huu Hoang and Csaba Fogarassy, *Sustainability Evaluation Of Municipal Solid Waste Management System For Hanoi (Vietnam) - Why To Choose The ‘Waste-To-Energy’ Concept*, Sustainability, 12.3 (2020).
¹⁶⁹ "Engineers Invented Environment-Friendly Automatic Rubbish Classification - News Vietnamnet", *English.Vietnamnet.Vn*, 2012 <<http://english.vietnamnet.vn/fms/environment/22990/engineers-invented-environment-friendly-automatic-rubbish-classification.html>> [Accessed 7 February 2022].

The point is that the quality of waste sorting of this technology is much higher than that of prior manually-operated devices, thus overcoming the secondary pollution situation of emissions and micro infectious bacteria for workers and the environment around the factory. According to the Director of Ha Nam Waste Treatment Plant, Ms. Nguyen Ngoc Hue, this is an automatic technology without manual labor, and it should be widely used in Vietnam¹⁷⁰.

3.3.3. The issued Vietnam patent No. 12044

The basis for any patent valuation is the patent (or patents) per se. The fundamental value of a patent lies in the claims – the “metes and bounds” of the property right that allows the patent owner to stop others from making, using, and selling the property. Therefore, the scope and quality of the claims are the defining characteristic of a patent’s legal and economic value.

The scope of claims has a large impact on the patent value. If the claims effectively cover the products or service items of commerce, they have value – if they do not effectively cover those items – the claims are not valuable, and neither is the patent. If a patent claims cover the toothbrush, the patent has value because all toothbrushes are covered by the patent. If a patent claims cover toothbrushes with blue-stripes, the coverage of items of commerce are significantly reduced – and therefore the patent value is commensurately reduced, from all toothbrushes to only blue-striped toothbrushes.

A basic question is whether this claim confers value on the issued patent, because the claim effectively covers the item of commerce. Of critical importance is the question of how easily others can “design around” the claims in order to avoid infringement. Without infringement, the patent owner cannot stop others from making, using, selling the claimed invention.

The value of Vietnam Patent therefore hinges on a close analysis of the claims and how easily it can be modified to avoid infringement. For example, Claim 1 includes “rectangular steel plates with a thickness of 1-2cm”; if another party uses plates that are more or less than this thickness, they arguably fall outside the patent claim – and avoid infringement.

3.3.4. The Illustrative Valuation and Commercialization of Remote Waste Treatment Technology conducted by an Independent Expert

As the claims of Inventor Lai Minh Chức cover the technology in a meaningful way, with enforceable claims, WIPO and her Vietnam counterpart arranged a pilot service to evaluate the invention that was already awarded titles of protection by the National Office of Intellectual Property of Vietnam.

The aforesaid waste treatment technology was valued by Robert Sanders, Managing Partner of Global IP Services LLP, Singapore, and Managing Director of Global IP Services Australia Pty Ltd, in an illustrative Independent Expert’s Report (IER) under the terms of a proposal extended during the WIPO IP Valuation workshop in Hanoi, Vietnam in June 2013.

a) Cost of Development

The total cost of developing the waste treatment technology was estimated at **US\$1.149 million**. The detailed breakdown is as the below table:

¹⁷⁰ Tran Van Nam, and Lai Minh Chuc, 2021; supra note 36

Table 1. The detailed breakdown of the costs for developing the waste treatment technology

Total Costs for Developing the Waste Treatment Equipment			
Activities		Cost (in million VND)	Cost (in million USD)
I	Labor costs	4,830	0.225
II	Loans without interest	8,062.5	0.375
III	Costs for purchasing supplies and facilities for manufacturing and testing	11,780.5	0.549
Total		24,673	1.149

Source: Inventor Lai Minh Chuc

The historical costs provided were reviewed and assessed in the context of the IER. This investment provides the owner, in the context of a nationally recognized and highly-regarded technology, with a capacity to leverage these in the context of a Vietnamese domestic market with well-researched and sustainable requirements for the solution that waste treatment technology represents.

b) Value of Vietnam Market for Waste Treatment Technology

The capital for establishing each waste treatment plant (with a notional 1000 tons of waste/per day handling capacity) is estimated at US\$24 million, according to other research by Inventor Chuc. Based on the provided information, a planning estimate (for calculation of fair value purposes) of 10 plants (across 03 cities: Hai Phong, Hanoi, and Ho Chi Minh City) was used.

Again, for calculation purposes, the valuer assumed a flatlined commissioning of waste treatment plants over a 5-year period, the following capital investment trend, with an upfront ‘spike’ in the first year as the first facilities (essentially 1 for each key metropolitan center) was commissioned, was envisaged.

Table 2. Capital investment trend in Vietnam market for waste treatment technology over 5 years

Value of Vietnam market for waste treatment Units (Capital Cost Basis)	US\$
Year 1	80,000,000
Year 3	160,000,000
Year 5	240,000,000

Source: Robert Sander ¹⁷¹

c) The Estimated Value of the Waste Treatment Technology

Firstly, the valuer argued that the cost-based approach was not appropriate for assessing the fair value of the waste treatment technology. The cost-based approach,

¹⁷¹ Robert Sanders (2013), *Valuation of Nominated Waste Treatment Machine (“WTM”) Intangible Assets*, An illustrative Independent Expert’s Report (IER) under the terms of a proposal extended during the WIPO IP Valuation workshop in Hanoi, Vietnam in June 2013

including the consideration of any component of the US\$1.149 million amount reported by the inventor in the context of this exercise as total costs associated with the development of the waste treatment technology, was rejected as it did not, in the reviewer's opinion, adequately reflect or indicate the enterprise fair value the technology would have in relation to the fair value of royalty-based, and other practicable income streams in relation to the 5-10 year plant rollout (and US\$24 million per plant capital model) outlined above.

Secondly, the market-based approach was constrained by the lack of an active and relevant "waste treatment technology" market. This market was inadequate for fair value purposes, as illustrated by the "Nil Response" results for direct comparable transaction (acquisition) searches.

Hence, for illustration purposes, the income-based approach was employed and calculated. Applying a notional 6% royalty rate (to depict the notional contribution of the Technology on a Relief-from-Royalty basis against the US\$240 million capital model relied upon) against the first 5 years of waste treatment plant roll-out revenues, a total revenue stream of US\$14.4 million was depicted. Applying a (straight line – for illustration purposes) discount rate of 15%, on a DCF basis, a fair value of **US\$12.24 million** in NPV terms was derived.

This depicts an appropriate (internal and illustrative) fair value for the subject waste treatment technology and is not meant, in any way, to establish or constrain their potential commercial market value to potential acquirers, especially those interested in exploiting an international (beyond Vietnam) market for its application.

4. Discussion and Conclusion

4.1. Conditions for a startup company to successfully transfer its patents' rights

An invention can be commercialized if it can produce a specific product or a process. Generally speaking, inventions require a combination of different technical fields, so a patent by itself is only one contributing factor. Therefore, to commercialize such inventions, it will take an inventor a long time from experimental research to create an application prototype on an industrial scale. From the scenario of remote waste treatment technology, the required conditions for a startup company to successfully transfer its patents' rights are:

(i) the technology must have a compelling "value proposition" that has been reasonably well-validated by the Company. The value proposition is the quantified benefits of using the technology minus the costs of implementation.

(ii) if The Company cannot rent facilities, it must obtain its own factory premises to manufacture waste treatment equipment according to the Company's inventions. Equipment expected to be produced and supplied to the market includes: (1) Automatic waste sorting machines (2) Machines for processing biological compost. (3) Waste incinerator.

(iii) There is a must that the Company acquires at least one real "buyer" to carry out the latest generation of waste sorting provided by the Company. This licensing contract will help to generate more potential licensees in the future.

(iv) The Company should find at least one real partner to cooperate with in order to process bio-composting organic waste. The Company's waste sorting equipment proves that the invention is effective and sustainable for the entire life cycle of urban waste treatment.

(v) There is a must that Company acquires at least 01 angel fund to allocate capital for manufacturing an incinerator of urban waste treatment on an industrial scale (see Figure 2).

4.2. The Benefit and Drawbacks of Valuation in Commercialization in Vietnam

Given the intangible and unique nature of a patent, its value is not easily assessed like other traditional properties. Therefore, there is no doubt that valuation is only a starting point for negotiation between a licensee and a licensor. In Vietnam, the patent valuation provided by a qualified appraisal organization is a reliable source for parties in their negotiation. In some complicated cases, the parties may obtain the valuation results from different service providers to get an average valuation accepted by both parties.

However, as seen in Mr. Lai Minh Chuc's case, the valuation of US\$12.24 million resulted from the income approach was not accepted by the potential purchasers. A commonly given reason is the income-approach valuation is very high, and even not realistic, in the eyes of potential purchasers. In general, the potential purchasers were very reluctant to pay such a high price, while there was no guarantee that Mr. Lai Minh Chuc's patent would bring the expected profits if applied in reality. Instead, the potential purchasers opted for choose the cost-approach valuation, which is just US\$1.149 million, much lower than the income-approach result selected by Lai Minh Chuc. Due to the big gap between these 02 amounts, the negotiations between Inventor Lai Minh Chuc and potential purchasers often came to a dead end. This proves our point that "patent valuation" per se is a dead-end for trying to enter into a license with unproven technology.

Hence, the lesson from Lai Minh Chuc's case is the patent valuation, whether it is calculated based on which approach, is still just a source of reference. To actively commercialize the patent, the inventors should not fix the price at their expectation, but adjust it to be reasonable and affordable, while considering the potential purchaser's perspective. As disclosed by the Inventor, the final price accepted by both parties was not high as his expectation, but still much better than a zero-income scenario if the negotiation fails.

4.3. Recommendations

It should be noted that Mr. Lai Minh Chuc is not the only inventor facing difficulties in patent commercialization in Vietnam. It is clear that the application and registration are meaningless if the owners could not commercialize their protected patents to recover expenses and gain benefits. Bearing this concern, Vietnamese entities are quite hesitant in developing their own technologies as well as applying for patents, and according to the Ministry of Science and Technology of Vietnam, the number of domestic patent applications and registration in the 10-year period, from 2010 to 2019, is 5,851 (including 5,020 applications and 831 registrations), just equivalent to around 10% of the total number (i.e., 58,085) of application and registration of the foreigners¹⁷².

At present, it is too soon to predict whether or not these targets will be achieved in 2030. However, there is an impression that the Vietnamese government is showing its efforts

¹⁷² Ministry of Science and Technology of Vietnam, *Proposal On Approving The Intellectual Property Development Program toward 2030* (Hanoi, 2020), pp. 4.

in realizing goals through many actions. Based on the Decision No. 2205/QĐ-TTg of Prime Minister, each local government made its own plans for implementation in their localities, with different targets and proposed solutions to be suitable to their specific conditions. In addition, the Ministry of Science and Technology is also drafting the Law on the amendment of Intellectual Property Law, in which many regulations could be changed to facilitate the domestic inventors in registering, protecting and commercializing their patents, in accordance with Decision No. 2205/QĐ-TTg.

Nowadays, Vietnam is in a phase of accelerating industrialization and modernization, thus, issuing new sub-laws to support technology transfer services conducted by intermediary organizations will help to fill the gap between Vietnam with other economies in the region.

4.4. Conclusion

A patent, even registered at the IP Office, is almost meaningless if it is not exploited and commercialized effectively by its owner, and patent valuation can be useful – or become a hindrance - in the commercializing process. However, from studying the case of inventor Lai Minh Chuc, it can be seen that patent valuation and commercialization are not straightforward tasks in the context of Vietnam, where the legal framework is still inadequate and the potential purchasers often refuse the valuation calculated by an independent valuer.

Facing this situation, in order to quickly commercialize the patent, the inventors are advised to adjust the price flexibly to meet the acceptable threshold of potential purchasers. Inventors should use a “pre-negotiation valuation” approach as the basis for a mutually designed (negotiated) value-capture and risk-sharing mechanism. Furthermore, it is necessary to improve the legal framework for patent valuation and commercialization, through the long-term strategy of promoting domestic patent registration, as well as the restructuring of the legal framework of the establishment and operation of the intermediary organization.

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ANTECEDENTS OF SKILLED INTERNATIONAL IMMIGRANTS TO VIETNAM: THE IMPORTANCE OF GLOBAL NETWORK AND INSTITUTIONAL QUALITY

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Abstract

This paper examines demographic, economic, and social antecedents of international migrations of skilled laborers to Vietnam. Using various econometric techniques for the sample of 63 provinces in Vietnam during the 2016-2020 period, our study highlights the importance of global network and institutional quality in promoting the international inflows of skilled workers to each province in Vietnam. However, the evidence of their roles is more likely to be evident in the long run. The income of the host city and the lack of skilled labor in these cities captured by the level of young employment and skilled worker also play a critical role in skilled immigrant's decisions. Furthermore, dimensions used to reflect different issues of institutional quality affect the migrants who work as a manager, CEO, specialist, and technicians differently. The condition to develop the career and the standard of living in the host country is essential for international immigrants with advanced skills, thus the Vietnamese government should focus on the policies to improve the standard of living in terms of both social and economic benefit for these groups of international immigrants.

Keywords: *skilled international immigrants; global network; institutional quality; short-term and long-term effects; Vietnam.*

1. Introduction

Population movement is still becoming more important as migration plays an increasingly important role in the contemporary world. Scholars are increasingly interested in the determinants affecting the distribution of foreign workers in this context. According to previous studies (Castles, 2002, 2006; Massey et al., 1993; Tóth & Kincses, 2011), migrants generally gravitate toward a small number of regions due to various specific economic, social, political, and also geographical factors. In this regard, international migration is likely to affect cities and metropolitan regions rather than rural and underdeveloped regions facing socio-economic challenges. Additionally, several studies have shown that the higher the number of migrants who have arrived in a particular area in the past, the higher the following influx of immigrants. This research examines the economic factors that drive the international migration of workers to Vietnam and their impact on skill gaps. We mostly focus on foreign investments and institutional quality influences on the probability of work-related migration flows, especially skilled ones.

The majority of research on labor migration is based on observations of migrants in the receiving country, hence emphasizing the magnitude of the phenomenon or associated

impacts rather than temporal migratory changes. A few studies have examined the factors of aggregated migrant flows: Karemera et al. (2000) and Clark et al. (2009), Hatton and Williamson (2001) for flows to the United States and Canada; Gross and Schmitz (2003), and Mayda (2005) for flows to Party OECD countries. The paucity of study is due to a general dearth of data about overseas immigrants with specialized skills. Whenever flow observations exist, they often do not correspond with the immigrant experience. In traditional immigrant countries, skill selection is often an administrative procedure that does not have to be considered market constraints. In Canada, for example, the points system assures that around half of all incoming immigrants possess a high level of education or competence. Due to the many impediments to entrance into the Canadian labor market, a high majority of immigrants admitted under the points system would likely wind up in low-paying employment (see Reitz, 2000).

Expanding Gross and Schmitt's (2012) immigration flow model in three directions helps us better understand what motivates different sorts of people with different skill sets to migrate. The three directions are: first build the link between global network as well as institutional quality and skill levels; second, we allow for relative income distribution to provide skill-specific selection bias which impacts the amount of the flows and third, we allow for an unequal effect of benefits and costs across skill classes.

To obtain this objective, various econometric techniques, such as the fixed effects (FE), the random effects (RE), the panel corrected standard errors (PCSE) model, and the feasible generalized least square estimates (FGLS) model, are applied to a dataset of 63 provinces of Vietnam from 2016 to 2020, with the aim of investigating the determinants of skilled international migrants to Vietnam. As indicated in the literature, these methods are useful for resolving the issues of heteroscedasticity and fixed effects. Distinguishing the short-term and long-term effects of determinants of international migrants, therefore we also employ the autoregressive distributed lag (ARDL) method using the fixed-effects estimate (DFE). The DFE-ARDL is an appropriate method for dealing with the causal relationship between variables and the heteroscedasticity across provinces arising from the potential existence of endogeneity (Pesaran et al., 1999).

The paper is structured as follows. In Section 2, we provide a theoretical model that quantifies the determinants of skilled international migrants. Section 3 describes the data and empirical estimation strategies. The results are presented in Section 4, and finally, Section 5 discusses and concludes the paper.

2. Theoretical framework

A person of skill class si who is considering moving to country d is an example. Where L^o (L^d) is the wage in the country of origin (destination), migration's gross gain is $\{L^d(s_i) - L^o(s_i)\}$. When migrating expenses $CP(s_i)$ are taken into account, the chance of an individual belonging to the class of skill i gain due to migrating can be expressed as $XS_i = XS_i[L^d(s_i) - L^o(s_i), CP(s_i)]$. This probability is influenced positively by the salary differential between the country of origin and the country of destination and adversely by the cost of migration. In turn, these wages are heavily influenced by the wage distribution in these two countries (Borjas,

1987), as well as any potential wage premiums migrants with specialized talents may receive. The fact that earnings may vary within a skill class may be due to either disparities in ability (e.g., Gibbons and Katz, 1992) or to positions with varying pay across industries and companies. Below, we employ the capability. We, therefore, assume that an individual's wage in skill class s_i in the country of destination depends on the earnings distribution for this class of skills (i.e., the mean $\mu^d(s_i)$ and the variance $\phi^d(s_i)$ and on a wage premium associated with cultural clustering in the destination country ($sc^d(s_i)$), respectively.

$$L^d(s_i) = L^d[\mu^d(s_i), \sigma^d(s_i), sc^d(s_i)]. \quad (1)$$

In the country of origin, earnings for the same skill class are determined solely by the first two factors,

$$L^o(s_i) = L^o[\mu^o(s_i), \sigma^o(s_i)]. \quad (2)$$

A person's choice to migrate, then, relies on a variety of factors, not only on the average salary in their home country and on their new place of residence. We follow Borjas (1987) and Clark et al. (2007) in that the relative dispersion of earnings in the home country and the destination country may contribute to a bias in the sorts of immigrants that are imported. Rather than accounting for the earnings of all workers, in our scenario, the pay distribution is based on a specific set of talents. Suppose that the salary disparity between Vietnam and the place of origin is modest for skill class s_i and all other factors being equal. High-capacity employees in that class of skills are likely to find Vietnam appealing, whereas low-capability people in the same class of skills are likely to find Vietnam unattractive. When the nation of origin's variance is large compared to Vietnam's, migrants are more likely to have a selection bias. Changing salary distributions and the ensuing impact on migration patterns allow us to determine which way the bias is leaning. As an example, imagine that Vietnam's salary distribution is more variable, but it also increases compared to the home country. The shift favors high-ability workers more (more high-ability people and fewer low-potential employees are drawn to Vietnam), resulting in greater average migrant skill levels within that skill set category as a result of the shift.

We now analyze the conditions under which a skill-dependent premium linked with cultural clustering in the destination country occurs. We are especially interested in the connections between this potential premium and the conditions in which cultural clustering plays a larger role for low-skilled migrants than for high-skilled migrants. To do this, we expand Gross and Schmitt's (2003) model to skill classes. Assume, therefore, the presence of two labor markets in which a migrant can work: a labor submarket based on migrants' distinctive cultural knowledge or language and an anonymous but culturally neutral labor market. The wage in the country of destination, $L^d(s_i)$, relies on skills and can take two values: $L^a(s_i)$, the wage in the anonymous labor sub-market, or $L^e(s_i)$, the wage in the ethnically-specific labor sub-market. Appendix 1 has two results. First, regardless of the category of talents, the ethnically distinct labor market cannot be too broad to support a paid premium. Second, a positive pay premium in the ethnic-specific labor sub-market is more challenging to maintain for high-skilled classes than for low-skilled classes when earnings increase more with skill levels in the anonymous labor market than in the ethnic-specific

labor market. This may be because the anonymous labor market offers more chances for highly skilled workers than the ethnic-specific market. The consequence is that, up to an upper skill level \bar{s} , comparatively low-skill migrants get a positive premium, $sc(s_i)$, in the ethnic-specific labor market, which gives them an incentive to cluster in the destination country, but migrants with high skill ($s_i \geq \bar{s}$) do not.

Migration expenses, of course, play a role. Immigration regulations that limit the number of foreign employees allowed into one country have an impact on the likelihood that people will move. With free mobility inside the EU and a restrictive policy with other countries, we model the transition from limited to unrestricted mobility as a decrease in the cost of migration. Free movement of people has a direct impact on migratory movements. As a result, freer mobility has a greater impact on low-skill migration than on high-skill migration if the cost of migration is not dependent on one's level of education (see Clark et al., 2002).

The above description refers to an individual's likelihood of migrating to a certain nation and must be modified to the aggregate framework of migration flows. The number of individuals of a certain skill class who decide to move from one country to another ($DC(s_i)$) is the product of individual probability and the size of the relevant population such that,

$$DC(s_i) = XS_i DS(s_i) = XS_i \left\{ \mu^d, \mu^o, \frac{\sigma^d(s_i)}{\sigma^o(s_i)}, sc^d(s_i), CP(s_i), K^d(s_i) \right\} DS(s_i). \quad (3)$$

We expect μ^d to have a positive sign, μ^o to have a negative sign, $\frac{\sigma^d(s_i)}{\sigma^o(s_i)}$ to be ambiguous because it depends on the selection bias within a skill category, $sc^d(s_i)$ to be positive for lower skill levels only, and $CP(s_i)$ to be negative but with different elasticities across skill classes.

3. Model specification

To conduct empirical analysis, the author relies on the theoretical framework built in the previous section to build an experimental model as follows:

$$LDC_{j,t} = \beta_0 + \beta_1 W_{j,t} + \beta_2 U_{j,t} + \beta_3 R_{j,t} + \beta_4 FM_{j,t} + \beta_5 HC_{j,t} + \beta_6 YE_{j,t} + \beta_7 SE_{j,t} + \beta_8 FDI_{j,t} + \beta_9 FI_{j,t} + \beta_{10} LAR_{j,t} + \beta_{11} UR_{j,t} + \beta_{12} EDU_{j,t} + \varepsilon_{j,t}, \quad (4)$$

where $LDC_{j,t}$ is the log of the number of migrant workers to each province j of the 63 provinces of Vietnam. The details of the included variables are summarized in Table 1.

Since some variables are not stationary, all become stationary after taking the first-degree difference. The panel corrected standard errors (PCSE) model is used for the sample in this study to demonstrate the existence of cross-sectional dependence between each province, based on the studies of Beck and Katz (1995) and Canh et al. (2021). In addition, we apply the Feasible Generalized Least Squares (FGLS) model to solve the potential issue of heteroskedasticity or result differences due to sectional fixed issues (Gala et al., 2019; Sweet & Eterovic, 2019) presented in Equation (4) to confirm our findings. In addition, the differences between short-term and long-term effects are also considered in this article. We apply the ARDL method developed by Pesaran and Smith (1995). In this model, the fixed-effects estimate (DFE) is used because of the causal relationship between variables and the heteroscedasticity across Vietnam's provinces arising from the potential existence of endogeneity (Pesaran et al., 1999).

Table 1. Summary of variables used in the model

Dependent variables	Description	Data source	Count	mean	sd	min	max
$LDC_{j,t}$	Log of the number of migrant workers to each province j of Vietnam.	Ministry of Labour, Invalids and Social Affairs (MOLISA)	223	5.61	1.89	0.00	9.96
$LQL_{j,t}$	Log of the number of foreign migrant workers working in management positions in the provinces of Vietnam.	Ministry of Labour, Invalids and Social Affairs (MOLISA)	118	3.71	1.96	0.00	7.91
$LGD_{j,t}$	Log of the number of foreign migrant workers working as executives in the provinces of Vietnam.	Ministry of Labour, Invalids and Social Affairs (MOLISA)	115	3.45	1.93	0.00	7.37
$LCG_{j,t}$	Log of the number of foreign migrant workers working in specialist positions in the provinces of Vietnam.	Ministry of Labour, Invalids and Social Affairs (MOLISA)	125	5.10	2.04	0.00	9.63
$LKT_{j,t}$	Log of the number of foreign migrant workers working in technical positions in the provinces of Vietnam.	Ministry of Labour, Invalids and Social Affairs (MOLISA)	123	4.55	1.82	0.00	8.44
Independent variables							
$LFDI_{j,t}$	Log of the amount of FDI capital into each province.	General Statistics Office of Vietnam	223	3.52	2.11	0.00	8.30
$LU_{j,t}$	Log of the unemployment number in each province.	General Statistics Office of Vietnam	223	0.62	0.60	-1.47	2.24

Dependent variables	Description	Data source	Count	mean	sd	min	max
$LUR_{j,t}$	Log of the population living in urban area in each province.	General Statistics Office of Vietnam	223	3.23	0.51	2.28	4.47
$LW_{j,t}$	Log of the average income in each province.	General Statistics Office of Vietnam	223	8.06	0.58	0.74	8.91
$LYE_{j,t}$	Log of the young employment (ranged from 15 to 24) number in each province.	General Statistics Office of Vietnam	223	13.48	0.58	10.88	15.37
$LPOP_{j,t}$	Log of the population number in each province.	General Statistics Office of Vietnam	223	14.02	0.58	12.64	16.04
$LSE1_{j,t}$	Log of the employment numbers working as manager or CEO in each province.	General Statistics Office of Vietnam	223	8.72	1.17	1.20	16.07
$LSE1_{j,t}$	Log of the employment numbers working as technicians in each province.	General Statistics Office of Vietnam	223	9.84	2.53	-4.20	13.04
PCI	The provincial competitiveness index in each province.	Vietnam chamber of commerce and industry	223	62.93	3.58	52.99	75.09

Source: Authors' calculations

4. Results

Breusch & Pagan Lagrangian test results for Equation (5) show that $\text{Prob} > \chi^2 = 0.000 < 0.05$, so the H_0 hypothesis is rejected. This implies that the pooled OLS model is not an optimal model, thus it is necessary to use either fixed effects (FE: Fixed Effects) or random effects (RE: Random Effects) models. With Hausman test results, the fixed effect (FE) model is considered to be more suitable for the construction model to estimate the factors affecting international labor migration with skills to Vietnam when $\text{Prob} > \chi^2 = 0.0000 < 0.05$.

Table 2 outlines the results of the model of factors affecting skilled international migrant workers to Vietnam when considering the specific issues of the institutional quality. First, in Panel A, we study the factors that influence the decision of international managers and CEOs to come to Vietnam. In general, the effect of *FDI* on *LQL* is positive and statistically significant. For the immigrants who work in the manager position in Vietnam, the influence of FDI is greatest. The quality of the institutional system of Vietnam also plays a critical role in their decision, in which the quality of business support service and the sound labor training policies in each province are the most evident. Similarly, for CEOs who are not Vietnamese, their decision is also significantly affected by FDI. However, the role of institutional quality is not confirmed in our sample. Furthermore, the unemployment issue in the province of Vietnam (*LU*) has a positive and statistically significant impact on their decision. The findings suggest that a lack of labor resource in the host country can be considered as an important opportunity for international immigrants that affect their decision to move to the host country.

Next, the study focuses on the influencing factors to move skilled international specialists and technicians to Vietnam as the different issues of the institutional environment are taken into account. The results are shown in Panel B. Similarly, the effect of FDI on their decision is positive and statistically significant at a 1% significance level. However, the institutional quality affects differently the decision of specialists and technician. In particular, the role of institutional quality becomes apparent for international specialists, whereas a similar finding cannot be found for the sample of technicians.

Table 2. Antecedents of skilled international immigrants to Vietnam

Panel A

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Manager						CEO					
VARIABLES	PCI	Transparent business environment and equitable business information	Informal Cost	Time requirements for bureaucratic procedures and inspections	High quality business support services	Sound labor training policies	PCI	Transparent business environment and equitable business information	Informal Cost	Time requirements for bureaucratic procedures and inspections	High quality business support services	Sound labor training policies
LFDI	0.742*** (0.071)	0.770*** (0.075)	0.771*** (0.072)	0.772*** (0.072)	0.713*** (0.078)	0.720*** (0.075)	0.734*** (0.083)	0.753*** (0.082)	0.750*** (0.081)	0.752*** (0.081)	0.728*** (0.083)	0.722*** (0.086)
LU	0.058 (0.198)	-0.032 (0.199)	-0.050 (0.202)	-0.042 (0.202)	-0.185 (0.169)	0.129 (0.211)	0.805*** (0.251)	0.797*** (0.254)	0.776*** (0.251)	0.768*** (0.252)	0.751*** (0.248)	0.848*** (0.260)
LUR	-0.080 (0.250)	-0.041 (0.271)	-0.036 (0.262)	-0.039 (0.261)	-0.091 (0.242)	-0.160 (0.256)	-0.490 (0.310)	-0.430 (0.315)	-0.426 (0.310)	-0.437 (0.312)	-0.471 (0.308)	-0.538* (0.320)
PCI	0.090** (0.038)	-0.060 (0.100)	-0.086 (0.145)	0.094 (0.160)	0.306*** (0.091)	0.465** (0.220)	0.052 (0.050)	-0.075 (0.137)	-0.136 (0.186)	0.027 (0.204)	0.211 (0.167)	0.281 (0.269)
Observations	69	69	69	69	69	69	67	67	67	67	67	67
Provinces	56	56	56	56	56	56	55	55	55	55	55	55

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Panel B

VARIABLES	Specialist						Technician					
	(1) PCI	(2) Transparent business environment and equitable business information	(3) Informal Cost	(4) Time requirements for bureaucratic procedures and inspections	(5) Highquality business support services	(6) Sound labor training policies	(7) PCI	(8) Transparent business environment and equitable business information	(9) Informal Cost	(10) Time requirements for bureaucratic procedures and inspections	(11) Highquality business support services	(12) Sound labor training policies
LFDI	0.754*** (0.066)	0.797*** (0.066)	0.806*** (0.066)	0.793*** (0.064)	0.786*** (0.070)	0.808*** (0.072)	0.520*** (0.099)	0.540*** (0.102)	0.555*** (0.097)	0.547*** (0.097)	0.550*** (0.103)	0.529*** (0.105)
LU	-0.154 (0.197)	-0.323 (0.212)	-0.236 (0.216)	-0.251 (0.211)	-0.237 (0.217)	-0.232 (0.227)	-0.092 (0.321)	-0.382 (0.319)	-0.152 (0.323)	-0.155 (0.322)	-0.165 (0.324)	-0.129 (0.336)
LUR	-0.001 (0.245)	-0.038 (0.258)	0.042 (0.259)	0.106 (0.254)	0.050 (0.263)	0.076 (0.275)	-0.201 (0.381)	-0.177 (0.394)	-0.149 (0.381)	-0.100 (0.381)	-0.120 (0.386)	-0.182 (0.402)
PCI	0.132*** (0.038)	0.264** (0.113)	0.284* (0.161)	0.420** (0.168)	0.146 (0.150)	-0.040 (0.231)	0.092 (0.064)	0.256 (0.166)	0.259 (0.238)	0.297 (0.256)	0.018 (0.227)	0.224 (0.343)
Observations	71	71	71	71	71	71	70	70	70	70	70	70
Provinces	58	58	58	58	58	58	57	57	57	57	57	57

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In Table 3, we also perform additional analysis, in which we concentrate more on other factors affecting skilled international migrant workers to Vietnam. In Panel A, the impacts of average wage (*LW*) in a particular province of Vietnam on the decision of managers and CEOs are statistically significant and positive. When there is a transparent business environment, the manager's decision is most affected by *LW* (4.418). In contrast, when there is a good labor training policy, the impact of *LW* on management is the smallest positive (2.009). The impact of *LW* on CEOs is positive and statistically significant. The results from columns (8)-(12) are 2.191, 2.209, 2.159, 2.149 and 1.796, respectively.

Similarly, *LYE* has a positive and statistically significant effect on the number of foreign employees working as managers and CEOs in Vietnam. Specifically, the influence of *LYE* on labor and management is strongest when there are policies to support enterprises (with a coefficient of 7.220) and the least when the business environment is transparent (5.101). Meanwhile, *LYE*'s impact on CEO workers' decisions in a transparent business environment is the least obvious (.,428); on the contrary, this impact is greatest when there is a good training policy. The results also show that *LPOP* has a negative and statistically significant effect on employees as managers and CEOs. Notably, this negative impact is smallest in the context of a transparent business environment. The adjustment coefficient for employees who are managers is -3.843, and for employees who are CEOs is -4.381. Moore importantly, the competition of skilled labor in the domestic country significantly negatively affects the decisions to move to Vietnam of skilled international immigrants. Perhaps, the competition pressure from the peer group is among the critical challenge for international workers.

Similar to Panel B, the results of the impact of *LW* on international workers who are specialists and technical workers when there is a change in institutions are all positive, statistically significant and more pronounced than the other variables. . Changes in time, administrative procedures lead to the largest influence of *LW* on LDC, with the adjustment coefficient of 2,539, however, this effect when having a good labor training policy is the smallest (2.229). For technical workers, the influence of *LW* on LDC is greatest in a transparent business environment (2,458) and least pronounced when there is a good labor training policy.

Table 3. Additional Drivers of skilled international immigrants to Vietnam

Panel A

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Manager PCI	Transparent business environment and equitable business information	Informal Cost	Time requirements for bureaucratic procedures and inspections	Highquality business support services	Sound labor training policies	CEO PCI	Transparen t business environme nt and equitable business information	Informal Cost	Time requirements for bureaucratic procedures and inspections	Highquality business support services	Sound labor training policies
LW	3.842*** (0.717)	4.418*** (0.716)	4.032*** (0.722)	3.840*** (0.710)	4.174*** (0.693)	3.661*** (0.706)	2.009** (0.886)	2.191** (0.881)	2.209** (0.890)	2.159** (0.891)	2.149** (0.904)	1.796** (0.889)
LUN	-0.002 (0.297)	0.119 (0.300)	-0.050 (0.302)	-0.060 (0.294)	-0.064 (0.291)	0.099 (0.295)	-0.023 (0.333)	-0.014 (0.327)	-0.111 (0.329)	-0.103 (0.331)	-0.123 (0.331)	0.014 (0.330)
LYE	6.587*** (2.289)	5.101** (2.372)	6.628*** (2.340)	6.582*** (2.308)	7.220*** (2.291)	7.071*** (2.229)	7.245*** (2.741)	5.428* (2.927)	6.923** (2.833)	7.680*** (2.764)	7.549*** (2.831)	7.903*** (2.704)
LPOP	-5.289** (2.259)	-3.843* (2.333)	-5.297** (2.305)	-5.180** (2.280)	-5.790** (2.250)	-5.803*** (2.203)	-6.299** (2.678)	-4.381 (2.870)	-5.897** (2.774)	-6.644** (2.704)	-6.532** (2.764)	-6.929*** (2.647)
LSE1	-0.029 (0.082)	-0.021 (0.080)	-0.026 (0.084)	-0.030 (0.081)	-0.020 (0.082)	-0.027 (0.081)	-0.011 (0.074)	-0.000 (0.071)	-0.013 (0.075)	-0.001 (0.074)	-0.001 (0.075)	-0.005 (0.073)
LSE2	-0.187** (0.076)	-0.177** (0.075)	-0.181** (0.077)	-0.178** (0.076)	-0.170** (0.076)	-0.168** (0.075)	0.062 (0.080)	0.083 (0.079)	0.065 (0.080)	0.066 (0.081)	0.067 (0.081)	0.085 (0.079)
PCI	0.066 (0.058)	0.376** (0.170)	-0.010 (0.228)	0.338 (0.228)	-0.304 (0.209)	0.520** (0.254)	0.090 (0.060)	0.302** (0.141)	-0.221 (0.206)	0.153 (0.213)	0.022 (0.178)	0.516** (0.260)
Observations	87	87	87	87	87	87	84	84	84	84	84	84
Provinces	51	51	51	51	51	51	50	50	50	50	50	50

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Panel B

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Specialist						Technician					
	PCI	Transparent business environment and equitable business information	Informal Cost	Time requirements for bureaucratic procedures and inspections	Highquality business support services	Sound labor training policies	PCI	Transparent business environment and equitable business information	Informal Cost	Time requirements for bureaucratic procedures and inspections	Highquality business support services	Sound labor training policies
LW	2.330*** (0.603)	2.449*** (0.615)	2.428*** (0.611)	2.539*** (0.604)	2.509*** (0.615)	2.229*** (0.617)	2.221*** (0.776)	2.458*** (0.769)	2.358*** (0.772)	2.354*** (0.762)	2.393*** (0.779)	2.211*** (0.789)
LUN	-0.251 (0.234)	-0.312 (0.235)	-0.354 (0.231)	-0.321 (0.232)	-0.348 (0.233)	-0.256 (0.237)	-0.509 (0.311)	-0.467 (0.308)	-0.556* (0.303)	-0.509* (0.302)	-0.545* (0.303)	-0.507 (0.315)
LYE	3.948* (2.112)	3.581 (2.305)	4.664** (2.184)	4.474** (2.107)	4.580** (2.171)	4.520** (2.103)	4.186 (2.650)	3.065 (2.793)	3.979 (2.696)	4.445* (2.616)	4.709* (2.698)	4.402* (2.638)
LPOP	-2.355 (2.063)	-1.890 (2.263)	-2.993 (2.140)	-2.817 (2.063)	-2.910 (2.119)	-2.861 (2.058)	-3.417 (2.589)	-2.276 (2.739)	-3.184 (2.639)	-3.627 (2.559)	-3.876 (2.630)	-3.610 (2.581)
LSE1	-0.028 (0.050)	-0.020 (0.050)	-0.011 (0.051)	-0.017 (0.051)	-0.013 (0.051)	-0.023 (0.050)	-0.064 (0.069)	-0.063 (0.069)	-0.065 (0.070)	-0.062 (0.068)	-0.054 (0.069)	-0.061 (0.070)
LSE2	-0.022 (0.054)	-0.019 (0.055)	-0.013 (0.055)	-0.021 (0.055)	-0.014 (0.055)	-0.012 (0.054)	-0.102 (0.070)	-0.101 (0.069)	-0.099 (0.069)	-0.110 (0.069)	-0.095 (0.069)	-0.095 (0.069)
PCI	0.079* (0.044)	-0.095 (0.101)	0.068 (0.141)	0.184 (0.154)	-0.035 (0.126)	0.299 (0.187)	0.042 (0.058)	-0.179 (0.139)	-0.125 (0.191)	0.289 (0.206)	-0.111 (0.172)	0.140 (0.253)
Observations	93	93	93	93	93	93	91	91	91	91	91	91
Provinces	54	54	54	54	54	54	52	52	52	52	52	52

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

6. Conclusion

This study aims to examine the demographic, economic, and social antecedents of international migrations of skilled laborers to Vietnam. The study uses various econometric techniques to analyze Vietnam's economic development during the 2016-2020 period, emphasizing the importance of global networks and institutional quality in fostering the international inflow of skilled workers to the various provinces in Vietnam. However, the evidence of their role will most likely become apparent over the long term. An immigrant's decision to relocate to a particular city is influenced by the income of the host city and the availability of skilled labor in these cities as well as the level of young employees and skilled workers. Additionally, dimensions used to reflect different aspects of institutional quality impact migrants differentiating between managers, CEOs, specialists, and technicians.

On the policy front, our findings suggest critical insights to help economists and policymakers design policies better to attract skilled laborers from other countries. The policies aiming at enhancing Vietnam's global network, such as the policies to attract the inflows of foreign investments, and the policies to encourage the domestic entities to involve in the global trade network... play a vital role in helping the host countries to attract the international immigrants with advanced skills. More importantly, the authorities should build a strong and stable institutional system that guarantees the benefits while reducing the costs and time to deal with the administrative procedure for immigration or related documents to expand the time in the host countries.

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FACTORS AFFECTING STUDENTS' WILLINGNESS TO USE PIRATED SOFTWARE: FIELD SURVEY AT UNIVERSITIES IN HANOI

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Abstract

As the speed of the development of information technology becomes more and more powerful, more and more software is developed with the intent of meeting the majority of user demands and actively supporting all careers. Under the pressure to be competitive in the job market, students today are now wishing to develop more skills in using the supporting software related to their major to lay the foundation for their job in the future. Because of the above reason and many other reasons that tend to increase the willingness to use pirated software of many students. In this article, the influence level of these factors will be empirically investigated on universities in Hanoi. By using a linear regression model, the article shows that (1) there is no longer a distinction between genders, income and majors of students about the willingness to use pirated software, (2) the influence of those factors in the model is quite clear, especially the attitudes and subjective standards, (3) proposes solutions and recommendations for legal agencies, schools and to software enterprises.

Keywords: *Pirated software, software piracy, computer software, willingness to use.*

1. Introduction

Software technology is gradually being widely applied in all careers and is getting more attention because of the convenience they bring to the table. The age of digital economy technology booming brilliantly, which requires people to constantly innovate, fit in with the times and students are no exception. Each job has many types of software to use, this software is copyrighted software and the cost to own them is quite high, especially for students, a group of people who do not have stable financial resources. As a result, students

have consulted many ways to get the necessary software for themselves and one of the most popular ways has been to use pirated software, for which they don't have to pay but still retain all the features of the original. Students are gradually considering the unauthorized use of copyrighted software as inevitable because of the urgency of their work, as well as the era of the rapid development of computer network, also because they are attracted to the convenience of pirated software. This problem has appeared since the early days when software was put in use in Vietnam. Realizing the seriousness of this situation, the Government has already made efforts to change by supplementing the legal corridor and perfecting sanctions. Businesses have also issued warnings about using unorthodox software. In addition, in the higher education environment, many lecturers have made specific requirements for the correct use of software. But that did not bring any significant improvement, to the extent that it has not been completely resolved for many years. Therefore, the team has conducted a study on the students' willingness to use pirated software, thereby proposing solutions to allow the students fully understand the matter of respecting software copyright and prevent the situation of increasing unauthorized use of copyrighted software, based on a field survey of university students in Hanoi.

2. Method

2.1. Proposed Research Model

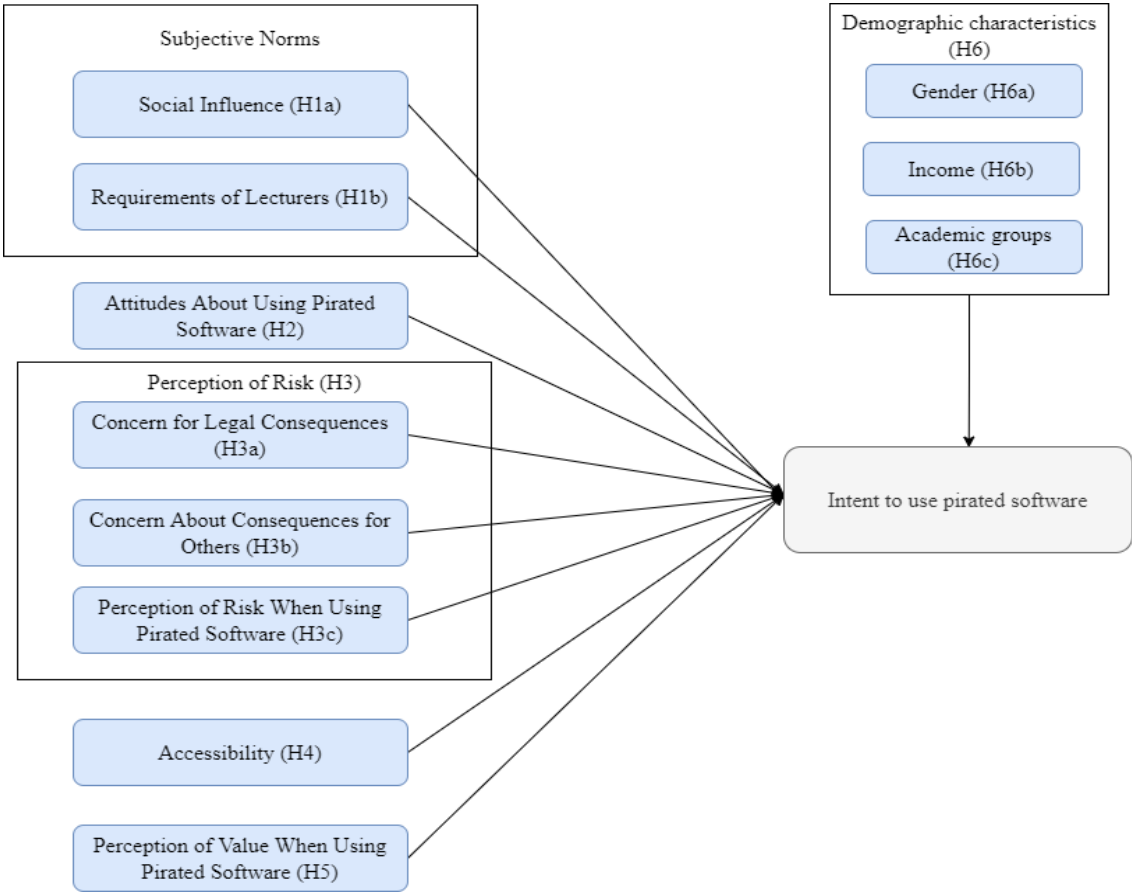


Figure 1. Research Framework

From an overview of previous studies on the factors influencing the willingness to make use of software piracy along with according to the behavioral theories and qualitative results through field monitoring, the research team proposed a model of factors influencing the willingness to use pirated software with 8 group of independent variables and 1 group of control variables as shown in Figure 1.

2.2. Data

The research article applies two methods: qualitative research and quantitative research on two data sources, with the main data source being primary data by sending out survey sheets and collecting back objective and multidimensional answer sheets from students at universities in Hanoi, and with a second source of data being secondary data collected from scientific articles, reputable research works at home and abroad, in addition to being referenced on electronic library platforms with high reliability and carefully selected information.

3. Results

3.1. Exploratory Factor Analysis – EFA

The results of KMO and Barlett tests from the first EFA analysis results of the research team has showed that the KMO coefficient = 0.893 > 0.5, with the coefficient sig = 0.000 < 0.05. Thus, the results of exploratory factor analysis (EFA) are appropriate. With Eigenvalue = 1,078, they managed to extract 7 factors from the original 8 groups of variables. The initial factors consist of the Requirements of Lecturers (RL): RL1, RL2; Social Influence (SI): SI1, SI2; Accessibility (A): A1, A2; Attitudes About Using Pirated Software (AP): AP2, AP3, AP4, AP5; Concern for Legal Consequences (LC): LC1, LC2, LC3; Perception of Risk When Using Pirated Software (R): R1, R2, R3; Concern About Consequences for Others (CO): CO1, CO2; Perception of Value When Using Pirated Software (V): V1, V2. Precisely, the research team had found that the observed variables like RL1, RL2, SI1, SI2 were converging on factor 2. These observed variables belong to two component factors in the Subjective norm group of factors (including Influences of Community and the Requirements of the lecturers). Average Variance Extracted of the independent variables for the first time reaches a value of 67.890% > 50%. This means that the variable level of the explained data is up to 67.890%, which is completely satisfactory.

Table 1. Rotated Component Matrix

	Factors							Factors						
	1 st time							2 nd time						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
AP2	.758							.745						
AP3	.747							.743						
AP5	.706							.755						
AP4	.673							.688						
AP1	.640	.521						-						
RL1		.787							.786					

	Factors							Factors						
	1 st time							2 nd time						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
<i>SI1</i>		.779							.771					
<i>RL2</i>		.776							.791					
<i>SI2</i>		.773							.789					
<i>A1</i>			.782							.782				
<i>A3</i>			.757							.756				
<i>A2</i>			.737							.740				
<i>A4</i>			.715							.716				
<i>R3</i>				.797							.786			
<i>R2</i>				.796							.792			
<i>R4</i>	-.534			.675							-			
<i>R1</i>				.659							.713			
<i>LC3</i>					.772							.769		
<i>LC2</i>					.772							.778		
<i>LC3</i>					.758							.761		
<i>V1</i>						.836							.839	
<i>V2</i>						.836							.838	
<i>CO2</i>							.822							.824
<i>CO1</i>							.818							.821

Source: Research team's analysis results

The research team considered removing two bad variables, AP1 and R4. The observed variable AP1, two 2-factor loading coefficients with a difference of $0.119 < 0.3$, at variable R4 also appeared two 2-factor loading with a difference of $0.141 < 0.3$, both variables are not guaranteed discriminatory value between the scales, so they were excluded.

The results of the second EFA – exploratory factor analysis after removing two bad variables, AP1 and R4, gave the following results: The KMO coefficient in the KMO and Barlett tests gives the result 0.896 with a confidence level of over 95% ($\text{sig} = 0.000$). Thus, the results of the second EFA of the research team were completely satisfactory. Seven factors were extracted based on the Eigenvalue > 1 criterion. The total sum of the average variance extracted at the seventh factor group reached $67.855 > 50\%$, which means that the seven extracted factors mentioned above had explained 67.855% of the variation of the observed variables. The results of the rotated component matrix the second time showed that the observed variables all have a loading coefficient greater than 0.5 and there was no case of 2-factor loading. Therefore, it can be concluded that the scales of the independent variables guaranteeing the convergence and divergence.

To sum up all the results of the EFA analysis, there are 22/24 observed variables that satisfied the conditions of the given criteria, the initial 8 factors in the model are converged into 7 factors, the remaining variables (after excluding variables) all ensure the convergence, suitable to use for analysis in the next sections. A model that is included in further analysis consists of: Subjective Norms (SN): RL1, RL2, SI1, SI2; Accessibility (A): A1, A2, A3, A4; Attitudes About Using Pirated Software (AP): AP2, AP3, AP4, AP5; Concern for Legal Consequences (LC): LC1, LC2, LC3; Perception of Risks When Using Pirated Software (R): R1, R2, R3; Concern About Consequences for Others (CO), Perception of Value When Using Pirated Software (V): V1, V2.

3.2. Regression analysis

Table 2. Coefficient table of Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta (β)			Tolerance	VIF
(Constant)	2.171	.195		11.125	.000		
SN	.200	.023	.187	9.255	.000	.732	1.367
AP	.231	.025	.201	8.155	.000	.716	1.396
LC	-.178	.024	-.168	-7.549	.000	.688	1.454
CO	-.156	.021	-.158	-7.461	.000	.755	1.325
R	-.174	.024	-.160	-7.398	.000	.721	1.388
V	.185	.022	.178	8.366	.000	.747	1.338
A	.185	.025	.163	7.479	.000	.715	1.399
Dependent Variable: IU (Intent to use pirated software)							

Source: Research team's analysis results

The regression result is presented below in Table 2. There are two regression coefficients presented in the table which are the unstandardized regression coefficient B and the standardized regression coefficient Beta (β). As shown in Table 2, the standardized regression coefficients of the independent variables are all different from 0 with significant level $\text{sig} = 0.000 < 0.005$, proving that all 7 independent variables are involved in influencing the willingness to use pirated software of the students. The VIF coefficients of all independent factors that are presented in the table are less than 10, which shows us that the independent factors in the model do not have multicollinearity.

Attitudes (AP) is the factor that has the strongest impact to the willingness to use pirated software, along with the Subjective Norms (SN), Perception of Value (V) as well as the Accessibility of the pirated software (A) are all factors with a positive impact, the remaining factors such as Concern for Legal Consequences (LC), Perception of Risk When Using Pirated Software (R), Concern For Consequences for Others (CO) is negative, and all variables have statistically significance. In reality, this is completely true, because there are

many people when mentioned about “pirated software,” they always have a positive attitude. Because they think that downloading and using cracked software means that not only do they not have to pay any cost, but they also can improve their computer skills, so they think that using pirated software is a positive thing for themselves. People’s attitude is always one of the important parts that determine the existence of a certain phenomenon or event.

The factor of subjective norms, Perception of Value and Accessibility of pirated software also contributes to a marked increase in the willingness to use pirated software. Subjective norms according to the research team’s model, consist of two groups of observed variables, namely “Community Influence” and “Requirements of Lecturers,” but when running the rotated matrix table while analyzing exploratory factor EFA, the observed variables of those two groups above all converge on one factor. In fact, the process of learning and researching of students has many modules, subjects that required specific software to be able to serve the subject. However, there are software with extremely high and expensive prices while according to the results that the research team had collected, up to 79.41% of 1051 survey participants have income of less than 2,000,000 VND/month (*Source: The research team’s survey results*). This leads to students, when required by the lecturers to get learning support software, especially some high-cost software, will seek to pirate software. Moreover, today with the development of informatics, there are more and more discussion forums, websites sharing pirated software, students can access pirated software now more than ever; in addition, the individual student is influenced by the crowd mentality: “if everyone else uses pirated software, then I can use them too” then the willingness to use pirated software of students are increasing.

Concern for Legal Consequences (LC), Perception of Risk When Using Pirated Software (R), Concern About Consequences for Others (CO) all have a negative impact on students’ willingness to use pirated software. When the legal consequences come up, this might be one of the most effective ways to minimize software piracy. Today, in the era of explosive growth in information technology, it’s not difficult to own a cracked software, but it’s also not quite difficult to impart warning information and educational measures to students. Therefore, the greater the concern of students for the legal consequences of using pirated software, the lower their willingness to use pirated software.

The risks during the process of using non-copyrighted software are also a concern for the students. It’s not difficult for the students to run the pirated software, but it’s also not difficult for those who share such pirated software to install malware (malicious software) on users’ computers as well as steal important information. Thus, the greater the perception of risk, the lower the students’ willingness to use pirated software.

In addition, the research team also proposed the group of variables Concern About the Consequences for Others. The research team had found that for an individual, besides acquiring opinions, views and standards from outer environment, there is also a self-assessment of the ways that his own actions influencing those around him, and this has an impact on the willingness to use pirated software. According to the results of the analysis, this variable has a strong negative impact on the willingness to use pirated software. Precisely, when the variable CO increases by 1 unit, the willingness to use pirated software

will decrease by 0.158 units. Students who fear that the pirated software they used is infected with malware, which in the process of running may affect the group's work or copy malicious software to others will then decrease the willingness to use pirated software.

From the results of the regression analysis, the research team presented the regression equation of the standardized modal as follows:

$$Y = 0.187*SN + 0.201*AP - 0.168*LC - 0.158*CO - 0.160*R + 0.178*V + 0.163*A + \varepsilon \quad (1)$$

4. Discussion and Conclusion

From the research results the research team had found out: There is no different in the willingness to use pirated software among the surveyed subjects belonging to different gender, income and academic groups. This means that whether male or female students, those who have low or high income, or regardless of majors, they all have the same willingness to use pirated software. This is absolutely true with the fact that improving skills in using the supporting software are mandatory for students of all professions in order to be able to compete in the labor market in the era of strong development in the field of information technology today.

From the results of the research, it can be summarized into the following findings. The first is that Positive Attitude when using pirated software will encourage the willingness to use them, which is the strongest influencing factor. Second, subjective norms also have a relatively enormous influence, and positively affect the willingness to use pirated software. Thirdly, the perception of risk reduces the willingness to use pirated software quite remarkably. Fourthly, the accessibility of pirated software also contributes to the increasing willingness to use them. Students will continue to use pirated software if they have an easy access to them instead of paying for the copyrighted ones. Finally, it's the perception of value when using pirated software, this factor completely has a positive impact on the willingness to use them with students.

Based on the research results and the current situation, the article proposes some solutions and recommendations to reduce students' willingness to use pirated software in the near future as follows:

For schools and training institutions: It's necessary to set specific requirements for organizing periodic programs, trainings and activities for clubs, faculties and classes to raise awareness about copyright infringement. Moreover, direct lecturers need to specifically request the use of copyrighted support software during the learning process of students. Continuing to organize contests, seminars and school newspapers related to respect copyright and intellectual property in general and software in particular.

For legal authorities: It's necessary to strictly enforce the laws on intellectual property in the field of information technology. Cooperating with school to propagate and equip the knowledge about the pirated software right at the Civic Education lessons at the beginning and the end of the course. Continuing to perfect the legal system, developing sanctions to handle violations and creating a clear legal corridor for the strict enforcement of intellectual property law. Creating favorable business conditions for domestic and foreign corporations, companies, forming a software market with appropriate access for students.

For businesses that provide the copyrighted software: Continuous software updates and feature development are needed to create unique value compared to older cracked software versions. The implementation of diverse Marketing strategies makes them be able to reach a wider audience. Enhancing software security, protecting consumer interests. Coordinating with universities and training units to offer support software for subjects with usage time last each semester to reduce costs to be paid at once.

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COMPLETING REGULATIONS ON SERVICE CONTRACTS IN VIETNAM CIVIL CODE IN THE REQUIREMENTS OF SUSTAINABLE DEVELOPMENT AND INTERNATIONAL INTEGRATION

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Abstract

A service contract is a typical contract in daily life because it is a transaction that helps form a supply relationship between the service party and the customer to meet the customer's needs. The legal provisions on this contract are the corridor for the parties to establish the relationship and the basis for dispute settlement. The article focuses on analyzing and evaluating the legal provisions of service contracts to make complete recommendations toward building safe, legal service delivery relationships and best meeting customers' needs for the sustainable development of the service sector.

Keywords: *Service contracts, completing legal regulations, Vietnam Civil Code 2015.*

1. Introduction

Service is a specialized activity to meet the needs of subjects in society. The economies of countries and the world show that services play a significant and pivotal role in the economy.

A service contract legally entered into by the subject is the basis for forming a service contract relationship for the parties to perform their rights and obligations to each other. This implementation process will lead to inevitable results that meet the needs of the subject parties.

To regulate these service contract relationships, Vietnam specifically stipulates nine law articles for adjustment. The provisions from Article 513 to Article 521 of Vietnam Civil Code 2015 serve as the general principles and legal corridor governing negotiating, drafting, concluding, performing and terminating service contracts.

With the current role of services, service contracts will inevitably be a legal tool for entities to establish and form contractual relationships to meet their needs. For a service contract to be concluded quickly and effectively, the legal framework must be tight enough for the parties to have a sense of goodwill and cooperation and flexible enough to match the

nature of the service. A complete legal corridor on service contracts will be an essential factor contributing to the sustainable development of the service sector and the development of the economy in general.

2. Method

To achieve the research result, the authors use the following research methods:

Analysis method: The authors will analyze the provisions of the current law on service contracts to find out the inappropriate and limited points in these regulations. With the limitations found, there will be a way to overcome them to be complete and convenient in applying legal regulations.

Comparison method: Compare the provisions of the current Vietnam Civil Code with the law of other countries or regions like the European Union to be perfected in the direction of consistency and logic. Only then will the legal provisions be synchronous and convenient for application.

Inductive method: After analyzing and comparing, the author concludes the issue to recommend perfecting the legal provisions on service contracts, aiming to create a unified and appropriate legal framework for essential adjustments. It will help create sustainable development for the service sector in particular and socio-economic in general.

For this subject, some questions need to be answered and clarified, including:

(1) The first question is the role of service contracts, the law on service contracts in the development of the service field, and socio-economic life.

(2) The second question stipulates whether the current law on service contracts has any limitations, especially concerning the laws of other countries or regions of the world.

(3) The third question concerns the limitations in the regulations on service contracts in Vietnam Civil Code 2015, which direction should be completed to contribute to the sustainable development of the service business and the economy.

3. Results

3.1. *The role of services, service contracts and legal provisions on service contracts*

The role of service in socio-economic life. In the report on the socio-economic situation in the fourth quarter and 2021, the service sector contributes 22.23% to the country's total GDP¹⁷³. In the first quarter of 2022, the service sector accounted for 41.07% of the country's total GDP¹⁷⁴. This number proves that services play a significant role in the socio-economic life of Vietnam. From an economic perspective, a service is not simply an individual activity between the supplier and the customer. However, it is considered an economic sector, the activity of performing professional work and formed by profession and economic sector. In the current trend of global economic development, service has been, is

¹⁷³ Refer to the Socio-Economic Situation Report for the fourth quarter and 2021 at <https://www.gso.gov.vn/du-lieu-va-so-lieu-thong-ke/2021/12/bao-cao-tinh-hinh-Kinh-texa-hoi-quy-iv-va-nam-2021/>, accessed on 5/5/2022.

¹⁷⁴ Refer to the Socio-Economic Situation Report for the first quarter of 2022 at <https://www.gso.gov.vn/du-lieu-va-so-lieu-thong-ke/2022/03/bao-cao-tinh-hinh-Kinh-texa-hoi-quy-in-nam-2022/>, accessed on 5/5/2022.

and will be a spearhead and key economic industry and gradually becomes a trend of borderless services to supply all customers around the globe.

The role of service contracts. The service contract plays an important role because it is a civil transaction, creating the foundation for forming the service contract relationship. Main contents such as the object, the scope of rights and obligations of each subject, the case of contract termination, the types of legal liability arising if the contract is breached, etc., are all recorded in the service contract. Therefore, it can be said that the effective or ineffective service contract relationship ultimately depends on the service contract entered into by the subjects.

The role of current regulations of service contracts. Social relations are highly diverse and complex for management, and the State can only use laws. Therefore, like other relationships, the service contract entered into between the supplier and the customer is the foundation for establishing the contractual relationship, which must comply with specific conditions issued by the State. These legal provisions create a corridor for keeping balance their interests with the interests of the State, the public or the legitimate rights and interests of other subjects. However, it should be noted that legal regulations always need to be adjusted appropriately to promote the development of social relations. Hence, the provisions on service contracts that are appropriate, of course, are the supplier relationships. Service applications will promote. In the context of today's economy, services play an essential and leading role, so the role of law is also significant. Legal provisions on service contracts can be a driving force for development if regulations are appropriate or hinder development if regulations are not appropriate, especially when it is not suitable for the nature of the service.

3.2. Current status of regulations on service contracts in the current Civil Code

3.2.1. Regulations on the subject matter of the service contract

The object of a service contract is specified in Article 519 of the Civil Code 2015. Accordingly, the object of a service contract is a work, and it must satisfy the following conditions:

First, the work is doable. The condition "can be done" is understood in the ability of the service provider to perform that job. However, for group work that requires special conditions, the service provider must also meet these conditions. Therefore, the workgroup that is the subject of the service contract will have two groups: (i) The group of work that most individuals are capable of performing. This working group does not require different skills or expertise from the performer, such as cleaning the house, carrying furniture, etc. (ii) Group of work that only a few individuals or groups can perform. This group requires the practitioner to have particular expertise such as doctors' medical examination and treatment work, legal services, etc.

Second, working conditions do not violate the prohibition of the law. Currently, the law with prohibition is recorded in two forms: (i) the group of activities prohibited from implementation is codified in the legal regulations. For example, jobs such as prostitution, prostitution brokerage, illegal cross-border transportation of goods, etc. Prohibited acts will become crimes or acts that, when performed, have to bear legal consequences such as fines. Administrative Violations; (ii) The group of activities that the service provider does not meet the conditions to perform, such as medical services, insurance services, etc. If the person does not meet the conditions, the performance will be prohibited.

Third, working conditions are not contrary to social ethics. Article 123 of the 2015 Civil Code stipulates: "*Social ethics are common standards of conduct in social life, which are recognized and respected by the community*". These behaviours become ethical standards that must be implemented by a large community of people living in a particular area or location for a long, stable time. Subjects in legal relations use the typical behaviour of the residential community where they live to participate in and perform civil legal relations, including service contract relationships.

However, the provisions on the subject matter of the service contract do not show the boundary between service-related work and non-service work. These signs are not enough to identify a job as a service. While services are only a part of the job when the object is not clearly defined, it will naturally be difficult to identify the contracts that fall into the group governed by the provisions of service contracts.

3.2.2. Regulations on service prices and service payments

Regulations on service prices. In Clause 2, Article 519 of the 2015 Civil Code, respect for the agreement of the subjects on service prices is shown. In cases without discussion or indication of parties, it will be determined according to the same service type market price when the contract is concluded. Service prices can be identified in many different terms, such as service fees, tuition fees, fees, charges, and interest, depending on each type of service. However, the general principle in Clause 519.2 of Civil Code 2015 will be challenging to apply if the parties do not have an agreement, there are no instructions for calculating service prices, and there are no services of the same type provided at the same time and location. Moreover, even the same service performed by different suppliers has specific errors, so it is not easy to apply the price of the same service.

Regulations on payment for services. Service payment is an essential obligation of the customer to the service provider. The payment for services is based on the agreement of the parties. If the parties do not have an agreement, payment will be made at the job site upon completion of the service. This principle is stipulated in Article 519.3 Vietnam Civil Code 2015. It is worth noting that payment at service is usually only suitable if it is a cash payment. Moreover, other forms of payment will not be suitable such as wire transfer and payment authorization. Not to mention, services are provided across borders, so this principle is no longer relevant.

3.2.3. Regulations on service fee reduction

In Article 519.4, Vietnam Civil Code 2015 regulations on service fee reduction. Accordingly, service charges are reduced based on the principle that the parties agree on the cases to be reduced. When the service provided is not as agreed upon, the service is not completed on time. The service fee reduction is recognized as the right of the service user. That means that the service user has the right to choose whether or not to reduce the service fee. The service fee reduction is not a liability arising from the failure to complete the service on time or the service not as agreed upon. Because the service fee is reduced in proportion to the portion of the results that are not achieved or not completed on time, it cannot be considered an adverse liability for the service provider.

3.2.4. Regulations on rights and obligations of clients

Service users are legally recognized with fundamental rights and obligations. These regulations can ultimately be the basis for when drafting service contracts, which subjects can refer to and apply. Moreover, the subjects will use these provisions as a basis to determine the essential obligations and rights of the service user in case the parties do not precisely agree on the contract.

Obligations of the service user. In general, the current law stipulates the obligations of service users in Article 515 of the Vietnam Civil Code 2015. The client has two primary obligations: (i) Provide service providers service of information, documents and means necessary to perform the work as agreed by the parties or required by the performance of the work; (ii) the subject must also pay for the service to the service provider. Payment for services must be at the right time, in the right place, in the right way and the right amount.

The recognition of these essential obligations will have two meanings: First, the service user is aware of his obligations to perform. In case the parties do not agree, the provisions of the law are the basis for determining the essential obligations of this subject. At the same time, if a dispute arises, this provision is the basis for resolving disputes related to the obligations of the service user.

Rights of service users. The user has also recognized the fundamental rights in Article 517 of the Civil Code 2015. There are two primary rights: The right to request the service provider to perform the work following the quality, quantity, and time limit. Location and other agreement between the two parties; The right to unilaterally terminate the performance of the service contract and claim compensation if the service provider seriously violates the obligation. These rights are recorded, creating a basis for service users to determine their fundamental rights.

3.2.5. Regulations on rights and obligations of service providers

Obligations of service providers. In Article 517 of the Civil Code 2015, the service user must comply with the quality, quantity, time limit, location and other agreements between the two parties. Service providers are also not allowed to assign other people to perform their work. Both parties must agree upon the assignment of another person to perform. After completing the work, the service provider is also obliged to preserve and return the assigned documents and means. The supplier must immediately notify the service user of the incomplete information, documents, and inadequate quality means to complete the work. Service providers are also obliged to keep the information confidential. If the service provider commits a breach and causes damage, this subject must compensate the service user for the damage.

Rights of service providers. In Article 518 of Vietnam Civil Code 2015, the service provider's rights are specifically recognized with the following fundamental rights: The supplier has the right to request information, documents, and facilities from the service user. Service for the performance of the job. The service provider also has the right to change the service performance conditions if waiting for the opinion of the service user can ultimately cause damage to the customer. Service providers have the right to demand payment for services. This right corresponds to the obligations of the service user.

3.2.6. Regulations on performance of service contracts

The performance of a service contract is regulated in the following aspects:

The principles of performance of service contract. The principles of service contract performance must comply with the general principles in Article 3, Article 412 Vietnam Civil Code 2015. The subjects in the service contract must strictly perform the contract entered into by the parties. The parties must also perform honestly, in the spirit of cooperation and the parties' best interests, ensuring mutual trust. The parties are also not allowed to infringe upon the interests of the State, public interests, legitimate rights and interests of others.

Performance of a contract for the benefit of a third party. From Article 415 to Article 417, Vietnam Civil Code 2015, the performance of service contracts for the benefit of a third party needs to focus on the following essential contents: (i) The third party and the service user are the two entities that have the right to require the service provider to perform the contract. Thus, the third party that is not the subject of the contract has the right to request the performance of the contract; (ii) the right to refuse to enjoy the benefits of a third party when the service contract has not been performed will be the basis for cancelling this contract. Of course, if the contract has been partially or fully performed, even if the third party refuses to enjoy the benefits, the service contract will not cancel; (iii) The parties to the service contract have no right to modify or cancel the contract if the third party agrees to benefit from the service contract.

Continuing to perform the service contract. The continuation of service contract performance complies with Article 526 of the Vietnam Civil Code 2015. Accordingly, even though the service contract has expired but the work has not been completed, the supplier continues to perform the work. If the service user knows but does not object, the contract will continue to perform even after expiration. When the service contract is continued to perform, the time of termination of the service contract's continued performance must be when the work is completed.

4. Discussion and Conclusion

4.1. Evaluate and recommend improving the law on service contracts and toward the goal of sustainable development

4.1.1. Evaluate the advantages and limitations of service contract regulations

Advantages of legal provisions on service contracts. The provisions for service contracts are stipulated in principle in the current 2015 Civil Code. Some different services, such as insurance, and air transportation, are regulated by different laws. The provisions of the current Civil Code are the most basic and general principles governing the service contract relationship. With nine articles in the Civil Code in 2015 have shown a considerable role, specifically:

Firstly, these regulations are suggestive legal corridors so that the subjects in service contracts can refer to them to agree on the contents of each of their contracts. The parties will know their fundamental rights and obligations and which contents need to be further agreed upon in the contract.

Secondly, legal provisions are the basis for dispute resolution if the service contract subjects arise disputes. The subjects may not have a specific agreement on the settlement of disputes. At this time, can only rely on the principles recognized in the law, specifically the current Civil Code, to settle.

Limitations in the legal provisions on service contracts. Analysis of the current legal situation on service contracts shows the following fundamental limitations:

Firstly, there is a limitation in not giving an exact definition of the object of the service contract. In other words, the law does not have a clear distinction between service jobs and non-service jobs. The current service contract subject matter only provides three conditions, and all three are applicable to work for any contract that includes a work subject matter. The unclear delineation will make it difficult to determine the group of contracts that are considered service contracts and are subject to the provisions of service contracts.

Secondly, there is a limitation in stipulating the service price when no regulation has been made. In the absence of agreement, the parties cannot refer to the service price from the service of the same type provided at the time and place where the parties enter into the contract. Thus, it will create difficulties for the parties or the court when settling disputes related to service price determination.

Thirdly, restrictions in the regulation of payment methods. The current Civil Code has not yet recorded cases where it is not easy for the parties to make direct payment at the place of service performance. Moreover, many services today are performed not according to a specific location. For example, it does not matter where the service is performed in services associated with internet space or even difficult to identify. Determine the location of this service. Therefore, the legislators have not yet recognized the principle of payment for services in these cases.

Fourthly, restrictions in regulations on service fee reduction. The current law has not recognized the principle of priority to apply the provisions of the specialized law if this law provides for a reduction of service charges in a specific service. At the same time, reducing service charges is a sensitive legal issue, prone to disputes. Service users always want to reduce money a lot, but service providers always tend not to reduce or reduce as little as possible. Therefore, if the law does not follow the principle of determining the level of service fee reduction, there will be no basis for resolving disputes about service fee reduction.

Thứ năm, hạn chế trong quy định về nghĩa vụ của bên sử dụng dịch vụ. Các nghĩa vụ theo luật định dành cho bên sử dụng dịch vụ không đề cập đến nghĩa vụ cung cấp thông tin khi hợp đồng dịch vụ chưa được giao kết. Đồng thời, pháp luật cũng không buộc bên sử dụng dịch vụ phải cung cấp các chỉ dẫn là cơ sở để bên cung ứng dịch vụ thực hiện công việc. Bên sử dụng dịch vụ cũng không bị ghi nhận nghĩa vụ phải cảnh báo về sự kiện bất thường xảy ra. Những sự kiện này là hiện tượng tự nhiên xảy ra khách quan chi phối trực tiếp tới quá trình thực hiện công việc hoặc kết quả công việc là đối tượng của hợp đồng dịch vụ.

Fifthly, limitations in regulations on the obligations of clients. The statutory obligations to clients do not refer to the obligation to provide information when the service contract has not been entered. At the same time, the law does not force the service user to provide instructions as the basis for the service provider to perform the work. The service user is also not obligated to warn of an unusual event. These events are objectively occurring natural phenomena that directly affect the performance of the work or the results of the work that are the subject of the service contract.

Sixthly, restrictions on the rights of service users. A service user is a person who has no expertise and experience in performing the service, so it is challenging to anticipate risks. Therefore, the law that has not recognized this right as a fundamental right for service users will not create a basis for perceived subjects to request recognition of their rights during contract negotiations.

Seventhly, there are limitations in regulations on the rights and obligations of service providers. Regarding the obligations of service providers as professional and organized suppliers, the current law does not stipulate several obligations for suppliers corresponding to the role of service providers. Especially in comparison with international law like Principles of European Law Service contracts¹⁷⁵ (PEL SC), Vietnam's legal regulations on the obligations of suppliers are simple and not suitable for the context of the market economy. The essential obligations of the supplier have not been recognized in Vietnamese law, such as the obligation to warn of possible risks in the course of performing the work; the obligation to develop service implementation plans; the obligation to adjust the negotiated content in the event of a change in circumstances; obligation to gather information before performing work. Regarding the rights of service providers, the Legislator currently has not provided for the right to request a license to serve the service deployment or the right to be alerted to unusual events from the user.

Eighthly, there are restrictions on the performance of service contracts. The limitations include: (i) The principle of cooperation in the performance of service contracts should be strictly regulated precisely because the supplier and the user have certain obligations to the service contract before the contract is concluded. In particular, the supplier is a professional and organized subject, so the requirements for cooperation with customers are an essential requirement. Therefore, in the law, it is necessary to specify the obligations of cooperation in the performance of service contracts. The identification also ensures specific compatibility with international law, particularly with PEL SC¹⁷⁶; (ii) In

¹⁷⁵ Refer to Article 1:103: Pre-contractual duties to warn, Article 1:104: Duty to co-operate, Article 1:105: Circumstances in which the service is to be performed, Article 1:106: Duties of the service provider regarding input, Article 1:107: General standard of care for service, Article 1:108: Result stated or envisaged by the Client; Article 1:109: Directions of the Client, Article 1:110: Contractual duty of service provider to warn in Principles of European Law Service contracts.

¹⁷⁶ Refer to Article 1:104: Duty to co-operate:

- (1) The duty under Article 1: 202 PECL (Duty to co – operate) requires in particular:
 - (a) The client to answer reasonable requests by the service provider for information in so far as this is reasonably necessary to enable the service provider to perform the contract;

the performance of service contracts through a third party, the law only recognizes the supplier's obligations from the supplier's perspective. Accordingly, the supplier is obliged to perform the work himself and can only let a third person do the work in the case of the user's consent. Current legal regulations are pretty rigid and not suitable for the service sector - a field that requires flexibility in the professional, professional and organized nature. Therefore, in the performance of a service contract, the performance should be recognized by a third party with specific conditions. It will create a legal basis for the supplier to perform its obligations flexibly.

4.2. Recommendations to complete the law on service contracts toward the goal of sustainable development

Based on analysis of current regulations, assessment of legal regulations, the improvement of the law on service contracts, recorded explicitly in the Vietnam Civil Code, needs to focus on the following contents:

Finalize the conditions for the object of the service contract. The object of a service contract is a job, but this work must satisfy the nature of the service: professionalism and specialization. A specific definition of the subject matter of the service contract should be noted to distinguish it from non-service work. When clearly defining the object of a service contract, it is also a basis for determining the scope of the contract subject to the provisions of the service contract.

Finalize service pricing. Service price in case no agreement, no instruction to calculate service price or no price for services of the same type at the time and place where the contract is concluded, the service price shall be determined according to the professional third party.

Perfect for paying services. It is necessary to supplement the principle and order of priority only after the principle of agreement of the parties, that is, the principle of choosing a form of payment under the conditions of the parties in the service contract. This principle is fundamental because the current service trend is borderless. The provision of services can ultimately be transnational, even transcontinental, so choosing the most suitable form of

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- (b) The client to give directions regarding the performance of the service in so far as this is reasonably necessary to enable the service provider to perform the contract;
 - (c) The client, in so far as the client is to obtain permits or licenses, to obtain these at such time as is reasonably necessary to enable the service provider to perform the contract;
 - (d) The service provider to give the client a reasonable opportunity to determine whether the service provider is performing the obligations under the contract; and
 - (e) The parties to co – ordinate their respective efforts in so far as this is reasonably necessary to perform the contract.
- (2) If the client fails to perform the duties under subparagraph (1) (a) or (b), the service provider may either withhold performance under Article 9:201 PECL (right to withhold performance), or base performance upon the expectations, preferences to have, given the information and direction that have been gathered, provided that the client is warned in accordance with Article 1:110.
 - (3) If the client fails to perform the duties under paragraph (1) causing the service to become more expensive or to take more time than agreed upon in the contract, the service provider is entitled to:
 - (a) Damages for the loss the service provider sustained as a consequence of the non-performance; and
 - (b) An adjustment of the time of performance that is required for the service.

payment to minimize payment costs is very important. After this principle, the principle of payment at the place of service will be more appropriate.

Perfect on service discount. In order to solve the limitation related to a service fee reduction, legislators can ultimately develop the principle of service fee reduction as follows: Firstly, service fee reduction is determined by the service completion rate as follows: criteria mutually agreed upon by the parties. In case it is difficult to determine the service completion rate, the parties can entirely rely on the third party's opinion with appropriate expertise selected by the parties or a dispute settlement agency.

Perfect on the rights and obligations of service users. In order to improve the regulations on the rights and obligations of service users, it is necessary to focus on the following aspects: (i) Recognition of pre-contractual obligations of service users in providing information. The service user must provide information related to the service contract honestly agreed, negotiated and entered into by the parties. This information will help determine the exact scope of services, thereby determining the rights and obligations of the parties. In short, this information is decisive to the success of the future contract signing and performance between the parties; (ii) Service users are also obliged to immediately notify abnormal events that directly affect entering and performing service contracts. In the case of these facts, only the service user knows, but the service provider cannot grasp it by experience and knowledge. Clients do not have an obligation to notify the service provider so that the service provider has plans to perform the contract in the event of this unusual event; (iii) The clients must give specific instructions for the supplier to accurately identify the service object, develop plans for contract performance, determine the rights and obligations of each party, etc. This obligation is also essential and should be recognized in the law for service users; (iv) The client should be recognized for the right to request the provision of risk forecasts during the performance of the work, to request the provision of work performance plans so that the user has the right to choose whether the operation. Service provision is performing professional and organized work by the supplier, so the user must have a higher right to "demand" from its partner.

Improve the rights and obligations of service providers. Looking at the limitations in the regulations on the rights and obligations of the service provider shows that, in order for this subject to maximize its role in the economy, the obligations and rights of the service provider it is necessary to add the following provisions: Regarding the obligations of the service provider, it is necessary to add the obligation to warn of risks that may be encountered during the performance of the service; obligation to develop service implementation plans; the obligation to adjust the negotiated content in the event of a change in circumstances; obligation to gather information before performing work. Regarding the service provider's rights, it is necessary to add the following rights: The right to request the provision of a license that the State has granted the service user. The provision of this license directly serves the service provider's service performance. The service provider also has the right to request information about unusual events from the service user.

Completion of service contract performance. To further improve the provisions on the performance of service contracts, it is necessary to supplement the principle of cooperation and consider this a fundamental principle, the main principle for the performance of service contracts. This principle can entirely be recorded into an independent law or a clause in the law on the performance of service contracts. Next, the service provider should allow a third party to perform if the third person meets the requirements for the performance of the work unless the service user requests not to allow others to perform. For the service sector that requires flexibility and expertise, this principle can be applied entirely and promotes the development of this field./.

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COMPLETING THE LEGISLATION ON MITIGATING GREENHOUSE GAS EMISSION OF VIETNAM

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Abstract

In the context of implementing international commitments to cope with climate change in general, to mitigate GHG emissions in particular and especially to implement the Nationally Determined Contribution (NDC). The need to develop and complete the legislation on mitigation of greenhouse gas emissions fully and comprehensively at the present is really necessary. Therefore, on the basis of studying the general theoretical issues of the legislation to decrease GHG emission, the current situation of these regulations in Vietnam, the following article will give some directions to complete the law as well as specific suggestions for Vietnam to protect the environment based on the legal basis.

Keywords: *Legislation, environmental protection, air, climate change, mitigation of greenhouse gas emission*

1. Introduction

Climate change is happening more and more drastically around us while having an escalating influence on our world. The impact of climate change is not limited within a country's borders but takes place globally, which has become a mutual concern of not only developed countries but also developing ones, especially those in the underprivileged list. One of the inevitable tasks in the process of mitigating the effects of climate change that these countries must undertake is to establish a legal framework which could tackle this issue in general, GHG emission in particular. This is also a way of showing crucial steps in carrying out a series of international commitments on climate change: the United Nations Framework Convention on Climate Change (UNFCCC), the Paris Agreement, the Glasgow Climate Pact (2021) and so on. In that situation, Vietnam, which was the 6th country in the world in "The Climate Risk Index for 2017: the 10 most-affected countries", took the first ranking among ASEAN countries and has also advocated for promulgating particular

legislation on climate change. However, the reality indicates that Vietnam not only has to encounter certain common struggles like other developed countries such as the impact of economic development level, ensuring the implementation of international commitments, international experiences, etc... but also has significant difficulties of its own such as the accomplishment of the legal system for environmental protection, the coordination mechanism for implementation, the procedure for promulgating law, etc... Therefore, the following article will focus on studying the challenges that Vietnam has to cope with in the establishment of the legislation on mitigating GHG emission at present. Contemporaneously, this article will also suggest some recommendations for Vietnam to meet the demands of international environmental law and implementation conditions in Vietnam in the near future.

2. Literature Review

2.1. The definition and position of the legislation on mitigating GHG emission

The Law on GHG emission reduction is a relatively new legal field not only in the legal system of Vietnam but also many other developing states. Revolving around the protection of the air environment generally and responding to climate change by reducing GHG emissions, the regulations aim to adjust the relationship between the actors in the administrative mechanisms to protect a common interest of the safe air environment; Control the sources of GHG emissions and increase the absorption of greenhouse gasses; Ensure the right of relevant State agencies to implement activities of GHG mitigation; Prepare, fulfill plans, implement protection and enforcement mechanisms; Process and procedures for considering complaints.

Based on the groups of social relations within the scope of the legislation on mitigation of GHE emissions, this law can be defined:

“The legislation on mitigating greenhouse gas emissions is a legal field that includes a set of legal norms and legal principles governing social relations which arise between entities in the process of greenhouse gas emissions, on the basis of a combination of different adjustment methods in order to effectively implement actions to decrease greenhouse gas emissions.”

From the perspective of both international and national environmental law, the legislation on GHG emission reduction which acts as a part of the law to protect environmental components, coexist with many areas of law on other environmental components protection.

In the international environmental law, there is a system of regulations governing issues such as soil environmental protection (United Nations Convention to Combat Desertification 1994, Convention on Biological Diversity 1992,...) , air environmental protection (United Nations Framework Convention on Climate Change - UNFCCC 1992, The Vienna Convention for the Protection of the Ozone Layer 1985, Montreal Protocol 1987,..), water environment protection, biodiversity conservation, ... Through analysis, it is shown that the legislation on GHG emission reduction is a part of the law on climate change - within the scope of the law on air environmental protection in the overall international environmental law. Because GHG emissions are one of the main factors in climate change caused by air pollution, certain international treaties have separate provisions on GHG

emission mitigation, for example: Article 4 of UNFCCC 1992 mentioned the commitments of the contracting states around the issues related to GHG emissions¹⁷⁷; The Paris Agreement on climate change has set out specific commitments of developed countries (in Annex I) on GHG reduction (Article 2-4)¹⁷⁸,...

From the perspective of national environmental legislation, specifically the environmental protection law of Vietnam and many other countries in the world such as the Philippines and South Korea, the regulations of mitigating GHG emissions in the law of Vietnam has a similar status to the position of this regulation in international environmental law. Specifically, the law on climate change has integrated regulations on GHG emission reduction to implement the law on air pollution control and is included in the overall environmental law. Chapter VI of the Law On Environmental Protection 2020 regulates the issues of coping with climate change. In this chapter, Article 91 is devoted to providing legal provisions around GHG emission reduction and in order to detail this Article 91, sub-law documents (Decree 06/2022/ND-CP,...) have been issued.

2.2. Main contents of the law

Researching the practice of national environmental legislation on climate change, GHG emission reduction of countries such as China, Korea, the Philippines..., the role of the law and understanding the legal provisions of certain countries, the study shows a general pattern of the content of legislation on GHG emission reduction which includes:

- Measures to reduce GHG emissions: Here, solutions to limit GHG emissions into the environment are given. Currently, the implementation of GHG emission reduction with carbon credits, operating the carbon market is considered an economic tool that should be applied to the environment field to solve the problems of climate change. Therefore, the law on GHG emission reduction needs to specify the mechanism for exchanging and trading this type of credit.

- Measurement, reporting and appraisal of GHG mitigation: Establish a system and process for measuring, reporting and validating GHG emission reduction activities at the national level. The law should have regulations to guide the production facilities, businesses to carry out the GHG inventory and report on GHG mitigation at their own facilities.

- Community propaganda and education: Propose measures to enhance communication, education and community participation in the implementation of GHG emission reduction; improving the role of the communication system and bringing issues around GHG emission reduction into teaching, compiling teaching contents that are suitable for all grades.

- International cooperation: Developing legal regulations to promote international cooperation in GHG emission reduction issues such as actively participating in international negotiations; seeking support from outside resources; calling for research and innovation projects, technology development and transfer; building bilateral and multilateral cooperation mechanisms and forums;...

¹⁷⁷ United Nations Framework Convention on Climate Change - UNFCCC 1992

¹⁷⁸ Kyoto Protocol to The United Nations Framework Convention On Climate Change

- Budget allocation: Specifying financial sources and budgets for GHG emission reduction activities in a clear and transparent manner; sorted by the level of priority activities to be spent and to other activities related to GHG emission reduction.

- Obligations and responsibilities of actors in GHG emission reduction: In addition to relevant regulations on obligations and responsibilities of GHG emission facilities, organizations and individuals are encouraged to implement, at this section also mention to the roles and responsibilities of relevant authorities and state agencies in monitoring, management and law enforcement on GHG emission reduction.

- Liability: Provide sanctions for those who violate the law or perform insufficiently or improperly their obligations and responsibilities.

- Dispute settlement: In the environmental field, conflicts of interests may still exist between different groups of objects, which leads to the need for a mechanism to tackle these issues. Therefore, the law needs to mention the methods and procedures to resolve environmental cases and especially that related to the issue of GHG emissions.

3. Results

3.1. Status of law on GHG emission reduction in Vietnam

Until now, in the environmental protection law system, Vietnam hasn't enacted any specific laws on GHG emission reduction. The regulations on this issue is just integrated into Law on Environmental Protection 2020 (LEP) and other relevant laws including Law on Economical and Efficient Use of Energy 2011, Law on Water Resource 2012, Law amending and supplementing a number of articles of the Electricity Law 2012, Law on Forestry 2017. Especially, LEP regulates that GHG emission facilities, which are on the list of required GHG emission inventories, have responsibilities for carrying out some activities to reduce GHG emissions based on the amount of historical GHG emissions and quotas of GHG emission allocated by the government. Besides, the government has recently issued a by-law document: Decree No.06/12/2022/ND-CP dated 07/01/2022, regulation on GHG emission reduction and Ozone- layer protection has emphasized this is the utmost issue of concern and the determination of well accomplishing international commitments of which Viet Nam is a member. Below is some basic information about GHG reduction regulations.

3.1.1. System of environmental technical regulations on greenhouse gasses

According to Clause 10 Article 3 of Law No.72/2020/QH14 on Environmental Protection: *“Technical regulation on environment means a regulation requiring mandatory application of limits of parameters regarding environmental quality, concentration of pollutants in raw materials, fuels, materials, equipment, products, goods and waste, and technical and managerial requirements. The regulation is issued by a competent authority in accordance with regulations of law on standards and technical regulations.”*

Environmental technical regulation on GHG is a regulation that requires the application of limits of parameters on environmental quality and GHG content in raw materials, fuels, materials, equipment, products and goods., waste, technical and management requirements promulgated by competent state agencies in accordance with the law on standards and technical regulations. The system of environmental technical

regulations on greenhouse gases includes technical regulations on ambient air quality and environmental Technical Regulations on Emissions.

3.1.2. Regulations on prevention, remediation and improvement of greenhouse gas emissions

This is a system of legal regulations governing the activities of state agencies as well as organizations and individuals in order to limit GHG emissions that have adverse impacts on people and the environment. Activities to prevent, remedy and improve GHG emissions include:

EIA activities (Environmental impact assessment activities): According to the provisions of Clause 7 Article 3 of LEP “*Environmental impact assessment (hereinafter referred to as “EIA”)* means the process of analyzing, assessing, identifying and predicting environmental impacts of an investment project in order to take measures to reduce adverse impacts on the environment.”

From the competent State agencies on environmental management, EIA is the activity of verifying the scientific accuracy as well as the legality of the EIA report. In this activity, all positive and negative impacts on the air environment from economic activities will be carefully considered. Thus, in order to effectively protect the air environment in general and mitigate greenhouse gas emissions in particular, it is necessary to comprehensively and comprehensively evaluate these impacts in order to propose appropriate measures to help reduce greenhouse gas emissions. minimize the negative impact on the air.

From the perspective of GHG emission mitigation, management agencies need to evaluate the EIA report to determine the potential negative impact of any development on the air environment. The appraisal results of the EIA report are one of the important bases for relevant State agencies to grant project approval, decide whether the project is allowed to operate or not, or apply mandatory measures. compliance to handle environmental issues at the facilities that have been put into operation.

Developing targets, roadmap and methods to reduce greenhouse gas emission: In Article 91 of LEP organize the implementation of activities to reduce greenhouse gas emissions and absorb greenhouse gasses according to the roadmap. The method of mitigating greenhouse gas emissions in accordance with the country's conditions and international commitments is one of the important contents in mitigating greenhouse gas emissions. Accordingly, the GHG emission reduction target approved by the Prime Minister in the NDC, including the GHG emission reduction target for the energy, agriculture, land use and forestry sectors, waste management, industrial processes in accordance with the country's socio-economic development conditions and international treaties to which the Socialist Republic of Vietnam is a signatory. In addition, Vietnam also applies methods to prevent, remedy and improve GHG emissions, including the following four main contents: Firstly, focus on building a system of policies and management activities to control greenhouse gas emissions. Second, issue detailed plans to reduce greenhouse gas emissions at field and grassroots levels. Third, encourage projects to develop science-technology, production processes and services with low GHG emissions. Fourth, mechanisms and methods of cooperation on mitigation of greenhouse gas emissions are consistent with the provisions of laws and international treaties to which Vietnam is a signatory.

GHG inventory: GHG inventory is understood as “the activity of collecting information and data on sources of GHG emissions, calculating GHG emissions, and absorbing greenhouse gasses within a specified range. and for a particular year in accordance with the method and procedure established by the competent authority.” According to the UNFCCC, the Paris Agreement, Vietnam is obliged to develop and send to the Secretariat of the Climate Convention BURs, including content on the results of the GHG inventory according to general regulations. GHG inventory helps to determine the GHG emissions of each inventory sector, thereby, as a basis for proposing GHG emission reduction targets, checking the implementation of emission reduction targets. KNK has committed. Right from 2012, the Prime Minister issued Decision No. 1775/QĐ-TTg dated November 21, 2012 approving the project on management of GHG emissions causing greenhouse effect; manage carbon credit business activities to the world market. Then, Decision No. 2359/QĐ-TTg dated December 22, 2015 approving the National GHG inventory system, Decree 06/2022/ND-CP Regulations on mitigation of greenhouse gas emissions and protection. Ozone layer, Circular 01/2022/TT-BTNMT detailing the implementation of the Law on Environmental Protection in response to climate change and Decision No. 01/2022/QĐ-TTg promulgating a list of fields, GHG emitters must carry out a GHG inventory which is issued in turn to provide detailed regulations on the above issue.

Monitoring and monitoring compliance with regulations on GHG emission reduction: The Vietnamese legal system has issued many regulations to mitigate GHG emissions for establishments that have to carry out a GHG inventory. The compliance with legal regulations needs to be monitored and supervised by competent State agencies through the National System of Measurement, Reporting and Appraisal of GHG emission reductions. The Ministry of Natural Resources and Environment is the focal agency of the National System of Measurement, Reporting, Appraisal of GHG emission reduction, responsible for checking compliance with regulations on measurement, reporting, assessment of mitigation of greenhouse gas emissions at establishments; building and operating a national online database on measurement, reporting and appraisal. The acts of emitting greenhouse gasses will be administratively sanctioned corresponding to the amount of gas emitted into the environment; the fine level is specified in detail in Article 16 of Decree 179/2013/ND-CP. If they have been administratively sanctioned but continue to commit violations, they may be examined for penal liability according to the provisions of Articles 235 and 236 of The Code No. 100/2015/QH13 dated November 27, 2015 of the National Assembly on Criminal of causing air pollution.

3.1.3. Regulations on inspection of emission sources

The law on controlling GHG emissions in the world has been put into application and successful for many years, but in Vietnam, this definition has only been approached for more than 15 years. In Vietnamese legal documents, there is no exact definition of controlling GHG emissions.

When being domesticated, control of GHG emissions first appeared in the Law on Environmental Protection 2005 with regulations on management of GHG emissions causing greenhouse effect, destruction of the ozone layer and at the same time regulated expenses and more detailed in Decision No. 1775/QĐ-TTg dated December 21, 2011 of the Prime

Minister approving the Project on management of GHG emissions; manage carbon credit business activities to the world market.

Until the Law on Environmental Protection 2014, compared with the Law on Environmental Protection 2005, the Law on Environmental Protection 2014 has added Chapter IV on "Response to climate change", in which Article 41 has inherited the provisions of LEP. Decision No. 1775/QĐ-TTg dated December 21, 2011 of the Prime Minister on the content of controlling the source of greenhouse gas emissions. At the same time, adding an item on air environment protection, including regulations on ambient air quality management, air pollution control.

By the current LEP, the control of GHG emissions has been legislated in a clearer and more detailed way. Compared with the previous regulations, this law has specified 06 types of greenhouse gases. Article 91 of this Law also specifies the responsibilities of the Ministry of Natural Resources and Environment, the Ministries in charge of the fields that are required to carry out an inventory of greenhouse gases, and the People's Committees of provinces in controlling emission sources. GHG emissions, thereby avoiding overlapping when performing functions and tasks. LEP has a new point, that is, the Prime Minister has issued a list of fields and establishments that emit greenhouse gases that must carry out a greenhouse gas inventory. This list is detailed in Decree No. 01/2022/QĐ-TTg dated January 18, 2022 of the Prime Minister, which specifies the names of greenhouse gas-emitting facilities in one of six sectors. The following sectors will be required to carry out greenhouse gas inventories: Energy sector; Transportation; Construct; Industrial processes; Agriculture, LULUCF; Waste.

The responsibilities of GHG emitters on the list of required greenhouse gas inventories are also specified in Clause 7, Article 91 of the LEP. In Article 139 of the Law, the Law established for the first time the organization and development of a carbon market as a tool to promote the reduction of GHG emissions in the country, contributing to the implementation of the contribution to GHG emission reduction made by Vietnam. commitments when joining the Paris Agreement on climate change. In which, clearly stipulates who are allocated GHG emission quotas and have the right to exchange, buy and sell on the domestic carbon market; bases for determination of greenhouse gas emission quotas; responsibilities of management agencies and inter-organizations in allocating GHG emission quotas; the roadmap and time to deploy the domestic carbon market to suit the country's socio-economic conditions and international treaties to which the Socialist Republic of Vietnam is a signatory¹⁷⁹. In addition, Decree No. 06/2022/ND-CP dated January 7, 2022 of the Prime Minister has detailed regulations on Mitigation of GHG emissions, organization and development of the Carbon market. as well as measures to control GHG emissions.

3.1.4. Regulations on the system of agencies to control greenhouse gas emission

In order to fully and effectively implement the above-mentioned GHG emission control activities, it is necessary to build a system of GHG emission control agencies from central to local levels. This organ system includes:

¹⁷⁹ Vo Trung Tin (2021), *New points of the Law on Environmental Protection 2020*,

The general authorized agency

The Government: Pursuant to the Law on Organization of the Government 2015 and Article 165 of the Law on Environmental Protection 2020, the Government is responsible for organizing and unifying the State management of the implementation of measures to protect the environment in general and to protect the environment, air environment protection in particular. Directing all activities to protect and control air pollution in general and control GHG emissions in particular is one of the tasks of the Government.

The People's Committees at all levels, based on Article 168 of the Law on Environmental Protection 2020, are the agencies that control air pollution in their localities.

The professional authorized agency

The professional authorized agency will have the primary responsibility for addressing issues of general air pollution control and control of GHG emissions. in particular.

The Ministry of Natural Resources and Environment is the agency with the highest professional responsibility and directly before the Government in the field of GHG emission control and has the responsibilities provided The Law on Environmental Protection 2020.

Ministries, ministerial-level agencies and government-attached agencies, within the ambit of their respective functions, duties and powers, are also responsible for coordinating with the Ministry of Natural Resources and Environment in controlling GHG emissions.

These are other specialized management agencies, but the activities of those branches are related to the air environment. In order to complete the proposed contents on mitigation of GHG emissions, ministries and ministerial- level agencies should closely coordinate with the Ministry of Natural Resources and Environment. For example, The Ministry of Industry and Trade is responsible for coordinating with the Ministry of Natural Resources and Environment to allocate, adjust and supplement import and production quotas for controlled substances; give opinions on the list of goods banned from import and export, and goods imported and exported according to conditions within the scope of their management. The Ministry of Agriculture and Rural Development; The Ministry of Finance, The Ministry of Public Security, the Ministry of Industry and Trade, the Ministry of National Defense and relevant ministries and ministerial – level agencies shall assume the prime responsibility for, and coordinate with the Ministry of Natural Resources and Environment.¹⁸⁰

3.2. The trend of perfecting the legislation on mitigating GHG emissions

3.2.1. Towards a low carbon economy (LCE)

In the context of recent years, the effects of climate change and the degradation of the living environment have negatively impacted people's quality of life and seriously affected the sustainable development of nations, regions, and the world. To address issues related to GHG emission reduction and climate change, the United Nations and international organizations have held many climate change conferences to find effective and practical options. Accordingly, the direction taken by many countries today is to develop the economy according to the model of a low-carbon economy.

¹⁸⁰ Decree No. 06/2022/ND-CP dated 07/01/2022 of the Government regulating GHG emission mitigation and protection of the ozone layer, Article 29

LCE is an economy that aims to minimize GHG emissions while operating as a typical economy, based on low-carbon energy sources with a minimum output of GHG emissions into the biosphere. This model has become a long-term goal of many countries around the world to reduce GHG emissions and cope with climate change.¹⁸¹

Firstly, research and develop policies to regulate and encourage production and business establishments to apply low-emission production technologies to production and business activities to build a low-carbon economy.

Second, focus on developing and innovating science and technology for gas production and treatment in order to minimize the amount of GHG discharged into the environment. Limiting the use of GHG - producing energy sources and traditional waste treatment methods such as destructive incineration

Third, perfect the system of air environment regulations and standards in the direction of reviewing and supplementing Vietnam's system of regulations and standards on air quality in general and GHG emissions, in particular, to ensure health and safety, minimize the amount of GHG, and be in line with regional and international standards.

3.2.2. Consistency guarantee

The direction of completing the legislation on GHG emission reduction needs to ensure the systematicity of the environmental law in particular, and the legal system in general. When completed, it should aim to meet the following requirements:

Firstly, legislation on GHG emission reduction needs to ensure consistency in form. Regulations on GHG emission reduction need to show concentration and avoid spreading. Stemming from the situation, although Decree 06/2022/ND-CP on GHG emission reduction and ozone layer protection has been issued, the regulations on GHG emission reduction are still scattered in many documents. Environmental legislation, the development and completion of legislation on GHG emission reduction in a centralized and unified manner will create a scientific environmental legal system, making it easier for subjects to look up and learn.

Second, the legislation on GHG emission reduction needs to ensure consistency in content. Accordingly, regulations on GHG emission reduction need to avoid overlapping and conflicting content, especially the authority and obligations of entities. To perfect the legislation on GHG emission reduction, the content needs to be built based on the basic policy on GHG emission reduction. At the same time, in the process of completing the legislation on GHG emission reduction, it is necessary to refer to international experiences, especially with countries that are leading in GHG emission reduction and have similar legal models to Vietnam.

Third, legislation on GHG emission reduction should aim for adequacy. Accordingly, the legislation on GHG emission reduction should be clarified in terms of nature, principles, and content to avoid omissions. In addition, it is necessary to improve the forms of handling, and sanctions in relevant legal documents in the field of GHG emission reduction.

¹⁸¹ Busch Systems, what is Low Carbon Economy (LCE), <https://www.buschsystems.com/resource-center/knowledgeBase/glossary/what-is-a-low-carbon-economy-lce>,

3.2.3. In line with international commitments

Vietnam is currently a party to many international treaties related to GHG emission reduction, which stipulate the obligations that Vietnam must perform. Therefore, the improvement of the law should pay attention to compatibility with international commitments related to GHG emission reduction in particular and environmental protection in general.

The legislation on mitigation of GHG emissions must be consistent with international conventions on the environment such as UNFCCC, KP, and the 1985 Vienna Convention on the protection of the ozone layer; The 1978 Montreal Protocol on Ozone Depleting Substances; The Paris Agreement... The principle of conscientious implementation of international commitments appeared very early, existed in the form of international custom, and has been applied to international law for a long time, becoming a fundamental legal principle. in international relations, whereby member states must apply the treaty to the entire territory of that state unless otherwise agreed. Therefore, the improvement of the law still has to ensure compliance with the principles recognized in the system of international treaties that have been established in the past.

3.2.4. Increase private sector support

The role of the private sector, including organizations, residential communities, households and individuals, should be promoted in the implementation of legislation on GHG emission reduction in the following directions:

Firstly, reduce the proportion of state agencies directly participating in the treatment of GHG emissions. Legislation should be developed in the direction of encouraging and attracting investment in emission treatment projects with advanced and modern technology; simplifying procedures for investment preparation, construction, and operation of waste gas treatment facilities. At the same time, various kinds of voluntary commitments are encouraged from the producer and business establishments in the implementation of the legislation on GHG emission reduction. Implement incentives for small and medium-sized production facilities and businesses that do not have enough resources to invest in infrastructure to treat GHG emissions but can still participate in GHG emission reduction by hiring private organizations that specialize in providing this service.

Second, socialize activities to implement legislation on GHG emission reduction by increasing the participation of socio-political organizations, mass organizations and communities in participating in management and give suggestions to the production facilities and businesses that emit GHG on air pollution from production to waste treatment.

Third, participate in contributing and supporting the state budget for state agencies to serve the implementation of the law on GHG emission reduction. The private sector always plays a very important role in providing additional budget support to SOEs when needed.

Thus, the coordination between the state agency and the private sector will bring about high efficiency in law dissemination and practice. From there, GHG-emissions facilities and businesses will have easier access to and implementation of legislation on GHG emission reduction.

4. Discussion and Conclusion

Through surveying the trend of perfecting the legislation on GHG emission reduction along with the assessment of some remaining limitations in the Vietnamese law system, this research is providing some recommendations to improve the effectiveness of Vietnamese law on this issue.

Firstly, the promulgation of climate change law integrated with some regulations on GHG emission reduction in Vietnam is an essential demand to ensure a strict legal framework when implementing actions to achieve the stated goal.

Secondly, the law needs to focus more on putting measures to mitigate GHG emissions, specifically the construction, development, and introduction of the domestic carbon market into practice. Through research on developing countries such as China and South Korea, it is found that both countries consider this as a key policy tool in response to climate change and low-emission development. To establish a domestic carbon market, government agencies are responsible for allocating or selling a limited number of GHG emissions quotas (in tons of CO₂ equivalent) over a period of time. Enterprises wishing to exchange emission quotas do so on the carbon credit exchange.

Thirdly, Vietnam should apply the economic tool - carbon tax (or carbon emission tax) in protecting the environment in general and reducing GHG emissions in particular. With the desire to fulfill commitments and deeply participate in international integration, it seems that the need to use carbon tax in Vietnam has been existing¹⁸².

Fourthly, Vietnam needs to enact legal policies to encourage voluntary agreements from manufacturing and business facilities on reducing GHG emissions. This can create a positive effect on making them raise their own awareness and responsibility in environmental protection activities.

Fifthly, it is very necessary to build a specific sanction, which is capable of deterring every subject when performing improperly or inadequately his responsibilities and obligations as prescribed by law with the aim of prohibiting the act of violating the laws on GHG emission reduction.

In summary, by creating a legal framework for the targets of reducing GHG emissions in particular and responding to climate change in general, Vietnam has correctly identified the issues that need to be focused on in environmental protection at the present stage. This is a positive development trend in terms of legislation, showing the determination of the Communist Party and State in making efforts to achieve national goals and international commitments of which Vietnam is a member.

¹⁸² Portal of Institute of Financial Strategy and Policy (2020), Scientific evidence for the application of carbon emission tax in Vietnam, https://mof.gov.vn/webcenter/portal/vclvcstc/pages_r/l/chi-tiet-tin?dDocName=MOFUCM172848

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CREATING THE COMPREHENSIVE SYSTEM OF PUBLIC POLICIES FOR SUSTAINABLE DEVELOPMENT THE MEKONG DELTA

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Abstract

The Mekong River Delta is a socio-economic region that contributes a high yield of rice, aquatic products and fruits to Vietnam; It is also one of the three deltas in the world that are heavily affected by climate change. Over the years, Vietnam has promulgated many policies for the sustainable development of the Mekong Delta. Despite many results in practice, the Mekong Delta is still facing many problems and challenges for development. Based on the theoretical framework of public policy, the article points out the economic, social and environmental problems of the Mekong Delta. The article also gives several recommendations to improve the policy system for sustainable development in the Mekong Delta in order to adapt itself to the climate change in the coming time: (1) Focusing on policy solutions to keeping people in addition to preserving land, conserving water and protecting the environment; (2) Concentrating on scientific research activities to forecast and develop regional development scenarios; (3) Placing great importance on educational development; (4) Identifying a sustainable economic development model and effectively exploiting resources and potentials; (5) Effective regional linkage.

Keywords: *The Mekong Delta, public policy, sustainable development, climate change.*

1. Introduction

The Mekong River Delta is a socio-economic region of Vietnam, including 13 provinces and cities, with a natural land area of 40,816.4 km² (12% of the country's area) and a population of 17,282,500 people (19% of the country's population) (General Statistics Organization, 2019). This is a socio-economic region with many potentials and advantages in Vietnam's development, contributing 50% of rice production, 95% of rice exports, 65% of aquaculture yield, and 60% of fish exports and 70% of Vietnamese fruits (Government Office, 2021). However, the Mekong Delta is also one of the three deltas of the world most affected by climate change along with the Ganges - Brahmaputra (Bangladesh) and the Nile (Egypt) (Nguyen Van Thang - Mai Van Khiem, 2017). In reality, severe weather and human destruction are gradually making it possible that the Mekong Delta will be wiped out within the next 100 years (Joep Janssen, 2019).

In the past years, Vietnam has paid special attention to determining orientations, building development viewpoints and planning policy systems for sustainable development of the Mekong Delta in the face of challenges of new development contexts and conditions. especially Resolution No. 120/NQ-CP dated 17 November, 2017 of the Government on sustainable development of the Mekong Delta in adaptation to climate change. On the basis of Resolution No. 120/NQ-CP, the Government has focused on directing the building, supplementing and perfecting mechanisms and policies for sustainable development of the Mekong Delta in four main areas: (1) Renewable energy and energy efficiency; (2) Infrastructure and environmental technology; (3) Agriculture and Aquaculture; (4) Food processing and related transportation (logistics) services (Anh Hung, 2021). This resolution is considered a breakthrough milestone, marking a shift from a passive defensive approach to climate change towards a model of “proactive adaptation to nature”. (Carolyn Turk, 2021), ensuring sustainable development in the “new normal” conditions – an adaptation to climate change in the Mekong Delta.

On the basis of orientations and policies by the Party and the State, the Mekong Delta has received the attention and investment from the Government. In the 2016 - 2020 period, the total state budget investment through localities in the Mekong Delta is over VND 220 trillion, equivalent to 16% of the whole country. Some industries and fields are on the list of investment such as: Traffic with 32,961 billion VND; Agriculture with 28,200 billion VND. The interlink within the Mekong Delta and between the Mekong Delta and other localities has also been improved, in which the economic link between the Mekong Delta and Ho Chi Minh City has reached VND 280 trillion. In addition, 863 residential clusters and lines and 119 existing residential embankments have been completed for 191,000 households and one million people in flooded areas. The average rate of urban population supplied with clean water in the Mekong Delta region is about 89.6% (increasing by 1.5% compared to that of 2017), the average rate of loss of clean water is 22.5% (4% higher than the national average) (Anh Hung, 2021).

2. Method

In completion of the article, the author relied on the theoretical framework of the State - a public organization with the mission of managing and developing all aspects of socio-economic life (Bui Ngoc Hien, 2021); on public policy - an important tool of the State in management and development of the socio-economy. Public policy is whatever the State chooses to do or not to do (Thomas Dye, 2008); it is a course of actions or inactions by the government in response to a public problems (Kraft - Furlong, 2013; p. 40); it refers to all activities of the State that directly or indirectly affect the lives of all citizens” (B. Guy Peters, 2013; p. 4). In general, public policy is a tool of the State, expressed in a series of managerial decisions, planned and implemented to solve public policy problems or to achieve defined goals, all of which influence the social community. To have a good public policy, the first important requirement is to correctly identify the public policy problems.

Besides, the author mainly employed the theoretical framework on public policy problems. According to Hoppe (2002), the problem is understood as the unacceptable gap between needs and reality in the present and in the future. The public policy issue is that

unrealized needs and values - or opportunities for improvement - can be realized through State activities (Dery, D., 1984); “a conflict arises from the reality of socio-economic life, or a need to change the current situation. This urges that the State promulgate public policies with a view to resolving the desired goals” (Trieu Van Cuong, 2016: p. 49); The public policy issue is also referred to as the condition or circumstance that results in a need, or dissatisfaction in the public which is mitigated or restored from Government action (NAPA, 2015; p. 127). On the basis of accurately identifying public policy problems, competent state agencies carry out public policy planning - performing the inalienable role of the State.

Besides, the author also relied on the theory of geo-politics in the research process when considering the geographical factors specific to the Mekong Delta region - the socio-economic region with many potentials and advantages, but facing many problems in development, especially the impacts of the climate change. This reality demands that the Vietnamese Government perfect the public policy system for sustainable development of the Mekong Delta in the new context and conditions.

To complete this article, the author also focused on researching policy documents on the development of the Mekong Delta region since 1998 (when Decision No. 01/1998/QĐ-TTg by the Prime Minister approving Master Plan for socio-economic development of the Mekong Delta region to 2010) to present; on implementation reports and research works on development policy for the Mekong Delta in the period 1999 - 2021).

Regarding reality-based research, the author used some research results in the process of conducting research on the implementation of educational development policy; educational development process in the Mekong Delta from April 2017 to August 2018. In this process, the author employed the survey method by using a questionnaire (900 questions distributed, 795 votes collected) and in-depth interviews with 12 experts to analyze and evaluate the development policy system for the Mekong Delta; tested the necessity and feasibility of orientations of and solutions to improving the development development policy system for the Mekong Delta.

In addition, in order to process the collected information, the author mainly used the following methods: analysis and synthesis methods; statistical methods combined with the use of data processing software.

3. Results

3.1. Problems of economic development

The share of GDP contribution by the Mekong Delta, although always ranked third after the southeast region of South Vietnam and the Red River Delta region (the Mekong Delta's area is three times as large as that of the Red River Delta), is decreasing, namely 31.5% in 1988, 27% in 1993, 27% , 18.3% in the period 1996 - 1998, and 17.2% in 2000 (Vo Hung Dung, 2011). In 2017, the Mekong Delta contributed approximately 18% of the national GDP and 17.7% in 2019 (Fulbright, 2021).

The income of the people in the Mekong Delta is lower and lower than the national average. In the period 1999 - 2002, the per capita income of the Mekong Delta region was higher than the national average; however, in 2004, 2008, 2010 and 2018, the income of the

people in the region fluctuated at 97.3%, 94.5% , 95%, 92.5% respectively (equivalent to 3,585/3,874 thousand VND) and in 2019 at 90.4% (equivalent to 3,886/4,298 of the national average). In some localities in the region, the per capita income per month in Group 1 (in 2019) is very low such as: 806,000 VND in Tra Vinh, 812 thousand VND in Ca Mau, 853 thousand VND in Bac Lieu (GSO, 2021). In addition, the people in the Mekong Delta are always facing increasingly serious impacts of the climate change. Environmental degradation threatens the lives and livelihoods of millions of people here (The World Bank, 2021).

Especially, in areas where ethnic minorities live, economic life is even more difficult. In 2019, there were about 1,310,007 ethnic minority people in the Mekong Delta, accounting for 9.27% of the whole country, living in 463 communes, including 17 border communes. The rate of poverty-stricken households among ethnic minorities in the Mekong Delta is 24.2% (Committee for Ethnic Minorities & General Statistics Office, 2020), accounting for 19.93% of the total poor households in the region (Nguyen Thanh Son & Hoang Hanh, 2021).

This situation has had several impacts upon the socio-economic development of the Mekong Delta. In particular, this situation greatly affects the investment in the education of children in the region. The level of investment of families is low, 32/43 (74.41%) of households asked said to have difficulty in funding their children's education. These rates In Tan Phu Dong district - Tien Giang province, in Vi Thuy district - Hau Giang province, in Duyen Hai district - Tra Vinh, in Hong Ngu - Dong Thap province, and in Cai Rang - Can Tho are 06/09 (66.66%), 08/10 (80%), 07/08 (87.5%), 07/09 (77.77%), and 04/07 (57.14%) respectively.

Besides, the economic restructuring has not been orientated clearly and lacks synchronicity in the region. The conventional drivers of the Mekong Delta in economic development have been exploited to their limit while the new ones have not been clearly defined (Fulbright, 2021).

3.2. Social problems

Although the State has particular policies for the Mekong Delta region, it is still the “educational sagging area” of Vietnam (Nhu Anh, 2021). Most of the education development indicators of the Mekong Delta region are lower than the national average. In 2019, the literacy rate of the population aged 15 and above in the Mekong Delta was 94.2%, compared to the national average of 95.8%. Some specific localities in the region have a low literacy rate of the population aged 15 and above, such as: Tra Vinh 89.5%, Soc Trang 89.3%, and An Giang 91.6%.

Table 1. The literacy rate in percentage of the population aged 15 and above in the Mekong Delta in 2019

Mekong Delta	An Giang	Bac Lieu	Ben Tre	Ca Mau	Can Tho	Dong Thap	Kien Giang	Hau Giang	Long An	Soc Trang	Tien Giang	Tra Vinh	Vinh Long
94,2	91,6	95,1	95,2	96,6	96,5	93,8	93,4	94,4	96,7	89,3	95,9	89,5	95,5

Source: compiled from GSO, 2021

In addition, economic conditions have also had a great impact on the educational development of the region. The survey results showed that 20/43 households (48.83%) when

asked said that the cause of the dropout was due to the family's economic difficulties, namely inability to understand the knowledge (08 households, 18.6%), lack of concern for their children's education (08 households, 18.6%), lack of concern from the school (02 households, 4.65%), and having no opinion (02 households, 4.65%). Survey results also showed that 36 out of 53 students interviewed (67.92%) said that the reason for dropping out was due to family economic difficulties.

The rate of trained workers in the Mekong Delta is 13.3% (the lowest in the country, compared to the national average 22.8%). The provinces with low rates of trained workers include Bac Lieu 8.8%, Hau Giang 10.8%, and Ben Tre 11.6%.

Table 2. The rate of employment of trained labourers aged 15 and above in the Mekong Delta region in 2019

Mekong Delta	An Giang	Bac Lieu	Ben Tre	Ca Mau	Can Tho	Dong Thap	Kien Giang	Hau Giang	Long An	Soc Trang	Tien Giang	Tra Vinh	Vinh Long
13,3	14,6	8,8	11,6	12,3	16,4	13,5	13,6	10,8	16,7	12,2	11,7	11,8	15,3

Source: Source: compiled from GSO, 2021

Regarding health facilities, in 2018, the Mekong Delta region had 24.8 hospital beds per 10,000 population (cf. 31.3 of the whole country). Some localities had a lower number of hospital beds than the region's average such as: Tien Giang (16.1), An Giang (19.9), Tra Vinh (20.5). The number of doctors per 10,000 population is 7.7 (cf. 9.0 of the whole country); some localities had a lower number of doctors than the region's average such as: Soc Trang (5.0), Tien Giang (5.3), Long An (6.3), Hau Giang (6.4) (Fulbright, 2021).

According to the Government's assessment, the educational plane and the rate of application of advanced science and technology in the Mekong Delta region are lower than the national average; the quality of education and health care is still low compared to the requirements... (Government, 2017).

In addition, in the period 2009 - 2019, the urban population of the Mekong Delta increased by 0.98% per year and the average population growth was 0.05% per year, which was very low compared with 2.62% and 1.14% of the national average growth. Migrations take place on a large scale, mainly among young people of working age. The number of people who migrated out of the Mekong Delta during this period was nearly 1.1 million people, larger than the population of some provinces in the region, and equivalent to the natural population growth of the region (Bui Quoc Dung, 2020). Besides, the Mekong Delta region has the fastest population aging rate in the country.

3.3. Environmental problems

The Mekong Delta region is increasingly facing many environmental problems such as saltwater intrusion, landslides, and sea-level rise due to increasingly serious impacts of the climate change. In 2020, the Mekong Delta will have more than 500 points of river and sea erosion with more than 800 km, 63 of which were seriously eroded, with a length of up to 104 km. Annually, landslides cause the loss of about 300 hectares of land and coastal

mangrove forests of the Mekong Delta. More than 19,000 households along the river side had to be relocated from dangerous areas (Quach Hang, 2020).

The pace of industrialization in the Mekong Delta in recent years has increased rapidly, resulting in environmental pollution in general and air pollution in particular. Waste from many industrial plants in the region has been causing serious air pollution, which endangers local people's health (Le Thai Ha & Le Viet Phu, 2020). The region's industry which has relatively low added value causes considerable soil and water pollution, including the generation of solid waste (Nguyen Ngoc Tran, 2021).

Together with that, with the characteristics of an agricultural economic region, the reduction of agricultural production area along with the process of urbanization and impacts from the climate change should increase the pressure of increasing productivity. This reality results in the abuse of pesticides and chemical fertilizers. According to a report by the World Bank, about 1,790 tons of active snailicides, 210 tons of herbicides, 1,224 tons of pesticides and 4,245 tons of fungicides are overused annually in rice production in the Mekong Delta (Mai Chi, 2019).

Environmental problems of the Mekong Delta are getting increasingly serious, threatening people's livelihoods; They have an growing impact on socio-economic development and is an indirect cause of increasing migration out of the Mekong Delta.

It can be said that, from a rich land, favored by nature, the Mekong Delta is gradually facing challenges of the times - serious impacts from the climate change and many problems concerning socio-economic development. This reality "requires a new vision, strategic orientation, comprehensive, radical and synchronous solutions, maximum mobilization of resources and the participation of all economic sectors for sustainable development of the Mekong Delta" (Government, 2017).

3.4. Perfecting the policy system for sustainable development of the Mekong Delta in the coming years

On the basis of the Party's viewpoints and orientations, in recent years, State agencies have issued many policy documents on the development of the Mekong Delta, including Resolution No. 120/NQ-CP. This resolution is considered to create a strategic vision, a "naturally harmonious" development philosophy to proactively solve challenges, to constructively create institutions and policies with a view to promoting sustainable development of the Mekong Delta in a unified whole (Mai Xuan Nghien, 2021). The process of implementing the policy system has brought positive results, which is the premise for the sustainable development process of the Mekong Delta region. However, to realize the sustainable development of the Mekong Delta, the Government as well as the authorities at all levels of the Mekong Delta need a perfection and synchronization in organizing the effective implementation of the policy system for sustainable development in the Mekong Delta. Firstly, the competent authorities need to pay attention to building and perfecting the policy system on the following aspects:

Firstly, attaching importance to policy solutions to keeping people in addition to preserving land, conserving water and protecting the environment of the Mekong Delta.

In perfecting the policy system for sustainable development of the Mekong Delta, in addition to paying attention to determining the long-term vision, goals and solutions to sustainable socio-economic development, the competent authorities need to pay attention to three policy groups: (1) policies of keeping people; (2) policies of preserving land and water; (3) policies of environmental protection. These policy groups need to be integrated to improve the efficiency of the implementation of specific policies. In particular, the policies of keeping "people" should be identified as the pivotal policy group, aiming at building generations of people born and raised in this land, equipped with sufficient knowledge and skills to live together and develop their homeland. They are the decisive factor in the effective implementation of the regional sustainable development policy system. In addition, it is necessary to synchronously build a system of structural and non-structural solutions to preserving land, conserving water and protecting the environment for this socio-economic region.

Secondly, conducting research, forecasting and building feasible schemes for sustainable development of the Mekong Delta

(1) Improving policies and mechanisms to encourage strong research groups at home and abroad to participate in comprehensive research to accurately forecast the problems in sustainable development of the Mekong Delta in coming decades. On that basis, developing feasible and effective schemes for the sustainable development of the Mekong Delta in each period.

(2) Perfecting policies to encourage scientific research activities with a view to capitalizing on the challenges and solving problems in socio-economic development, in the protection of natural resources (especially land and water) of the region, and in adapting to the increasingly diverse and severe negative impacts of the climate change.

(3) Perfecting the policies on promoting applied research activities in agricultural production and socio-economic activities of the region. Placing special priority to research and breeding activities of livestock and plants that are adapted to the conditions of the Mekong Delta in the face of the negative impacts of the climate change. Thereby, creating new and effective livelihoods to help residents in the region live and develop with the climate change.

Thirdly, paying attention to developing education

On the basis of the Party's view on education: "Socio-economic policies must be suitable to the characteristics of regions..."; "Rapidly developing and improving the quality of education in disadvantaged areas, mountainous areas and ethnic minority areas" (Communist Party of Vietnam, 2011). Education development takes "priority" in socio-economic development programs and plans" (Central Committee, 2013), in the author's view, for sustainable development of the Mekong Delta, the Government needs to pay attention to perfecting and improving the effectiveness of the implementation of education development policies for the Mekong Delta. In practice, since 1999, policy documents have been issued on education development of the Mekong Delta (Prime Minister, 1999), aiming to "reaching to the average index of the whole country by 2010" (Prime Minister, 2006) and "achieving the development indicators of academic levels high above the national average by 2020" (Prime Minister, 2012). Although education in the Mekong Delta has made many positive changes, there are many limitations, shortcomings and failures in achieving the set

goals. This is a big challenge for the Mekong Delta region in the process of comprehensive and sustainable development. That reality requires a comprehensive and scientific research and evaluation of education in the Mekong Delta so as to perfect and improve the effectiveness and efficiency of the implementation of the education development policy in the Mekong Delta in practice, making a decisive contribution to in the sustainable development of the Mekong Delta when performing the role of building the generations of people to construct and implement the development goals of the Mekong Delta.

Through the survey, there were 11/12 experts and 587/651 (90.16%) respondents who believe that education development is the top-priority solution to sustainable development of the Mekong Delta in the coming years.

Forthly, identifying the model of sustainable development and effective exploitation of resources and vantages for development

First things first, relevant agencies need to organize research and consultation activities to determine an effective and sustainable economic development model for the Mekong Delta in the coming decades. These activities need to be seriously implemented to accurately and comprehensively identify opportunities, potentials as well as risks and challenges of the region, and at the same time to create consensus among stakeholders in sustainable economic development of the Mekong Delta region. Should it be that the economic development model of the Mekong Delta in the coming time should be consistent towards creating a unified whole for the region to develop a modern and sustainable agricultural economy, linked to an professional and effective market. This model requires each locality to redefine its role in the unified whole of the region, and at the same time to adjust the local development strategies and plans accordingly. In addition, localities in the region need to pay attention to strong digital transformation to improve socio-economic efficiency and to advertise, connect and develop domestic and foreign markets.

In addition, in the new development process, the Mekong Delta needs to protect and increase the value of its traditional resources and strengths, especially in the agricultural sector with agricultural produce, fruits and fisheries. At the same time, it is necessary to take advantage of new resources for development such as the attention and investment of the State in the socio-economic development of the region; the international community's interest in the impacts of the climate change in the region; invisible resources from the Fourth Industrial Revolution, international integration.

Fifthly, establishing a coordinating machanism and effective regional linkage

Currently, the Prime Minister has established the Coordinating Council for the Mekong Delta region for the period of 2020 - 2025 (Prime Minister, 2020). The linkage of the Mekong Delta region should aim at promoting the coordinating role in the whole Mekong Delta region, thereby specifying the roles and tasks of each locality in the sustainable economic development model of the Mekong Delta. At the same time, it should work towards increasing regional linkages between the Mekong Delta region and Ho Chi Minh City, the southeast region of South Vietnam and the Asian region and worldwide.

4. Conclusion

The Mekong Delta is a socio-economic region with many potentials and advantages for development. However, this socio-economic region is most affected by the climate change in Vietnam. In the author's perspective, to develop the Mekong Delta sustainably in the new development context, the competent authorities need to correctly identify the challenges and problems of the region. At the same time, they are expected to promote research activities, forecast and develop schemes for sustainable development of the Mekong Delta; to establish a model of sustainable economic development and effectively promote resources and strengths for development; to pay special attention to policy solutions to "keeping people", developing education and creating an effective coordination and regional linkage mechanism.

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REDUCING WITHDRAWAL OF LUMP - SUM SOCIAL INSURANCE ALLOWANCE IN VIET NAM: PROPOSED SOLUTIONS

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Abstract

In order to ensure employees' income and maintain their standard of living, especially when their earnings are postponed or they are out of labor force, insurance policy always encourages employees to receive annual/monthly pensions instead of receiving lump - sum allowance. However, the number of pensioners tends to increase each year. Thus, to achieve this goal and ensure social security, it is necessary to propose solutions which orientate employees remain in social insurance system.

Keywords: *Lump sum payment, pension, employees*

1. Introduction

In Law on Social Insurance (Law No. 58/2014/QH13), regulations on Lump-sum social insurance allowance at Article 60:

1. Employees defined in Clause 1, Article 2 of this Law are entitled to a lump-sum social insurance allowance upon their request when falling in one of the following cases:

a/ They have reached the retirement age specified in Clause 1, 2 or 4, Article 54 of this Law but have paid social insurance premiums for under full 20 years, or the age specified in Clause 3, Article 54 of this Law but have paid social insurance premiums for under full 15 years and do not continue paying voluntary social insurance premiums;

b/ They settle abroad;

c/ They get a fatal disease, such as cancer, poliomyelitis, dropsy cirrhosis, leprosy, serious tuberculosis, or HIV infection progressing into AIDS, or other diseases as prescribed by the Ministry of Health;

d/ Employees defined at Points d and e, Clause 1, Article 2 of this Law who are demobilized or cease working without being eligible for pension.

And at Article 77:

1. Employees defined in Clause 4, Article 2 of this Law are entitled to a lump-sum social insurance allowance upon request if they fall in one of the following cases:

a/ They satisfy the age requirement specified at Point a, Clause 1, Article 73 of this Law but have paid social insurance premiums for under 20 years and do not continue paying social insurance premiums;

b/ They settle abroad;

c/ They suffer a fatal disease, such as cancer, poliomyelitis, dropsy cirrhosis, leprosy, serious tuberculosis, HIV infection progressing into AIDS, or other diseases as prescribed by the Ministry of Health.

Thus, this law has tightened the conditions for withdrawing lump-sum payment by providing this for only employees who reach retirement age but are not eligible for pension or go abroad for legal residency. Simultaneously, the law has also added cases are eligible for receiving lump-sum allowance including employees who suffering from life-threatening diseases such as cancer, polio, cirrhosis of the liver ascites, leprosy, severe tuberculosis, HIV infection that has progressed to AIDS stage. and other diseases as prescribed by the Ministry of Health (including cases with full 20 years of paying social insurance contribution).

On June 22nd, 2015, the XIII National Assembly approved Resolution No. 93/2015/QH13 on the implementation of policy on lump-sum payment of social insurance benefits to employees. Accordingly, from January 1st, 2016, “One year after leaving their jobs, for employees participating in compulsory social insurance, or after stopping to make social insurance contributions, for persons participating in voluntary social insurance, employees participating in compulsory social insurance and persons participating in voluntary social insurance whose social insurance payment period is less than 20 years will be entitled to receive lump-sum social insurance benefits if they so request.”

The resolution affirms that employees are entitled to reserve their contribution time to be eligible for pension which helps to ensure their old – age life as prescribed by 2014 Law on Social Insurance. Also, it meets the needs of employees who, after one year of leave, have no job, no income, and still have difficulties in their life, and wish to be entitled to a lump-sum social insurance benefit.

In recent years, the number of employees receiving lump-sum allowance is increasing, which has put some pressure on social insurance policy, and will also bring disadvantages to the employees themselves.

2. Method

The study uses synthesis and statistical analysis methods. Data sources on the implementation of lump – sum social insurance payments for employees are taken from Vietnam Social Security, Department of Social Insurance and scientific reports to summarize, analyze and clarify the current status of lump – sum social insurance allowance in Vietnam.

3. Results

According to the statistics of Vietnam Social Insurance, data on payment of lump – sum social insurance benefits since the implementation of Law on Social Insurance in 2014 (from 2016) to the end of 2020 are described as follows:

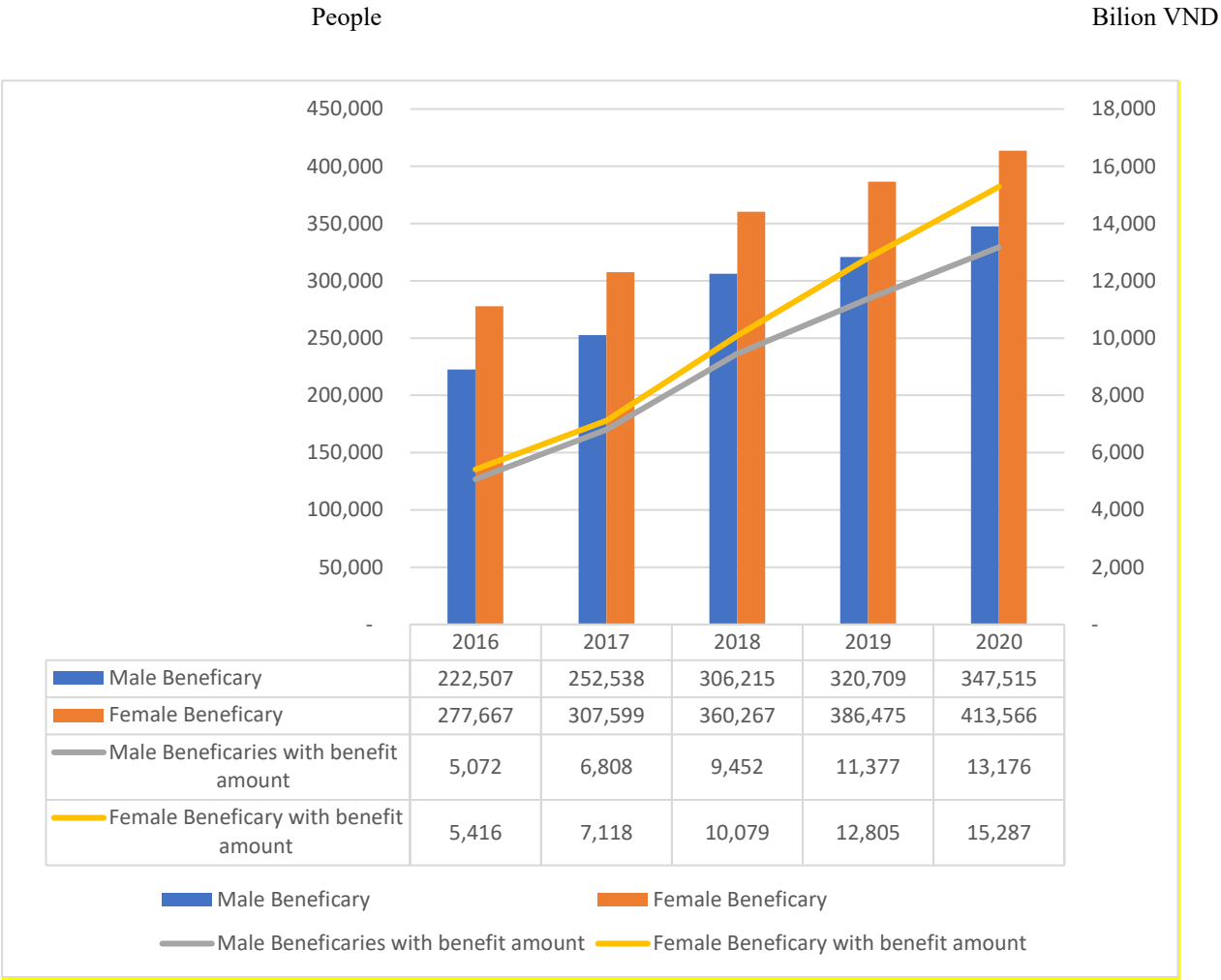


Figure 1. The withdrawal of lump-sum social insurance allowance for the 2016-2020 period

Source: Vietnam Social Security

The above data indicates that, in the 2016-2020 period, there were 3,195,058 employees who applied for and received lump - sum benefits. This number for following years was always higher than the previous year with an average growth rate of about 11.3% per year. Specifically: there was 500,174 people in 2016; 560,137 people in 2017 (increased 12% compared to 2016); 666,482 people in 2018 (increased 19% compared to 2017); 707,184 people in 2019 (increased 6.1% compared to 2018). In 2020, there was 761,081 people (an increase of 7.62% compared to 2019 and 52.2% compared to 2016).

Furthermore, the benefit amount also increased in proportion to the number of beneficiaries. From 2016 to 2020, it experienced a gradual increase when comparing 2 consecutive years: 32.8%, 40.2%, 23.8%, 17.7 %.

Additionally, it is seen that the number of female beneficiaries is always higher than that of male in terms of gender.

The following chart also shows data about the recipients of lump – sum allowance by working sectors:

Unit: people

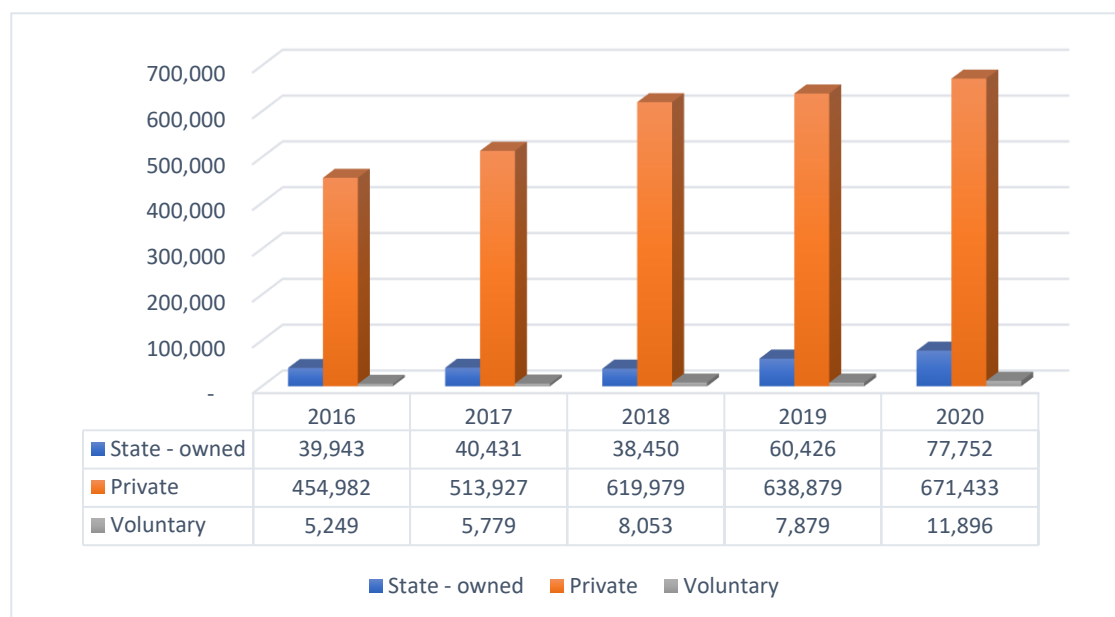


Figure 2. The number of lump – sum social insurance allowance recipients by working sectors

Source: Vietnam social security

In the 2016-2020 period, the number of lump – sum social insurance beneficiaries is mainly from private sectors with a total of 2,899,200 people (accounting for 90.74% of total number). While 257,002 beneficiaries work for state – owned sectors, the low figure is for those contributing voluntary system with 38,856 people. This can be explained by the reason that employees in private and foreign invested enterprises often work under pressure. This group usually have a "job switch" mindset, so when they quit their jobs, they want to enjoy a lump-sum social insurance benefit while looking for a new one

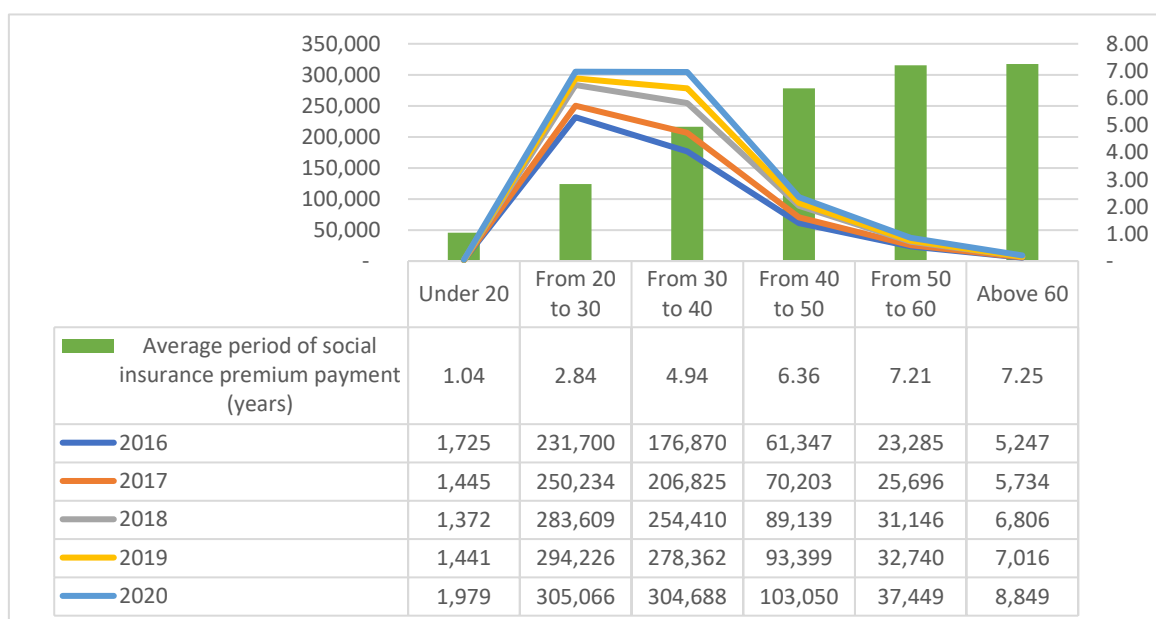


Figure 3. Distribution of Social Insurance Allowance Beneficiaries by age

Source: Vietnam social security

According to above data, Beneficiaries of Lump –sum allowance are mainly from 20 years old to 40 years old, accounting for 80.9% of the total number. The highest figure The age group from 20 to 30 years old has the highest figure (accounting for 42.7%), while the lowest is the group of under 20 years old (accounting for 0.25%). This early withdrawal is an expected trend, because young employees are more concerned with immediate needs than pensions when they get old. Additionally, financial pressures such as starting to be independent, continuing to invest in studying to improve vocational skills, getting married, raising children... also cause early applying for lump – sum social insurance benefit

Moreover, the average periods of social insurance premium payment of these age groups are relatively low, while legal age for participating in Vietnam social insurance system starts from 15 years old. This can be explained by late participation in social insurance system which leads to employees reach retirement age but cannot afford to pay voluntary social insurance premiums to be eligible for monthly pension, so they must receive lump-sum social insurance allowance.

Based on conditions for withdrawing lump -sum social insurance allowance according to 2014 Law on Social Insurance, we have the following table:

Table 1. Number of Social Insurance Allowance Beneficiaries by Cause

	2016 (people)	2017 (people)	2018 (people)	2019 (people)	2020 (people)	Total (people)	Rate (%)
Point a, Clause 1, Article 60 Law on Social Insurance	4,904	5,238	5,532	5,902	6,551	28,127	0.88
Point b, Clause 1, Article 60 Law on Social Insurance	1	453	3,263	3,741	1,650	9,108	0.29
Point c, Clause 1, Article 60 Law on Social Insurance	1	285	855	667	508	2,316	0.07
Point a, Clause 1, Article 77 Law on Social Insurance		38	183	196	885	1,302	0.04
Point b, Clause 1, Article 77 Law on Social Insurance		3	20	10	11	44	0.001
Point c, Clause 1, Article 77 Law on Social Insurance		4	28	18	14	64	0.002
Clause 1, Article 1 Resolution No. 93/2015/QH13	495,268	554,116	656,601	696,650	751,462	3,154,097	98.72

Source: Vietnam social security

The above statistics imply that in the period 2016-2020, the majority of lump -sum social insurance allowance beneficiaries are employees who stop contributing social insurance after one year of participating (accounting for 98.72% of the total number). The number for beneficiaries who reach retirement age but not minimum contributing period accounts for very few, only 0.92%. This shows that maintaining the waiting period "after one year of leaving work or after one year of not continuing to pay voluntary social insurance contributions" to receive lump- sum social insurance allowance does not achieve the desired purpose of Resolution No. 93/2015/QH13. When considering the opportunity to get pension in old age, be financially dependent and benefit health insurance, many employees still decide to withdraw a lump-sum social insurance allowance to use for other purposes or to meet their financial needs.

4. Discussion and Conclusion

4.1. Causes

4.1.1. From Lump – sum social insurance allowance policy

The 2014 Law on Social Insurance contributes to limit the beneficiaries of lump-sum social insurance allowance when it stipulate that employees who "leaving job for one year without continuing to participate in social insurance" are unentitled to this benefit. However, when the Law had not yet taken effect, the Resolution No. 93/2015/QH13 allowed providing lump-sum social insurance benefit for employees leaving job after one year and having not full 20 years of paying social insurance premiums.

Conditions for withdrawing lump -sum social insurance benefit are quite easy, the level of enjoyment is more attractive more than the period of contributing social insurance from 2014 onwards. This also benefits employees (with the contribution of 8% of the monthly salary to pension and survivor regimes, the lump-sum allowance for pensioners shall be calculated based on their period of social insurance premium payment, in which for each year of payment of social insurance premiums prior to 2014, they are entitled to 1.5 months' current pension and for each year of payment of social insurance premiums since 2014, they are entitled to 2 months' current pension). Thus, this regulation encourages employees who quit their jobs want to enjoy lump-sum social insurance benefit.

In addition, the conditions on the minimum contribution period for getting pension are too long which discourage employees from continuing to contribute. According to the 2014 Law on Social Insurance, employees need to pay social insurance premiums for at least full 20 years are entitled to pension in order to be entitled to pension. Hence, employees who have only 3 to less than 10 years of contribution when they leave their jobs, will find it difficult to decide to wait and continue contributing to be eligible for pension.

Some changes in social insurance policy such as: From 2018 onwards, the time of payment of social insurance is gradually increased is paying full 35 years for men, 30 years for women to enjoy maximum retirement benefit (75%). From 2021 onwards, the retirement age will be increased according to the roadmap for retirement age (Decree coded 155/2020/ND-CP). The retirement age of male employees will be increased by three months

each year till 62 years of age reached in 2028. Meanwhile, the retirement age of female workers will be risen by four months each year till 60 years of age reached in 2035.

This also makes many employees choose to receive a lump-sum social insurance allowance or retire early because it can be more profitable and psychologically safety.

The policy of voluntary social insurance is still not attractive to employees in the informal sector as well as to employees in the formal sector after the termination of the labor contract.

The above legal provisions are the prologue which causes the implementation of lump –sum social insurance policy recently is considered to be quite open and uncomplicated. This is reflected by the continuously increasing number of beneficiaries which posing challenges in expanding social insurance coverage, ensuring income security for employees at the end of working age, and ensuring long-term social security.

4.1.2. From the organization and implementation of Law on social insurance

- Communicating activities have been promoted but inefficiently. Thus, many employees do not fully understand the benefits of enjoying pension as well as the disadvantages of receiving the lump-sum social insurance benefit.

- The reform of administrative procedures creates favorable conditions for employees to authorize others to request settlement and receive lump-sum social insurance allowance. This caused that some employers take advantage of these conditions to collect employees' social insurance books via the form of authorization contract (purchasing the social insurance books at a much lower price than the actual value of lump –sum social insurance allowance). Then these employers can perform the legal procedures to enjoy this benefits. However, even though pledging and purchasing social insurance books is illegal and unfavorable to both sellers and buyers, employees still accept purchasing this book instead of waiting to meet the conditions prescribed by the Law on Social Insurance to receive a lump-sum social insurance benefit.

- The **authorities** of the local public administrations have not paid much attention to instruct the organization and implementation of social insurance policies. The coordination of regional departments with the social insurance agency is not regular. In some regions, this is considered the sole responsibility of the social insurance agency.

4.1.3. From employers' side

- The production and business situation of enterprises has faced many difficulties, especially in recent years when the economy has been heavily affected by the Covid-19 epidemic. Many businesses, especially businesses such as tourism, hotels, transportation, apparel, etc., have stopped operating or downsize business. The rise in the number of unemployed workers and who do not have the opportunity to re-enter the labor market are the reasons for increasing the number of people receiving lump-sum social insurance allowance.

- Besides, some employers' legal compliance on social insurance and unemployment insurance is still not seriously. They are lack of concern for employees' rights such as participating in social insurance for employees at low wages, owed or late payment of social insurance premiums, dismissing elderly workers to avoid paying salaries and high social

insurance premiums, cost savings. This leads to that employees cannot enjoying timely and fully the benefits. Hence, it partly affects the psychology of not wanting to join with social insurance system for a long time and wanting to get their benefits early.

4.1.4. From employees' side

- There are many reasons why employees choose to enjoy lump –sum social insurance benefit. Most employees work in industrial zones who have low income choose to withdraw this allowance which might be financial resource to cover their living.

- The insecure psychology of employees is rising because they are afraid that the policy will change in an unfavorable direction, so there will be many risks, slippage, reduction of social insurance benefits. Thus, although being aware of the negative impact on long-term benefits, employees still choose the "immediate securely" option.

- The awareness of employees about the effect and meaning of enjoying pension is not sufficient. They do not form consciousness of participating in social insurance at a young age to enjoy pension in old age. The majority of employees do not concern long- term financial dependent.

4.2. Disadvantages of receiving lump-sum social insurance allowance

4.2.1. No reservation of period of social insurance premium payment

Article 61 of 2014 Law on Social Insurance stipulates: Employees who cease working without being eligible for pension specified in Article 54 or 55 of this Law or without receiving a lump-sum social insurance allowance provided in Article 60 of this Law are entitled to have their period of social insurance premium payment reserved. Thus, if employee quits his job and has not received a lump-sum social insurance benefit, the period of social insurance premiums payment will be preserved and added to the subsequent payment period. When having this benefit, employees might lose the opportunity to receive pension because they are not eligible for contribution period of social insurance.

4.2.2. Not entitled to funeral and survivor allowance upon death

Those who are participating in social insurance but cannot afford to further payment, can reserve the period of social insurance premium payment. During the reservation period, if they die unfortunately, their families and relatives are entitled to a funeral survivors allowance. However, if they have received a lump-sum social insurance allowance, they will not be entitled to that benefit again. Therefore, withdrawal of lump – sum social insurance allowance has a significant impact on funeral and survivor allowance of employees' relatives.

4.2.3. Out of pocket payment for medical examination and treatment expenses at old age

At retirement age, employees often face health problems and diseases related to old age. Therefore, the law stipulates that social insurance agency pay health insurance contributions for people who receive pensions, monthly allowances for loss of working capacity, etc.... (Clause 1, Article 2 of Decree No. 146/2018/ND-CP). Hence, employee who has received a lump-sum social insurance allowance must pay in pay health insurance contributions by himself.

4.2.4. Breaking social insurance system

If social insurance participants working in both private and public sectors claim the right to receive a lump-sum social insurance benefit before retirement age, it will lead to the breakdown of social insurance system. The negative consequence of this policy is that the number of employees applying for this allowance will increase. Then they are unable to accumulate pension benefits which might cause their financial insecurity at old age.

4.3. Solutions to reduce the withdrawal of lump –sum social insurance allowance

Although lump – sum social insurance benefit is an employee's right, they are enjoying this benefits incorrectly and unsustainably. Therefore, in order to ensure the financial needs of employees and stimulate them to stay in the system, a number of solutions need to be taken as follows:

- Reduce the period of social insurance contribution payment to enjoy the pension from 20 years to 15 years, then to 10 years with lower benefits. This will give employees more opportunities to enjoy retirement benefits and bring up their trust for the system. Hence, they will make efforts to pursue the process of contributing to ensure their social security.

- For those who need to receive lump - sum social insurance allowance, there should be a regulation that only allows the withdrawal based on the contribution of that individual; while the employer's contribution will be retained to ensure long-term balance of the fund. This separation of benefits both ensures the fairness of contributions, employees' benefits (they have the right to withdraw the part they have paid) and policy goals (the employer pays due to government's regulations, so their contributions are also retained). Furthermore, employees will also find that if they stay in social insurance system, they will receive higher benefits than withdrawing from the system.

- It is necessary to have policies which allow social insurance participants to borrow from their contributions to serve their needs of business investment, housing or long-term medical examination and treatment. As these needs are met, they earn a stable income then return to contribute and repay the system. This will create a reciprocal relationship between members and the system. Moreover, conditions for enjoying lump –sum social insurance benefit need to be specified in the direction of encouraging employees to stay in the system longer such as allowing a longer period of leave.

- The propaganda and popularization of law on social insurance should be promoted strongly in the process of formulating and accomplishing legal policies. Citizens need to be informed and effectively consulted about the meaning and purpose of legal policy and adjustments changes. This will create social consensus as policies and laws are designed and enacted, as well as help employees well prepare for the future if there are legal changes. Before settling lump – sum social insurance benefit, social insurance officers are responsible for propagating and clearly explaining to employees the benefits of continuing to participate to enjoy pension instead of receiving lump – sum social insurance benefit.

- A communication strategy on expanding social insurance coverage, including limiting the withdrawal of lump – sum social insurance allowance, should be coordinately

controlled by state and regional social insurance agencies. This strategy aims to raise awareness about the meaning and importance of cumulative contributions to retirement regime, thereby creating social consensus if there are legal adjustments and changes on social insurance including lump –sum social insurance benefits.

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USING CLEAN ENERGY FOR SUSTAINABLE DEVELOPMENT GOALS: A CASE STUDY OF VIETNAM

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Abstract

Using clean energy is a new trend around the World recently. It is a good way to protect the environment and implement the Sustainable Development Goals of the United Nation. Following that trend, in recent years, Vietnam encourage everyone using of clean energy to develop economics. In this paper, the author will analyze the facts and problems of using clean energy in Vietnam, in comparison with other countries around the world. Then, the author will recommend some solutions to improve the problems related to using clean energy in Vietnam for the next period. To do this research, the author uses many kinds of methodologies such as analysis Vietnam legal policy and documents (law and regulations) related to energy activities, use the hypotheses developed in the study shows how to use law and regulation to govern energy activities in Vietnam, survey, etc.

Keywords: *clean energy; sustainable development; Vietnam*

1. Introduction

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests. The 7th Goal of the 17 Sustainable Development Goals is Ensure access to affordable, reliable, sustainable and modern energy for all.

Vietnam is in the process of industrialization and modernization. Therefore, ensuring the demand for energy for rapid and sustainable economic development, maintaining national defense, political security, social order, and safety, and constantly improving people's living particularly important role. Over the years, Vietnam has had many policies to invest in and support the energy industry in many aspects. The Politburo of Vietnam has issued Conclusion No. 26-KL/TW in 2003 on the Strategy and Planning for the Development of Vietnam's Electricity Industry; Resolution No. 18-NQ/TW in 2007 on the orientation of

Vietnam's national energy development strategy to 2020, vision to 2050. Thanks to the Party's policy, correct leadership, and the influence of the Party. In response to the participation of the political system, the business community, and society as a whole, in recent years, our country's energy industry in general and the electricity industry, in particular, have made rapid and relatively similar developments. Ministries in all sub-sectors and fields closely followed the orientation and achieved many specific goals set out. In response to the socio-economic development requirements of the 2021-2030 period. On the basis of this resolution, the National Assembly will study, amend and supplement the law to create favorable conditions for national energy development. Resolution 55 is highly appreciated by ministries, branches, localities, the business community, investors, domestic and international experts. The good implementation of this Resolution is expected to create breakthrough developments for Vietnam's energy industry in the next period.

2. Literature Review

2.1. Sustainable development Goals of United Nation

The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. The 17 SDGs are integrated—they recognize that action in one area will affect outcomes in others, and that development must balance social, economic and environmental sustainability. The creativity, knowhow, technology and financial resources from all of society is necessary to achieve the SDGs in every context.

Climate change is a real and undeniable threat to our entire civilization. The effects are already visible and will be catastrophic unless we act now. Through education, innovation and adherence to our climate commitments, we can make the necessary changes to protect the planet. These changes also provide huge opportunities to modernize our infrastructure which will create new jobs and promote greater prosperity across the globe.

Renewable energy solutions are becoming cheaper, more reliable and more efficient every day. Our current reliance on fossil fuels is unsustainable and harmful to the planet, which is why we have to change the way we produce and consume energy. Implementing these new energy solutions as fast as possible is essential to counter climate change, one of the biggest threats to our own survival. To ensure access to sustainable energy, we all have to take action. Get inspired here:

- i. Universal access to modern energy. By 2030, ensure universal access to affordable, reliable and modern energy services. Increase global percentage of renewable energy. By 2030, increase substantially the share of renewable energy in the global energy mix.
- ii. Double the improvement in energy efficiency. By 2030, double the global rate of improvement in energy efficiency.
- iii. Promote access to research, technology and investments in clean energy. By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and

cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology.

- iv. Expand and upgrade energy services for developing countries. By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States and landlocked developing countries, in accordance with their respective programmes of support.

Together we can ensure affordable and clean energy for all. Here you can see what you can do to contribute. Find organizations to support, information to share and some useful tips for your everyday life that can really make a difference.

2.2. Paris Convention 2015 on Climate change

At COP 21 in Paris, on 12 December 2015, Parties to the UNFCCC reached a landmark agreement to combat climate change and to accelerate and intensify the actions and investments needed for a sustainable low carbon future. The Paris Agreement builds upon the Convention and – for the first time – brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so. As such, it charts a new course in the global climate effort.

The Paris Agreement’s central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to increase the ability of countries to deal with the impacts of climate change, and at making finance flows consistent with a low GHG emissions and climate-resilient pathway. To reach these ambitious goals, appropriate mobilization and provision of financial resources, a new technology framework and enhanced capacity-building is to be put in place, thus supporting action by developing countries and the most vulnerable countries, in line with their own national objectives. The Agreement also provides for an enhanced transparency framework for action and support.

The Paris Agreement requires all Parties to put forward their best efforts through “nationally determined contributions” (NDCs) and to strengthen these efforts in the years ahead. This includes requirements that all Parties report regularly on their emissions and on their implementation efforts. There will also be a global stocktake every 5 years to assess the collective progress towards achieving the purpose of the agreement and to inform further individual actions by Parties.

The Paris Agreement opened for signature on 22 April 2016 – Earth Day – at UN Headquarters in New York. It entered into force on 4 November 2016, 30 days after the so-called “double threshold” (ratification by 55 countries that account for at least 55% of global emissions) had been met. Since then, more countries have ratified and continue to ratify the Agreement, reaching a total of 125 Parties in early 2017. The current number of ratifications can be found here.

In order to make the Paris Agreement fully operational, a work programme was launched in Paris to develop modalities, procedures and guidelines on a broad array of issues. Since 2016, Parties work together in the subsidiary bodies (APA, SBSTA and SBI) and various constituted bodies. The Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) met for the first time in conjunction with COP 22 in Marrakesh (in November 2016) and adopted its first two decisions. The work programme is expected to be completed by 2018.

The Paris Agreement, adopted through Decision 1/CP.21, addresses crucial areas necessary to combat climate change. Some of the key aspects of the Agreement are set out below:

- i. Long-term temperature goal (Art. 2) – The Paris Agreement, in seeking to strengthen the global response to climate change, reaffirms the goal of limiting global temperature increase to well below 2 degrees Celsius, while pursuing efforts to limit the increase to 1.5 degrees.
- ii. Global peaking and 'climate neutrality' (Art. 4) – To achieve this temperature goal, Parties aim to reach global peaking of greenhouse gas emissions (GHGs) as soon as possible, recognizing peaking will take longer for developing country Parties, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of GHGs in the second half of the century.
- iii. Voluntary cooperation/Market- and non-market-based approaches (Art. 6) – The Paris Agreement recognizes the possibility of voluntary cooperation among Parties to allow for higher ambition and sets out principles – including environmental integrity, transparency and robust accounting – for any cooperation that involves internationally transferal of mitigation outcomes. It establishes a mechanism to contribute to the mitigation of GHG emissions and support sustainable development, and defines a framework for non-market approaches to sustainable development.
- iv. Adaptation (Art. 7) – The Paris Agreement establishes a global goal on adaptation – of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change in the context of the temperature goal of the Agreement. It aims to significantly strengthen national adaptation efforts, including through support and international cooperation. It recognizes that adaptation is a global challenge faced by all. All Parties should engage in adaptation, including by formulating and implementing National Adaptation Plans, and should submit and periodically update an adaptation communication describing their priorities, needs, plans and actions. The adaptation efforts of developing countries should be recognized
- v. Loss and damage (Art. 8) – The Paris Agreement recognizes the importance of averting, minimizing and addressing loss and damage associated with the adverse effects of climate change, including extreme weather events and slow onset events, and the role of sustainable development in reducing the risk of loss and damage. Parties are to enhance understanding, action and support, including through the Warsaw International Mechanism, on a cooperative and facilitative basis with respect to loss and damage associated with the adverse effects of climate change.

- vi. Finance, technology and capacity-building support (Art. 9, 10 and 11) – The Paris Agreement reaffirms the obligations of developed countries to support the efforts of developing country Parties to build clean, climate-resilient futures, while for the first time encouraging voluntary contributions by other Parties. Provision of resources should also aim to achieve a balance between adaptation and mitigation. In addition to reporting on finance already provided, developed country Parties commit to submit indicative information on future support every two years, including projected levels of public finance. Climate change education, training as well as public awareness, participation and access to information (Art 12) is also to be enhanced under the Agreement.
- vii. Global Stocktake (Art. 14) – A “global stocktake”, to take place in 2023 and every 5 years thereafter, will assess collective progress toward achieving the purpose of the Agreement in a comprehensive and facilitative manner. It will be based on the best available science and its long-term global goal. Its outcome will inform Parties in updating and enhancing their actions and support and enhancing international cooperation on climate action.
- viii. Decision 1/CP.21 also sets out a number of measures to enhance action prior to 2020, including strengthening the technical examination process, enhancement of provision of urgent finance, technology and support and measures to strengthen high-level engagement. For 2018 a facilitative dialogue is envisaged to take stock of collective progress towards the long-term emission reduction goal of Art 4. The decision also welcomes the efforts of all non-Party stakeholders to address and respond to climate change, including those of civil society, the private sector, financial institutions, cities and other subnational authorities. These stakeholders are invited to scale up their efforts and showcase them via the Non-State Actor Zone for Climate Action platform (<http://climateaction.unfccc.int>). Parties also recognized the need to strengthen the knowledge, technologies, practices and efforts of local communities and indigenous peoples, as well as the important role of providing incentives through tools such as domestic policies and carbon pricing.

2.3. Some research related to clean energy

Renewable energy is encouraged to exploit and maximize its capacity and reach its limit in the next few decades. Countries around the world have been using renewable energy as significant solutions for meeting energy needs economically, ensuring energy security and sustainable development. The capacity and use of renewable energy on a global scale has increased at a faster rate than expected, especially in the electricity generation sector. The trend of renewable energy development in recent years has created turning points in the development of the global energy system. The rapid growth of renewable energy demonstrates the commitment of Governments around the world. More than 170 countries have set renewable energy targets, and nearly 150 countries have issued preferential policies for renewable energy development. The private sector also plays an important role in the development of renewable energy on a global scale. This signals a growing consensus that renewable energy technologies will be the engine for sustained growth and economic development.

The cost of electricity generation from renewable energy has decreased significantly since 2010 with the decreasing trend of renewable energy equipment. Led by a trend of 81% decrease in the value of solar power equipment along with other cost reductions, the cost of residential electricity (LCOE) of solar power decreased by 73% between 2010-2017, to 10 USc/ kWh. In some countries, solar power has been able to compete directly with traditional power sources without financial support. Offshore wind power and concentrated solar power also saw a significant decrease during this period with LCOEs of 14 USc/kWh and 22 USc/kWh respectively. Bidding results for the two years 2016-2017 show a further reduction for these two types of renewable energy by 2020.

The main factors leading to the reduction in electricity costs of renewable energy include improved technology, competitive bidding, and accumulated experience at a large scale with international project developers. The results collected by IRENA for competitive bidding for renewable power project development through 2022 suggest that the reduction in LCOE will continue to be sustained. IRENA also predicts that by 2020, the cost of renewable electricity will be in the range of fossil fuel power sources. With an increasing amount of accumulated capacity in regions and countries, renewable electricity development costs will continue to maintain their current downward momentum. Building on this momentum, renewable energy is well-positioned to play a central role in the implementation of international agreements on climate change and sustainable development goals. IRENA estimates show that doubling the share of renewable energy to 36% by 2030 is technically and economically feasible.

Accelerating the implementation of energy turning points and developing renewable energy beyond electricity generation can have economic, social, and environmental benefits. Achieving the share of renewable energy by 2030 contributes to an increase in global economic output of 1.3 trillion USD compared to conventional projects. It also contributes to the creation of millions of jobs and significantly reduces the health hazards caused by air pollution. One of the biggest benefits is also creating opportunities for the 1 billion people who do not have access to electric power and the nearly 3 billion people who depend on traditional biomass for cooking. According to the report of IRENA 2018, to achieve the goal of reducing greenhouse gases under the plan to promote renewable energy, the world needs an investment of 16,000 billion USD by 2050. In which, renewable energy types. mainly onshore wind power 33%, solar power 43%. This is followed by an increased share of renewable electricity, increased investments in energy storage, power transmission, and distribution capacity, flexible power sources, and load regulation. The additional investments help the system to integrate 62% of the power load from wind and solar while ensuring an adequate, stable, and reliable power supply. In the period to 2050, solar power will increase from 233 GW to 7122 GW, wind power from 411 GW to 5445 GW, concentrated solar power from 5 GW to 633 GW, biomass power from 119 GW to 384 GW, geothermal power from 10GW to 227 GW, other forms of renewable energy (tidal, wave, etc.) from 0.3 GW to 881 GW. Thus, wind power and solar power will be the main forms of renewable energy to meet electricity demand in the future. At this rate of growth, electricity from renewable energy will contribute to 85% of total electricity production by 2050 compared to 24% in 2015.

3. Method

In this paper, the authors use many kinds of researching methodologies to analyze international and national legal policy and documents (law and regulations) related to using clean energy for sustainable development. Besides, the authors based on the hypotheses developed in the study show how to use law and regulation to laws when implementing activities of using clean energy. To examine these relationships, the authors developed some hypotheses and tested these hypotheses using some empirical models. The developed models confirm the assumptions and demonstrate a legal mechanism for using clean energy. Moreover, statistics and surveys are also used to finish this research. The authors used the poll to survey the Vietnamese citizens, enterprises, and associations in Vietnam. The authors also sent the questionnaires to ask them some questions related to the law and using clean energy. The authors combined all of the methodologies above to do this research. However, because of time and financial limitations, the working paper cannot cover inclusive aspects of issues related to the topic. Thus, the authors look forward to taking the comments and opinions of readers and reviewers to do better in future.

4. Results

4.1. Overview of using clean energy in the Worldwide

In the 21 century, the rapidly changing world energy development potential is reflected in fluctuations in energy supply. Gradually reduce the use of coal for electricity development, switch to gas-fired thermal power and renewable energy instead. The European Community is also making efforts to stop coal-fired power, countries such as the UK, Belgium, France, Italy, the Netherlands, Portugal, Austria, Ireland, Denmark, Sweden and Finland all set targets to phase out coal-fired power by 2030. The total coal-fired power capacity of these countries is currently at 42 GW. Germany alone is 50 GW, Poland 29 GW is the 4th and 9th ranked countries in the coal-fired countries of the European Union. The German government does not currently have a specific plan to phase out coal-fired power, but the goal of eliminating 50% of total capacity by 2030 is feasible. To meet the goals of the Paris Agreement, the European Union needs to close coal-fired power by 2030. A rising carbon price is seen as the driver of the shift from coal to natural gas in the coming years.

Other Asian countries such as Korea, Japan, Bangladesh, Pakistan and the Philippines or South Africa are actively tending to replace coal with renewable energy sources.

The United States demonstrates an effort to phase out old coal-fired power plants, which have already reduced 61 GW and are projected to 58 GW in the coming years. This effort will reduce coal-fired power capacity by about 220 GW, equivalent to two-thirds of the total capacity of 327 GW compared to 2000. Technological advances in shale gas extraction and cost reduction trends of renewable energy electricity, market conditions are currently favorable for the development of gas thermal power and renewable energy. Currently, the United States has no plans to develop coal-fired power. In 2018, the United States plans to phase out 18 GW of coal-fired thermal power. Thus, coal consumption in the United States in 2016 reached the lowest level since 1982. According to the US Energy Outlook Report showing all development strategies, US coal-fired power capacity will

decrease from 0.8-2.1% per year until 2050. It is expected that by 2050, the United States will only have about 144-150 GW of coal power.

Natural gas and shale gas are used to replace coal and kerosene for power generation purposes. Current combined cycle gas turbine technology has reached an efficiency level of 60%, the highest among power generation technologies. In recent decades, proven reserves of natural gas have increased significantly, thereby, strongly promoting the extraction and use of natural gas. This is a source of fossil fuel-based electricity generation that has less impact on the climate and environment than oil and coal. Shale gas has transformed the gas market in North America, as well as elsewhere. The emergence of shale gas as a potential energy source has had strategic implications for geopolitics and the energy industry.

The IEA forecasts that more than 1500 GW of gas thermal capacity will be added to the global network by 2040. The increase in capacity will mainly come from developing economies such as the BRICS group. Currently, gas-fired thermal power accounts for about 30% of the OECD group's source capacity structure, especially in the United States, Japan, and developed European countries in the Western region. The United States is a country with abundant natural gas reserves, ranking fourth in the world after Russia, Iran, and Qatar. Japan has quite limited gas reserves (only 1/30th of Vietnam's) and is currently one of the world's largest importers of liquefied natural gas. In 2017, petroleum-fired thermal power accounted for 44.7% of the source structure and approximately 50% of electricity output, partly due to the decline in nuclear power in recent years. However, according to the national energy plan, with the return of nuclear power and renewable energy, Japan's output from oil and gas thermal power by 2030 will be reduced to 30%. The gas exploration industry in Europe has been affected to some extent by the shale oil revolution and competition from other sources in the Middle East. However, electricity production from gas has increased, in the context of countries promoting clean energy, to replace coal. For example, compared to 2016, in major markets Spain saw a 28.8% increase in the demand for electricity; Turkey 26.3%; France 19.2%; Netherlands 12.6%; Poland 11.4%; UK 4.4%; Germany 0.4%; etc. In the context of the European Union's target to reduce greenhouse gas emissions by 80-95% by 2050 compared to 1990 levels, gas-fired power generation still has a place, especially when the technology is recovered. and carbon storage has not reduced costs. In the structure of electricity production of Russia, oil and gas account for more than 50% because Russia is a country with many energy resources. Russia's gas power plants are considered to be of the old generation, half of which will be replaced or renovated to achieve 60% efficiency. Russia's gas power plants are newly built to meet the demand for the increased load as well as to replace coal-fired power. In the structure of electricity production in China in 2017, oil and gas accounted for only 3.3%. However, the growth rate of this type of power generation in the past 10 years, accounting for 13%/year of total output. Currently, China is the largest gas importer in the world. It is expected that by 2040, China's coal and gas thermal power will only increase from 71 GW to 255 GW. In the ASEAN region, Thailand has an outstanding share of electricity from gas electricity reaching 68.6% in 2017. However, this raises two problems related to energy security: high imports of liquefied natural gas; power sources lack diversification. Therefore, after 2025, Thailand will add more gas power capacity.

According to Bloomberg, the general trend in the world by 2040 is to save, use energy efficiently and reduce CO₂ emissions by only 50% compared to today. Countries are making efforts to change national policies on energy, actively applying modern technologies to improve energy efficiency, giving priority to the development of renewable energy, especially wind and solar energy. Solar energy gradually replaced fossil energy, wind and solar energy increased to 40%, water energy and atomic energy remained stable. By 2050, the total fossil energy including coal, oil and natural gas will be only about 31%, of which the proportion is expected to be only about 2%, coal less than 14% and natural gas accounting for about 18%. However, renewable energy will account for 62% of total global energy production, of which wind energy accounts for 28%, solar energy accounts for 24%, and hydroelectricity accounts for 10%. The global economy needs to be more energy efficient. Oil consumption fell by up to 20%, natural gas increased modestly, nuclear power increased by more than 50% renewables more than doubled, and carbon capture and storage technologies deployed at scale in 2040.

4.2. Using clean energy in Vietnam

4.2.1. Sources of clean energy in Vietnam

Regarding solar energy, in the context of the world's progress in solar energy absorption technology, Vietnam's solar energy sector is considered to have many positive impacts. Solar energy is considered to have strong development potential in the future due to the favorable geographical position of Vietnam, located within the limit between the equator and the Tropic of Cancer, in the inner tropical region where the sun shines year-round. However, the exploitation and use of this energy source have been improved with many applications of advanced equipment technology, especially for power generation, hot water heating, and drying, etc. The use of this energy source compared to other energy sources is gradually developing and there is competition in the market. On the other hand, mechanisms and policies to encourage the use of solar energy and citizens' awareness have also been gradually improved. In the future, when the exploitation of other energy sources has reached the limit, Vietnam's solar energy source is great potential.

Biomass energy along with solar energy is a potential clean energy source of Vietnam. The source of biomass energy is waste from agricultural products or livestock waste, urban organic waste, and other organic wastes. According to preliminary calculations, Vietnam's solid biomass energy source is about 170 million tons and has an electrical output of 2000 MW. This is a great and potential energy source of Vietnam.

Wind energy is also a potential source of Vietnam due to its location in the tropical monsoon region, with a coastline of more than 3000km. Vietnam's wind power potential ranges from 1785MW to 8700MW. Wind power of Vietnam is not only in coastal areas but also in mountainous areas, especially in valleys along rivers and streams. Vietnam has started implementing a number of projects to exploit wind power sources in Ca Mau and Ninh Thuan.

In addition, Vietnam also has potential for marine energy such as tides, ocean currents, and burning ice on the seabed. This is an energy source that can meet the needs of economic development in the long-term energy extraction strategy.

4.2.2. Facts of using clean energy in Vietnam

In Vietnam, the energy industry has become a large-scale economic sector with dynamic development and deeper international integration. The strong development of the oil and gas industry, with the core being PVN, has led to the development of other industries such as power generation, chemical production, liquefied petroleum gas, etc. Oil industry services are also rich and diversified. In these fields, there are domestic and foreign-invested companies. Oil and gas exploitation has brought great benefits both directly and indirectly for socio-economic development. In about 10 years (2007-2017), the production value of the energy industry (coal and petroleum mining, electrical equipment production, electricity and gas production, and distribution) increased six times, contributing 20% value of the total output of the mining industry, the processing industry, the production and distribution of electricity and gas. The industry of manufacturing electrical equipment and manufacturing all kinds of equipment and services in the oil, gas, and coal industries has had some achievements and is increasingly developing. The dynamic development of the energy sector has made an important contribution to maintaining the high growth rate of the whole economy and is an important macro-regulating tool of the Government. The energy sector has actively promoted and effectively performed its role as the economic locomotive of the country. Energy enterprises are really the core in the formation of many concentrated industrial parks; play a huge role in socio-economic development, increasing budget income in many localities. In addition to the purpose of electricity development, hydropower plants also have the task of preventing floods downstream in the rainy season, and at the same time providing water for production and people's needs in the dry season.

Many policies on ensuring energy security have been implemented such as: reducing coal exports; promote the exploitation of domestic energy sources; encourage the development of renewable energy, promote electricity trading and exchange with neighboring countries. According to the system of international standards, Vietnam's national energy security has had a number of indicators that are moving in an unfavorable direction: the ratio of reserves and production of coal, crude oil and gas has been decreasing year by year, per capita energy consumption is still low; National petroleum reserves have not yet ensured stability in the event of an oil price crisis in the international market.

Priority solution is to establish an energy development fund to support investment in new and renewable energy projects and public utility projects that have not yet been implemented; has not prioritized allocating preferential credit capital from the development assistance fund, ODA capital and other bilateral loans for energy resource prospecting and exploration projects.

The quality of human resource training is still uneven, there is a shortage of high-quality human resources meeting international standards; additional training to take the lead in a number of weak fields, not really linked to task requirements, especially in new and renewable energy, bio-energy, refining and petrochemicals, nuclear power, etc.

The structure and operation of scientific and technological research institutions are still inadequate and lacking in depth; limited ability to absorb and improve foreign technology; research and development (R&D), innovation is low; have not created new technology creation.

According to the report of the Productivity Institute, in the period 2011-2017, the energy industry in the recent period increased capital rapidly, reaching 8.5%/year; The added value is largely based on inputs without a clear improvement in productivity, reaching only 1.05%. In the field of electricity, gas, labor productivity of some countries in the region is many times higher than that of Vietnam (Taiwan is 3.19 times; Japan is 7.2 times; South Korea is 14.5 times; Thailand is 2.1 times). For EVN, labor productivity in 2015 reached about 1.54 million kWh of commercial electricity/person, while Malaysia reached 2.9 million kWh/person, Tepco Group (Japan) reached 7.5 million kWh/person.

National environmental protection policies and objectives, and the slow issuance of strategic environmental assessments have caused difficulties in the implementation of energy sector projects. After 5-7 years since 2007 as Resolution No. 24-NQ/TW of the 11th Party Central Committee on proactively responding to climate change, strengthening natural resource management and environmental protection; Decision No. 1293/QĐ-TTĐ dated 25/9/05/9/2012 of the Government on the National Strategy on Green Growth 2011-2020 and Vision to 2050; Decision No. 1216/QĐ-TTĐ dated September 5, 2012, of the Government on the National Strategy for Environmental Protection to 2020 with a Vision to 2030; Resolution 11/NQ-CP dated February 18, 2013, of the Government on the Government's action plan to implement Resolution No. 62/2013/QH13 dated November 27, 2013, of the National Assembly on strengthening the management planning, investment, construction, operation and exploitation of hydroelectric projects; Decree 18/2015/ND-CP stipulating environmental protection planning, strategic environmental assessment, environmental impact assessment, and environmental protection plan. National standards and regulations on safety and protection the environmental and social impact assessment is still lacking, slow to be supplemented according to international regulations and standards. The control and management of energy exploitation technology equipment are not regular. Many old power plants have outdated equipment and lack equipment for treating smoke and wastewater according to advanced standards. Mechanisms and policies for the treatment of ash and slag discharged from coal-fired power plants are slow to be promulgated. Ensuring a good combination of energy exploitation and use with good environmental management has not been paid enough attention in some places. There have been some unfortunate incidents about the environment that cause concern when building new projects. New plants, especially coal-fired power plants, such as air pollution, deterioration of seawater and river water quality, changes in ecosystems, etc. The strong development of hydropower projects from 2006 to 2012 changed the flow mechanism of many natural rivers, reduced biodiversity, took away a large area of forest and agricultural land. Coal and oil products account for the largest proportion in the structure of primary energy supply (37.9% and 27.6% respectively in 2017). In the coming years, the demand for supply and use of these energy sources will continue to remain high in several industries and transportation leading to increased emissions, environmental pollution, especially in big cities. Energy is the industry with the highest level of greenhouse gas emissions, which directly affects Vietnam's implementation of international commitments on environmental protection.

In 2015, the Prime Minister issued Decision No. 2068/QĐ-TTĐ approving Vietnam's renewable energy development strategy to 2030 with a vision to 2050. The renewable energy development strategy has encouraged the mobilization of all social resources and people for the development of renewable energy to enhance access to modern, sustainable, reliable energy sources at reasonable prices for all people; to step up the development and use of renewable energy sources, increase domestic energy supply, gradually increase the proportion of renewable energy sources in national energy production and consumption to reduce dependence on renewable energy sources, fossil energy, contributing to ensuring energy security, mitigating climate change, environmental protection, and sustainable socio-economic development.

To attract businesses to invest in the renewable energy sector, Decision No. 2068/QĐ-TTĐ stipulates EVN's responsibilities in purchasing electricity and prioritizing capacity mobilization from renewable energy sources. Power producers from renewable energy sources are given priority to exploit the full capacity and develop electricity by the operating mode of the plant. This decision is aimed at protecting the interests of investors, ensuring that they will be able to mobilize maximum capacity and sell all electricity produced from renewable energy sources.

In addition, the electricity price support mechanism is also implemented in the direction that electricity produced from small hydropower sources, wind energy, and solid waste biomass energy is purchased at a higher price than the purchase price of electricity from power sources conventional energy (large hydroelectricity, fossil fuels, etc.). Small hydropower projects and grid-connected biomass power projects enjoy preferential electricity prices. Wind power, solar power, and electricity from grid-connected solid waste are entitled to electricity price incentives according to the feed-in tariff price mechanism (The FIT price for onshore and offshore wind power is equivalent to 8.5 cents/kWh and 9.8 Ascent/kWh; FIT price for solid waste electricity is equivalent to 10.05 Uscents/kWh). This FIT price is applied to the project for 20 years. The selling price is fixed in USD, payment is in VND at the time of payment. The purchase price of electricity from renewable energy projects is higher than the average retail price of electricity in Vietnam. The Ministry of Industry and Trade of Vietnam has also coordinated with the ASEAN Council to issue the "Technical Handbook on connecting wind power to the Vietnamese grid". The development of renewable energy has many shortcomings, the power transmission system is still not synchronized and meets the requirements. In the year 2017-2018, with incentives for the development of solar energy (Decision No. 11/2017/QĐ-TTĐ of the Prime Minister) and wind power (Decision No. 37/2011/QĐ-TTĐ and Decision No. 39/2018/QĐ-TTĐ of the Prime Minister), wind power and solar power have made great progress. By 2019, more than 100 solar power projects and 11 wind power projects have been put into operation with a total capacity of 44,479.5 MW from solar power and 377 MW from wind power, respectively. In addition, about 378 MW of rooftop solar power has been installed, of which the Hochiminh City area accounts for 18%, the southern region (excluding HCMC) accounts for 50% and the central region accounted for 26%. In 2019, the electricity output from rooftop solar power is expected to reach about 99 million kWh 2019. However, because the grid infrastructure has not been developed in sync with the development of renewable energy

sources, mainly solar power, while the private mechanism has not been opened to invest in the power transmission system. Thus, there have been several projects with reduced capacity. According to the report of EVN, this group has ensured the transmission capacity to mobilize the full power generation capacity of 81/100 renewable energy projects with a total capacity of about 4,400 MW (ie, ensuring the mobilization of 86% of the capacity of power sources of wind and sun have come into operation). Only 19 factories in the two provinces of Ninh Thuan and Binh Thuan with a total capacity of 670 MW had to partially limit the generating capacity at some point in time due to partial overload of the 110kV power grid because these 19 projects are all over the world connected on a single-circuit 110kV transmission line. Research by the German Development Cooperation Organization GIZ shows that in Ninh Thuan, about 10 solar and wind power projects have had their capacity cut by 38%-65% while in Binh Thuan, from mid-2019 to date, renewable energy projects have experienced an average reduction of 30% in generating capacity. It is worth noting that projects that have been in operation since 2 years ago are also affected by the sharing of generating capacity with new projects put into operation.

There is a paradox currently occurring, the number and capacity of wind and solar power projects proposed to supplement the planning are very large, many times higher than the planned structure, but the amount Actual output power is still very low. The main reason is that the investor's capacity is not guaranteed, the state of offering for sale and project transfer leads to the slow implementation of the project while many capable investors cannot deploy the project because it has not been added to the project. This causes a great waste of national resources. The hot development of renewable energy, especially solar energy, is creating great challenges in power system operation while there is a lack of mechanisms and policies to encourage the private sector to invest in national electricity transmission systems.

In general, mechanisms and policies to develop renewable energy, especially wind and solar power, have not kept pace with the market, creating many policy risks for investors. Typically, Decision No. 13/2020/QĐ-TTg was issued in 2020, nearly a year after Decision No. 11/2017/QĐ-TTg expired on June 30, 2019. While the validity of Decision 11 is valid for more than two years, Decision 13 is only valid until the end of 2020. Besides, the Decision's guidance on these documents is not yet available. Regarding wind power, Decision No. 39/2018/QĐ-TTg issued in 2018 is valid until 2021. The effectiveness of the FIT mechanism for wind power is relatively short compared to the construction characteristics of wind power. In addition, the bidding mechanism is expected to be put into effect from November 2021 but has not been clearly developed, it is necessary to consider extending the time to suit the actual situation.

The challenges of protecting the ecological environment and international commitments to respond to climate change also create great pressure when implementing the strategy to ensure energy security associated with sustainable development.

4.2.3. Impact of international trends of energy on Vietnam field for next period

Under the impact of climate change, the criteria of clean electricity production, difficult to exploit fossil energy, efficient use of energy, along with the explosive

development of digital technologies and energy markets. Rapidly growing renewables have all contributed to changing the world's energy landscape. The international context has a strong impact on Vietnam's energy development, especially in the context of increasing fuel and energy demand to 2030 and long-term to 2045. In which, positive impacts such as developing digital technology applications to improve user efficiency and save energy; convert from using fossil energy to other forms of energy, mainly using renewable energy; the world energy market appeared non-traditional objects such as low-carbon fuels, fuel cells, smart energy grids; etc. However, the main negative effects such as shortage crisis lead to frequent price fluctuations; emission standards to the environment are getting higher and higher; pressure to increase the rate of renewable energy; equipment, personal use of energy increased by a factor of two, increasing the demand for domestic energy consumption; rapid increase in foreign investment, it is difficult to control the rising energy demand; etc.

In the context of fierce international competition and the implementation of a green growth strategy in reducing greenhouse gas emissions, Vietnam needs to strongly promote its available market tools and potential to be able to meet the requirements of domestic energy demand so that in the future, Vietnam will not depend on imported energy sources that Vietnam has the potential to produce and develop.

5. Discussion and Conclusion

From the analysis above, we can see that clean energy plays an important role in the process of sustainable development. Moreover, we can take away some lesson-learned as following:

First, develop and complete the legal framework and implement policies to soon form a competitive electricity market. The policy focuses on encouraging domestic and foreign economic sectors to invest in the energy sector, especially the private sector based on attracting investment capital.

Secondly, create a mechanism to encourage the development of renewable energy. Accordingly, to effectively transition to market-based pricing, Vietnam needs to develop a comprehensive price reform plan; building a strong communication strategy; appropriately staged price increases; improve the efficiency of state-owned enterprises; encourage energy efficiency; minimize the impact of the state on energy pricing.

Thirdly, Vietnam needs to develop mechanisms and policies to encourage the use of renewable energy sources, first of all, using wind energy, solar energy, and bioenergy. The state needs to have a tax reduction policy to reduce the burden on investors exploiting renewable energy forms.

Fourthly, for wind power and solar power, priority should be given to development by the ability to ensure system safety with reasonable electricity prices. Encourage the development of rooftop and on-water solar power. Develop supportive policies and breakthrough mechanisms for offshore wind power development in association with the implementation of the Vietnam Marine Strategy.

Fifthly, restructure energy-consuming sectors and areas in parallel with implementing policies on clean, economical, and efficient use of energy. Develop sustainable energy infrastructure, connect the region, improve internal resources of manufacturing and service

industries for clean energy development. Restructure, innovate and improve the operational efficiency of state-owned enterprises in the energy sector; encourage the private economy to participate in the socialization of clean energy development.

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THE IMPROVEMENT OF THE CAPACITY TO PERFORM PUBLIC TASKS OF THE CONTINGENT OF CADRES AND CIVIL SERVANTS OF THE DISTRICT-LEVEL PEOPLE'S COMMITTEE IN TAY NINH PROVINCE

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Abstract

The district government plays a particularly important role at the administrative levels in Vietnam. It is necessary to develop a contingent of capable cadres and civil servants in order for the district-level to extend their roles and positions. Each of the cadres and civil servants has made certain contributions to the operational efficiency of the district-level, in which the role of the contingent of cadres and civil servants of the district-level People's Committee (Chairman, Vice-Chairman of the People's Committee) is especially important. This is the force that leads and manages all activities of the district-level People's Committee. As a result, with such a vital role, they must be well-equipped with the necessary knowledge and skills. The article explores the current state of the capacity to perform public tasks of the contingent of cadres and civil servants of the district-level People's Committee in Tay Ninh Province, thereby proposing solutions for improvement.

Key words: *Cadres, Capacity to perform public tasks, The district-level People's Committee.*

1. Introduction

Tay Ninh is a province located in the Southeast region, with the peculiarity of being a border region, which has posed many socio-economic problems to be solved. This necessitates the development of the contingent of cadres and civil servants in the province in general, and cadres of the People's Committees of districts, towns, and cities in particular, who are capable and well-responsive to the issues. According to provisions of the 2008 Law on Cadres and Civil Servants, cadres of the district-level People's Committees include the Chairman and Vice-Chairman of the People's Committee. Because this contingent is the force leading and operating the activities of the district-level People's Committee and managing socio-economic life in the district, Tay Ninh Province needs to have solutions to boost its capacity. The research objective of the article is to analyze the current state of the capacity to perform public tasks of the contingent of cadres and civil servants of the district-level People's Committee in Tay Ninh Province, thereby proposing some solutions to improve the capacity to perform public tasks of the contingent of cadres and civil servants of the district-level People's Committee in Tay Ninh Province in the coming time.

The article is based on the theory of capacity and capacity to perform public tasks. Today, however, it is interpreted in a variety of ways. From a pedagogical perspective, capacity is understood as *“the general mobilization of knowledge, skills, and other personal attributes such as excitement, belief, will... to execute a piece of work in a certain context”* (The Ministry of Education and Training, 2015). According to the Organization for Economic Cooperation and Development (OECD), *“capacity is an individual's ability to meet complex requirements and successfully execute tasks in a specific context”* (2015). According to the Vietnamese Dictionary, capacity is *“the ability, subjective or natural condition to be able to perform a particular activity, or in other words, a virtue, psychological and physiological that allows people to complete a certain act of high quality”* (Institute of Linguistics, 1997). According to Administrative Sciences, capacity is *“a term that refers to the physical and intellectual abilities of an individual person or the ability of an organized group to establish and perform its own behaviour in social relations in order to achieve the goals and tasks set forth by themselves or the state or other subject defined with the best results”* (Institute of Administrative Research, 2009). Meanwhile, the capacity to perform public tasks of cadres and civil servants is interpreted as the *“actual ability of each civil servant in performing well the assigned functions and tasks. There are many factors constituting capacity, in which knowledge; skills; attitudes and behaviours are the core factors”* (Nguyen Hong Hoang, 2020). According to this approach, civil servants’ capacity to perform public tasks is based on three factors: knowledge, skills, and attitudes. This is also the popular approach of administrative science today.

District-level People’s Committee cadres are a constituent part of the contingent of cadres and civil servants, so their capacity to perform public tasks is also based on three factors. According to the trend of output results-based management today, capacity is not only assessed based on the three factors mentioned above but must be considered in the results of public task performance. Therefore, within the framework of this article, capacity is considered and evaluated on 4 factors, including knowledge, skills, attitudes, and results of public task performance.

2. Method

The article uses the method of secondary document research and questionnaire survey. For data (quantity, gender), knowledge, rating results of the district-level People’s Committee cadres, use data from reports and statistics of Organizing Committee of Tay Ninh Provincial Party Committee, Tay Ninh Department of Home Affairs. For data on skills and attitudes of district-level People’s Committee cadres, the research team conducted a survey using a questionnaire for research subjects, specifically as follows:

- Survey objects: Chairman, Vice-Chairman of People’s Committees of districts, towns, and cities in Tay Ninh Province (9/9 district-level administrative units). The number of survey votes: 28 votes, accounting for 100% of survey objects, including 9 Chairman of the People’s Committee and 19 Vice-Chairman of the People's Committee.

- Survey content: Survey on the capacity to perform public tasks of district-level People’s Committee cadres. On skills, conduct a survey on the proficiency of skills such as thinking skills; meeting organization and management skills; assignment and coordination

skills; change management skills; job analysis skills; communication skills, skills to welcome people and settle complaints and denunciations; decision-making skills; skills in organizing propaganda and mobilizing people; consulting skills; inspection and supervision skills; skills in using computers and applying information technology to leadership and management activities; conflict resolution skills. On attitudes, conduct a survey on some contents as the sense of discipline; responsibility at work; honesty; the spirit of learning to develop; positive attitude to cooperation at work; attitude to serve people; motivation, purpose to work; relationships with subordinates, superiors and peers. In which, Skills and attitudes are considered on 5 levels (1. Excellent, 2. Good, 3. Regular, 4. Bad, 5. Very bad).

3. Results

3.1. Overview of the contingent of cadres and civil servants of district-level People's Committees in Tay Ninh Province

Nowadays, Tay Ninh has 9 district-level administrative units, including Tay Ninh City, Trang Bang Town, Hoa Thanh Town, Ben Cau District, Chau Thanh District, Duong Minh Chau District, Go Dau District, Tan Bien District, Tan Chau District. In the past time, in order to ensure the organisation and operation of the People's Committee of districts, towns, and cities in the area, Tay Ninh Province has always focused on the arrangement of cadres of district-level People's Committees. This contingent is consolidated according to the provisions of the Law on Organization of Local Government 2015.

Table 1. Statistics on the situation of cadres of district-level People's Committee

Total	Gender		By Age		
	Male	Female	Younger than 40	From 40 - 50	Older than 50
28	19	9	02	18	8

Source: Department of Home Affairs of Tay Ninh Province, 2021

3.2. Overview of the capacity to perform public tasks of the cadres of the district-level People's Committee in Tay Ninh Province

3.2.1. Knowledge

During this time, Tay Ninh Province has always focused on standardizing the cadres of the district People's Committee. Tay Ninh Province has organised many training and refresher courses on knowledge for this contingent. In addition, they also participate in standardized classes according to titles and positions.

Table 2. Statistics on knowledge of cadres of district-level People's Committees

Knowledge	Contents	Quantity	Percentage (%)
Qualification	Bachelor	17	60.71
	Master	11	39.29
Political Theory	Middle ranking	0	0
	High-ranking	26	92.86
	Bachelor	2	7.14

Knowledge	Contents	Quantity	Percentage (%)
State management	Participating in training for specialists	3	10.71
	Participating in training for principal- specialists	20	71.43
	Participating in training for senior - specialist	5	17.86
Information technology	Certificate A	5	17.86
	Certificate B	21	75
	Intermediate	2	7.14
Foreign Language	Certificate A	4	14.29
	Certificate B	12	42.86
	Certificate C	4	14.29
	University	1	4.27
	No certificate	4	14.29

Source: Statistics of the Organizing Committee of Tay Ninh Provincial Party Committee, 2021

Compared with the regulations of the Party and State for the standards of the Chairman and Vice-Chairman of the district-level People's Committee in Tay Ninh Province, it can be seen that the professional qualifications, state management knowledge, political theory and information technology, the standard rate is 100%. Meanwhile, the rate of foreign languages just reaches 71,82% of the regulations.

3.2.2. Skills

The assessment of the knowledge level of the Chairman, Vice-Chairman of the District-level People's Committee is just about the theoretical aspect, mainly shown through degrees, which is not very practical. Therefore, it is necessary to consider the skill aspects to assess the capacity of this contingent. The research team surveyed the real situation of skills, the concrete results are as follows:

Table 3. Summary table of survey results on the level of skill use

Skills	The level of skill use				
	Excellent	Good	Regular	Bad	Very bad
1. Thinking skills	4	23	1	0	0
2. Meeting organization and management skills	9	17	2	0	0
3. Assignment and coordination skills	6	21	1	0	0
4. Change management skills	6	12	5	5	0
5. Job analysis skills	2	5	15	6	0
6. Communication skills, skills to welcome people and settle complaints and denunciations	7	10	8	3	0
7. Decision-making skills	6	20	2	0	0
8. Skills in organizing propaganda and mobilizing people	9	17	2	0	0
9. Consulting skills	7	19	2	0	0
10. Inspection and supervision skills	5	15	8	0	0
11. Skills in using computers and applying information technology to leadership and management activities	1	10	12	5	0
12. Conflict resolution skills	4	7	15	2	0

Source: Survey results of the research team

Most of the Chairmen and Vice-Chairmen of the district-level People’s Committees self-assessed their skills at a good and excellent. Specifically, there are some highly regarded skills, such as communication skills, skills in propaganda and mobilizing people, time management skills. On the contrary, there are also some skills that they find themselves being not proficient such as skills in using computers and applying information technology to leadership and management activities, change management skills, conflict resolution skills, and coordination skills. This is also a common fact for the contingent of cadres and civil servants in general, because most of these skills are relatively difficult and high-demanding.

3.2.3. Attitudes

In the process of performing public tasks, the cadres of the district-level People’s Committee are aware of their responsibility in performing their public tasks. The district leaders have always focused on raising awareness and sense of public task performance for the contingent of Chairman, Vice-Chairman of the district-level People’s Committee, so they all have a serious and standard attitude to the assigned work. Moreover, the Chairman and Vice-Chairman of the district-level People’s Committee always have a serious attitude and are aware of their responsibility to their work, so they always make great efforts in the process of performing public tasks.

Table 4. The level of responsiveness about the attitudes

Attitudes	The level of content responsiveness about attitude				
	Excellent	Good	Regular	Bad	Very Bad
1. Sense of organization and discipline	15	10	3	0	0
2. Responsibility in work	10	12	6	0	0
3. Honest	17	10	1	0	0
4. The spirit of learning to develop	5	13	10	0	0
5. Positive attitude to cooperation at work	9	18	1	0	0
6. Attitude to serve people	17	10	1	0	0
7. Motivation, purpose to work	10	17	1	0	0
8. Relationships with subordinates, superiors and peers	9	19	0	0	0

Source: Survey results of the research team

3.2.4. Results of public task performance

Currently, the assessment work of cadres and civil servants is mainly through the assessment of outputs to consider how effectively the knowledge, skills and attitudes of civil servants have been applied in the process of performing public tasks. Therefore, capacity should be considered on the results of public task performance of each cadre and civil servant. Each year, the People's Committees of districts, towns and cities evaluate the contingent of Chairman and Vice-Chairman of the district-level People’s Committees. The assessment from 2017 to 2019 was carried out according to the provisions of Decree No. 56/2015/ND-CP dated June 9, 2015, of the Government on assessment and classification of all civil servants. From 2020, the assessment and classification will be carried out according

to the Government's Decree No. 90/2020/ND-CP dated August 13, 2020, on the assessment and classification of the quality of all civil servants.

Table 5. Statistics on the results of the annual evaluation and ranking

Year	Results of evaluation and ranking			
	Excellent completion of the task	Good completion of the task	Completion of the task but limited capacity	Non-completion of the task
2016	4	23	0	0
2017	5	22	0	0
2018	3	24	0	0
2019	6	21	1	0
2020	6	22	0	0
2021	0	28	0	0

Source: Statistics of the Department of Home Affairs of Tay Ninh Province

Overall, the results of the annual cadre evaluation and classification are at a high level. In the years 2017, 2018, 2020, the proportion of ranking from the level of good completion of the task upwards reached 100%. Meanwhile, there was only 1 case that was ranked at the level of completing the task but limited capacity in 2019.

3.3. Assessment of the current state of capacity for public task performance of the cadres of the district-level People's Committee in Tay Ninh Province

3.3.1. Advantages

First, the knowledge level of the cadre of the district People's Committee of Tay Ninh Province has been improved year by year. The level of knowledge of this contingent has well met the requirements and tasks set out. Some district-level People's Committee cadres have exceeded the the criteria prescribed (11/28 cadres have master's degrees). Besides, many cadres have two or more professional degrees.

Second, most district-level People's Committee cadres are proficient in basic skills, have a harmonious combination of skills, and meet requirements in the process of performing public tasks. The contingent of district-level People's Committees is mostly from 40 to 50 years old, have length of service, and long time in charge of position. Therefore, their experience and administrative skills, executive management skills are quite good, which will facilitate effective guidance for subordinates, and solve problems quickly and effectively.

Third, District-level People's Committee cadres have a good attitude, strictly obey the Party's lines and undertakings, the State's legislation, the office's rules. In the process of performing their public tasks, they have had a spirit and sense of responsibility for their assigned tasks. Their behavior always secures the standards of the legal regulations on civil service ethics

Fourth, the contingent of district-level People's Committees has effectively applied knowledge, skills and attitudes in practice, so it has contributed to achieving high results

in the process of performing public tasks. The percentage of cadres who “good completion of the task” upwards has gradually increased over the years. They have made constant efforts to improve their capacity in performing public tasks, develop an effective and efficient administration.

3.3.2. Restrictions

First, Most of cadres only stop at the level of obtaining certificates in informatics and foreign languages, and their ability to apply knowledge in practice is still quite weak. Besides, there are still a number of cadres who do not meet the standards of foreign languages in accordance with the regulations of their titles.

Second, there are some skills that just stop at the level of knowing, but not understanding, even not being proficient. The performance of skills of the majority of Chairmen and Vice-Chairmen of the district-level People’s Committees is uneven and has many shortcomings, the application of skills in practice to solve problems is still confusing.

Third, people reception has not been conducted regularly and seriously. In fact, some people said that they are not satisfied with the way the Chairman and Vice-Chairman of the district-level People’s Committee is handling the work. In addition, the sense of responsibility, sense of discipline of a part of the Chairman and Vice-Chairman of the district-level People’s Committee is not yet high, the working style still applies the traditional method, slow to innovate.

Fourth, the number of Chairman and Vice-Chairman of district-level People’s Committees are ranked as “excellent completion of the task” over the years accounts for a low proportion. There are still cadres who are only rated at the level of “completion of tasks”. The results of administrative reform of districts, towns and cities have not been improved, this stems from limitations in direction and execution work in the process of performing public tasks. The actual settlement of works is sometimes slow and awkward, leading to loss of people’s time.

4. Discussion and Conclusion

In order to improve the capacity to perform public tasks of district-level People’s Committee cadres in Tay Ninh province, the research team proposes the following solutions:

First, it is necessary to complete the legal provisions related to the requirements on knowledge and skills of the contingent of the district-level People’s Committee cadres. Ministry of Home Affairs should advise the Government on the development of regulations on standards for the Chairman and Vice-Chairman titles of the district-level People’s Committees. In addition, it is necessary to identify specifically the standards of professional qualifications, political theory, state management, work experience. The Government, the Ministry of Home Affairs and Tay Ninh province need to speed up the salary reform roadmap, especially paying a salary based on the job position.

Second, in the coming time, Tay Ninh province needs to organize a survey on the training and fostering needs of the Chairman and Vice-Chairman of the district-level People’s Committee. In addition, it is necessary to base on the requirements of each job

position that they undertake to determine the necessary knowledge and skills. On the basis of the real situation of skills of district-level People's Committee cadres in recent years, the research team proposes that Tay Ninh province should focus on fostering the following skills: job analysis skills; forecasting skills; change management skills; skills to handle unexpected situations;...

Third, it is necessary to renovate the assessment work of cadres of the district-level People's Committee. Assessment criteria need to be specified and quantified in order to have a basis for evaluation. Besides, it is necessary to assess the cadres of the People's Committee in a multi-way through the participation of superiors, subordinates, and the people. Assessment results must be used for salary payment, training, fostering, planning and appointment.

Fourth, it is necessary to strengthen the inspection and examination work of the activities of district-level People's Committee cadres. Leaders of the Tay Ninh People's Committees and districts, towns and cities should inspect and supervise the public task performance activities of district-level People's Committee cadres periodically or irregularly. During the process of inspection and examination, if anyone is found to have made a mistake, it should be handled seriously and promptly. It is necessary to avoid both respect and fear of contradictions to ensure compliance with legal regulations during the process of handling.

Fifth, it is necessary to promote the initiative of each cadre of the district-level People's Committee. Besides, it is also necessary to propagate so that they could aware that socio-economic life is increasingly complicated which requires them to have the capacity to be commensurate with tasks in the coming time. Each cadre needs to clearly aware of requirements on their capacity to perform public tasks in the new period so as to actively improve their capacity. Tay Ninh province needs to regularly mobilize and persuade district-level People's Committee cadres to actively study and practice in order to improve their capacity for performing public tasks. Moreover, each individual needs to receive comments from superiors, subordinates and the people for themselves about limitations and inadequacies in order to make appropriate adjustments.

Cadres in general and district-level People's Committees in particular play an important role in the effectiveness and efficiency of the state apparatus. The quality of district-level People's Committee cadres is a decisive factor for state management as well as socio-economic development in the district. During the current administrative reform, the Party and State always care and develop this contingent. Therefore, it is very important to improve the capacity of cadres to perform public tasks of district-level People's Committees. In the coming time, it is required that the political system has some solutions to develop the capacity of district-level People's Committee cadres.

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COMPLETING THE EXEMPTION POLICY FOR RESEARCH AND DEVELOPMENT AGREEMENTS

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Abstract

An exemption policy for anti-competition agreements is one of the major and important contents of the institution that controls anti-competition agreements. However, in the course of operation, when manufacturing and trading enterprises want to survive and develop, they must conduct research and development activities for new products (hereinafter referred to as research and development - R&D). However, the costs of research and development, especially creating breakthrough products, are often huge. On the other hand, investing in research and development often has a large probability of failure. High cost and high risk are one of the challenges of research and development activities. The paper focuses on analyzing the nature of research and development agreements, the purpose and meaning of exemption policies for research and development restrictions; Relevant aspects in the competition law of Vietnam on the basis of reference to the respective experience from the competition laws of the United States and the European Union, from which there are assessments and recommendations for institutional improvement this plan.

Keywords: *Research and development, exemption, competition restriction agreement, complete exemption policy.*

1. Introduction

Competition restriction agreement is an agreement between the parties in any form to influence or potentially cause anti-competitive effects (Clause 4, Article 3 of the Competition Law 2018). However, agreements between competitors do not always restrict competition and consumers' interests. In certain cases, these arrangements can provide value that drives competition in the marketplace. One of the positive aspects of competition promotion agreements are new product research and development (R&D) agreements. Within the scope of this scientific paper, the purpose and significance of the exemption policy for research and development restraining agreements are mentioned. The timing of application, the procedure, and the extent to which the enterprise will receive benefits upon waivers from research and development agreements have been analyzed. The provisions of the competition law in some countries, compared with Vietnam's competition law on the exemption of research and development agreements are also made for recommendations to improve this policy.

2. Method

The specific method used to study the topic "Completing the exemption policy for research and development agreements" is as follows:

- Interpretation method

This is the method applied to study the basic theoretical issues about the legal issues controlling anti-competition agreements in general and the exemption policy for research and development agreements in particular. .

- Methods of analysis and commentary

This method is used to present specific provisions of the international legal system as well as the Vietnamese legal system on anti-competition agreements and exemption policies for research agreements and development.

- Comparative jurisprudence

This method is also used to study the provisions of international law, the laws of other countries and compare with the provisions of Vietnamese law in order to assess the compatibility and suitability, thereby drawing experience and specific solutions in the laws of other countries, on that basis, proposing solutions to perfect Vietnamese laws in this matter.

- Methods of systematizing and synthesizing

This is a research method used to generalize and draw basic conclusions and proposals on the author's new contributions to the improvement of Vietnamese laws on controlling anti-competition agreements. and implement an exemption policy.

Research question

- Why is the exemption policy for anti-competitive agreements on research and development mentioned in the legislation that controls anti-competition agreements?
- What is the solution to completing the exemption policy for the anti-competitive agreements on research and development under current Vietnamese conditions?

3. Results

3.1. Identify research and development agreements

“Research and development” is a term commonly used to describe activities performed by companies and other entities such as business individuals to create or improve products and process [1]. Along with increasing competition, the need to conduct research and development for businesses also becomes greater. But on the other hand, the nature of research and development also involves risks for businesses doing this activity. Theoretically, there are two major risks: i) first, stemming from the nature of research and development as an activity that involves a high probability of failure; ii) Secondly, the possibility that the enterprise is at risk from being appropriated by other companies for research and development results from hostile mergers and acquisitions [2]. Therefore, enterprises face a dilemma that is the pressure to conduct research and development (to compete better in the relevant market) and the risks from research and development activities. To deal with this dilemma, the solution is to allocate risk through conducting this

activity with other businesses. To put it simply, a research and development agreement is an agreement between enterprises to contribute financially together, to take the necessary activities to improve and / or create products. or production process or operation. From the above analysis shows, research and development activities have two important characteristics as follows: the association is formed from agreements between enterprises; Risks will be allocated to businesses participating in research and development activities. On the other hand, the benefits from this process will also be distributed to the firms that conduct the agreement.

As an activity that involves a high probability of risk, logically, businesses will tend not to share research and development results with other firms, and this is also the time when competition law comes into play. The practice of many countries around the world shows that competition law considers research and development agreements as competition promotion agreements or will grant these agreements an exemption [3]. However, not all research and development agreements explicitly promote competition. In fact, refusal agreements with competitors to ensure research and development results are only allocated to firms that jointly invest their finances and efforts to conduct. The most controversial in the implementation process. Accordingly, there are still many different opinions regarding whether to consider the refusal agreements with parties not to the agreement as agreements that automatically violate the competition law or should apply logic rules when handling [4].

3.2. Purpose and implications of an exemption policy for research and development competition restriction agreements

As analyzed above, a competition restriction agreement is an agreement between the parties in any form that affects or has the ability to cause anti-competitive effects (Clause 4, Article 3 of the Competition Law 2018). However, agreements between competitors do not always cause harm to the competition and to consumers. In certain cases, these arrangements can provide value that drives competition in the marketplace. One of the positive aspects of competition promotion agreements are new product development and research agreements. Research and development costs, especially the creation of breakthrough products, are often enormous. High cost and high risk are one of the biggest challenges of research and development activities. Therefore, it is ineffective for each individual enterprise to operate this activity independently from an economic perspective. That is also the reason why businesses agree to jointly carry out research and development activities. In the practice of competition law, countries always consider product research and development agreements to promote competition or give such agreements an exemption [1]. In practice, not all agreements explicitly promote competition like research and development agreements. Denial deals with competitors are among the most controversial in the execution process. Accordingly, there are still many different opinions related to whether to consider refusal agreements with competitors to be default agreements, so the principle of reasonable argument should be applied when handling [2]. Scholar Herbert Hovenkamp has made compelling arguments regarding the control of no-transaction agreement behavior. It is assumed that there are three enterprises working together on a research and development

project, they initially invited a fourth firm to participate, but this firm disagrees. Therefore, the project includes only three businesses. After that, the successful research project began to create commercial value. At this point, when the fourth firm wanted to be involved in this process, all three firms above simultaneously refused to allow the fourth firm to participate [3]. The nature of research and development activities is risky investments in research. The key to this process is to face risks during the investment process to benefit from a new product that will be breakthrough or high profit margins in the future. Therefore, forcing firms to allow a fourth firm to participate in the production of a new product would be unfair for businesses that had already faced the risk from the start and allowed the fourth firm to take advantage from the risk of other businesses unjustly. In its 1998 international competition law enforcement policy guide, the US Department of Justice also emphasizes this aspect with respect to denial of transaction agreements. Accordingly, forcing the joint venture to open up opportunities for competitors to become members of the joint venture (or license research and development products of the joint venture to businesses that want to). license ownership) will reduce the motivation of research and development joint ventures. According to international practice, exemptions are built on the rule of reason, whereby the principle of evaluating the illegality of an anti-competitive agreement on the basis of balance between positive and negative effects, especially those that promote competition and restrictive effects, or between the effect of restraint of competition and the economic efficiency or benefits that the agreement acts bring. again. In essence, when the competition restriction agreement has constituted enough signs to conclude is a violation of competition law, however, if the benefits to the economy and consumers that the agreement can bring out is higher than the anti-competitive effect, the agreement may be granted performance. Currently, in Vietnam under the provisions of the Competition Law 2018, a prohibited anti-competition agreement will be exempted for a term if it is beneficial to consumers and meets one of the following four conditions: (1) The impact of promoting technical and technological progress, improving the quality of goods and services; (2) Strengthening the competitiveness of Vietnamese enterprises in the international market; (3) Promoting the uniform application of quality standards and technical norms of product categories; (4) Agree on terms of performance of the contract, delivery, payment, but not related to price and price elements. Thus, the aim when building an exemption mechanism for anti-competitive agreements is to promote competition in the market, in addition to bringing benefits to consumers. And agreements to restrain competition in research and development of new products among enterprises belonging to this target group (the impact of promoting technical and technological progress, improving the quality of goods and services).

3.3. The timing of application, procedure and extent of benefits received by the enterprise when exempt from research and development agreements

Exemption policy procedures are of the nature of administrative procedures and comply with the provisions of competition law. Therefore, agreements to restrain competition in research and development enjoying an exemption do not automatically apply when the conditions specified by the content law are met, but are required to receive the approval of the competition authority. Specifically, in order to enjoy the exemption policy,

members planning to participate in anti-competitive agreements in research and development must submit a request for exemption to the competent competition authority. permission. Based on the dossier of request for exemption, the Competition Administration Authority shall issue a decision on approval or disapproval for the parties enjoying the exemption. Accordingly, the parties to an anti-competition agreement in research and development that meets the conditions for exemption may only enter into an anti-competition agreement after the exemption decision is issued. This shows that the waiver started to establish before this anti-competition agreement was put into operation.

Regarding the scope of benefits that enterprises receive, enterprises that are entitled to an exemption from competition restriction agreements in research and development will be completely free from penalties (ie complete exemption). And the decision to grant an exemption is not permanent. They are always valid for a certain period of time (in the decision to grant an exemption, always have a period of validity) or are subject to review and may be annulled in accordance with the law.

3.4. Regulations of competition law in some countries, comparing with Vietnam's competition law on exemption from research and development agreements - current situation and recommendations

For the purpose of controlling anti-competitive agreements effectively, the European Union competition law in fact classifies exemption criteria into several different groups. Research and development agreements are considered by the European Union as value agreements that promote competition. Under the competition laws of the European Union [5], research and development agreements are automatically exempted [6]. Exemptions are automatically applied which means that when an enterprise implements agreements, but under competition laws it is defined as the default competition-promoting value agreements. The competition authority does not need to consider the beneficial or anticompetitive aspects of an agreement. Accordingly, pursuant to Article 81 (3) of the Agreement, the provisions of these Regulations, declare that Article 81 (1) shall not apply to agreements between two or more parties (hereinafter referred to as parties) regarding the conditions pursued by them:(a) joint research and development of products or processes, and jointly explore the results of such research and development; (b) jointly explore research and development results of products or processes that they have previously researched and developed together; or (c) joint research and development of products or processes jointly, but excluding the joint exploitation of the results. This waiver shall apply in the event that such agreements (hereinafter "research and development agreements") contain competition restrictions that are covered by Article 81 (1).

In its 1998 international competition law enforcement policy guide, the US Department of Justice also emphasizes this aspect with respect to denial of transaction agreements. Accordingly, forcing the joint venture to open up opportunities for competitors to become members of the joint venture (or license research and development products of the joint venture to businesses that want to). license ownership) will reduce the motivation of research and development joint ventures. The consequence of implementing a policy that does not allow joint ventures to choose members can have the worst consequences of encouraging

firms to avoid risk (without having to start first) but they There are grounds to hope to be able to share the results from previously ventured businesses through competition litigation [8].

The provisions of the competition law of Vietnam, under the provisions of the Competition Law 2018, if the competition restriction agreements in Article 11 are beneficial to consumers and satisfy one of the conditions specified in Clause 1 Article 14 is subject to an exemption. These conditions are: the impact of promoting technical and technological progress, improving the quality of goods and services; enhancing the competitiveness of Vietnamese enterprises in international markets; promote the uniform application of quality standards and technical norms of product categories; agree on contract performance, delivery, and payment terms, but not related to price and price factors. Thus, according to the provisions of the competition law of Vietnam, there are no separate provisions for research and development agreements. The criteria specified in Clause 1, Article 14 of the Competition Law may be a consequence of research and development agreements, but it is not necessarily agreement. In other words, such criteria as the impact of promoting technical and technological progress, improving the quality of goods and services, promoting the uniform application of quality standards and technical norms of product categories. product... may be a result of a research and development agreement or another.

Under Clauses 3 and 4, Article 12 of the Competition Law 2018, the subject of a non-transaction agreement with non-parties may be between enterprises on the same relevant market or enterprises. doing business at different stages in the same production, distribution and supply chain for a certain kind of goods or service. In terms of the nature of this boycott agreement will be controlled in the direction of reasonable argument. That is, an agreement will be dealt with when it exerts a significant anti-competitive effect or affect in the market [9]. On the basis of the above study and comparison, the author would like to give comments and recommendations as follows:

Although they mentioned the same boycott, the Vietnamese competition laws and the US and EU competition laws differ in their approach. In particular, the EU competition law is quite open when it comes to assigning research and development agreements to the automatic exemption. Vietnam's approach differs from that of EU law when it does not recognize research and development agreements. Specifically, according to the provisions of the US law and EU law, if the enterprises agree on joint research and product development and one of the contents of this agreement is that the parties will not trade. for parties that were not originally involved in the research and development agreement, the agreement will still enjoy an exemption. It should be noted that the exemption here is an exemption to the research and development agreement and the boycott is only part or part of the agreement. Meanwhile, the Competition Law 2018 considers this as a non-transaction agreement with non-parties specified in Clause 9, Article 11. Accordingly, this agreement will be dealt with or may be waived if it meets the conditions in Article 14 of the Competition Law (for example, the agreement has the effect of promoting technical, technological, advanced quality of goods and services). In other words, under Vietnam's competition law, the issue of exemption here is an exemption from a non-transaction agreement with non-contracting

parties rather than an exemption to a research and development agreement. development. The author argues that, with the competition law of Vietnam not recognizing types of research and development agreements is unreasonable for the following reasons:

Firstly, the current Vietnamese economic practice, with the explosion of digital economy and e-commerce, research and development agreements are increasing. To meet that need, it is imperative that research and development activities be encouraged.

Second, from the perspective of the line, development of science and technology has been identified as one of the priorities to ensure the development of Vietnam. Resolution No. 52-NQ / TW dated September 27, 2019 of the Politburo on a number of guidelines and policies to actively participate in the Fourth Industrial Revolution, requiring "perfecting the law, first of all the Law on enterprises, creative start-ups, intellectual property, commerce, investment, and business to facilitate national digital transformation and the development of products, services, and business models. New economy is based on digital technology" [10]. There are agreements between businesses that clearly damage competition. But on the other hand, there are also competitive and favorable agreements. In the context of the current development of science and technology in Vietnam, research and development agreements among enterprises, even if they contain factors that limit competition, should be considered and encouraged. In order to promote joint research and development activities, Vietnamese competition law needs to change its approach to this type of agreement in the direction of recognizing this type of agreement in the law and giving it its entitlement. automatic immunity. Control over the nominal use of research and development agreements to enter into other types of anti-competitive agreements by assessing anti-competitive factors. If, in the case of a research and development agreement, but contains the potential to significantly limit competition, then the possibility of settlement should be taken into account. To assess the potential for competition restriction in this case, it can be considered based on two criteria: i) the market share of the firms participating in the research and development agreement and ii) the position of the business. industry in the relevant market or in the production, distribution or supply chain of a certain kind of goods or service.

4. Discussion and Conclusion

For the purposes of controlling competition restriction agreements, in fact, competition law has classified research and development agreements as automatic waivers. When businesses make value agreements that automatically promote competition, they are automatically exempt. The competition authority does not need to consider the beneficial or anticompetitive aspects of an agreement.

Research also shows that research and development agreements are one of the types of anti-competitive agreements that promote technical and technological progress, improve the quality of goods and services, and benefit people. consumption, beneficial for the market and for the economy. High cost and high risk are one of the challenges of research and development activities. The practice of many countries around the world shows that competition law considers research and development agreements as competition promotion agreements or will give them an exemption. Seeing the respective experience from the

competition laws of the United States and the European Union, with the study of Vietnamese competition law, it is found that Vietnam does not recognize various types of research and development agreements as inappropriate. The author and the author boldly made recommendations to improve the legal provisions on the exemption of all types of anti-competitive agreements in general and competition restriction agreements in research and development in particular. The author is looking forward to receiving research comments and contributions from scholars and entrepreneurs!

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ENHANCING THE STRATEGIC THINKING OF EDUCATION MANAGERS FOR ETHNIC MINORITY, MOUNTAINOUS AND DISADVANTAGED AREAS IN THE CONTEXT OF EDUCATION 4.0

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Abstract

Strategic thinking is simply an intentional and rational thought process that focuses on the analysis of critical factors and variables that will influence the long-term success of a team or an individual. Strategic thinking requires research, analytical thinking, innovation, problem-solving skills, communication and leadership skills, and decisiveness. The competitive landscape can change quickly for any organization. New trends may emerge quickly and require you to take advantage of them or fall behind. By incorporating everyday strategic thinking into work and life routines, we will become more skilled at anticipating, forecasting, and capitalizing on opportunities. Based on the statistical synthesis and meta-analysis methods; The article analyzes the need to develop strategic thinking of educational administrators and proposes requirements to improve strategic thinking of educational administrators in ethnic minority mountainous and disadvantaged areas in the context of education 4.0.

Keywords: *Strategic thinking, educational managers, ethnic minorities, mountainous areas, education 4.0.*

1. Introduction

The fourth industrial revolution (Industry 4.0) began to appear in the first decade of the 21st century. It is a revolution based on breakthrough achievements in various technology fields with the foundation of breakthroughs in digital technology. The emergence of the industrial revolution 4.0 has impacted and changed all areas of social life, including education. Education should change to meet the development needs of society in the era of Industry 4.0. To accomplish that task, the educational manager has an important role. Education managers should improve strategic thinking, which is an issue for educational institutions to constantly adapt to new conditions, improve capacity and operational efficiency.

2. Method

Research methods: To carry out the stated research purposes and tasks, the authors consistently and systematically use popular scientific research methods: historical and logical methods. This method is used in the article to analyze, interpret and clarify the concept of strategic thinking of educational administrators in ethnic minority mountainous and disadvantaged areas in the context of education 4.0); Methods of analysis and synthesis (to deploy, synthesize, and generalizing research contents); Statistical methods (to collect and evaluate the research situation), etc.

Sources of research materials: The secondary sources used, synthesized, and analyzed in the article are mainly documents published in books, newspapers, magazines, studies of authors in Vietnam and abroad.

3. Results

3.1. Strategic thinking, Strategic thinking of educational administrators

** Strategic thinking*

Thinking (or Thought) encompasses a flow of ideas and associations that can lead to logical conclusions [5]. Although thinking is an activity of an existential value for humans, there is still no consensus as to how it is adequately defined or understood.

Thinking is a reflection of a high-level cognitive process in a general, positive, indirect, and creative way about the worldview. The characteristic of thinking is generalization and abstraction to form concepts, theories, and creative cognitive activities. In thinking, abstraction and generalization go hand in hand. Generalization appears in thinking when it has been abstracted. Based on forming knowledge about the world and society indirectly.

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Thoughts can be divided into different categories. If divided according to the level of perception, thinking includes experiential and theoretical thinking; if divided by thinking method, thinking is divided into dialectical and metaphysical thinking; considered according to a scientific level, divided into non-scientific and scientific thinking; considered according to the "vision" of the task, the goal that people are aiming for, thinking divided into strategic and tactic thinking, etc.

** Strategy*

Strategy (from Greek στρατηγία *stratēgia*, "art of troop leader; office of general, command, generalship" [8]. is a general plan to achieve one or more long-term or overall goals under conditions of uncertainty.

Henry Mintzberg from McGill University defined strategy as a pattern in a stream of decisions to contrast with a view of strategy as planning [1], while Henrik von Scheel defines the essence of strategy as the activities to deliver a unique mix of value – choosing to perform activities differently or to perform different activities than rivals [2]. While Max McKeown (2011) argues that "strategy is about shaping the future" and is the human attempt to get to "desirable ends with available means". Dr. Vladimir Kvint defines strategy as "a system of finding, formulating, and developing a doctrine that will ensure long-term success if followed faithfully" [11]. Complexity theorists define strategy as the unfolding of the internal and external aspects of the organization that results in actions in a socio-economic context [10].

In the article, the author approaches the concept of "Strategy" as follows: Strategy is a set of decisions about long-term goals and measures, ways, and ways to reach those goals.

** Strategic thinking*

Strategic thinking is reflecting the nature, laws, and movement trends of objective reality and gives the right orientation to human cognitive and practical activities, helping people achieve their goals.

** Strategic thinking of educational administrators*

Education administrators set educational standards and goals and establish the policies and procedures required to achieve them. They also supervise managers, support staff, teachers, counselors, librarians, coaches, and other employees. They develop academic programs, monitor students' educational progress, train and motivate teachers and other staff, manage career counseling and other student services, administer recordkeeping, prepare budgets, and perform many other duties. They also handle relations with parents, prospective and current students, employers, and the community. In a smaller organization such as a small daycare center, one administrator may handle all these functions. In universities or large school systems, responsibilities are divided among many administrators, each with a specific function.

Thus, managers are the management subject, the person holding the position in the organization, appointing the job positions; has the role of leading, influencing, ordering, and controlling in order to achieve the objectives of the unit. Education administrators in Vietnam currently account for about 10% of the total education officials and employees. Preschool education accounts for 18.85%; general education is 55%, colleges and universities are 15.3%; education management agencies at all levels accounted for 10.75% [7]. The strategic thinking of educational administrators: The strategic thinking of educational administrators includes the following aspects:

Professional competence to direct educational activities; capacity to advise, guide, and assist officials and teachers in professional education; have political, economic, medical, cultural, and social knowledge related to education; be able to apply specific education methods in schools; have the capacity to organize teaching and learning activities of the school; has the capacity to advise, guide and assist officials and teachers in pedagogy.

Ability to organize and implement educational programs know about educational programs; capable of implementing educational programs suitable to the target audience and the actual conditions of the school and the locality; have the capacity to guide and assist officials, teachers, and staff in implementing educational programs and plans.

Having knowledge of the management profession, completing the training program for educational administrators as prescribed; Apply knowledge in leadership and management. Formulate and organize the implementation of school development plans, forecast the school's development; develop and organize the implementation of the school year plan.

Implementing democracy in school activities, building democratic regulations in schools according to regulations; organize the implementation of grassroots democracy

regulations, create favorable conditions for mass organizations and social organizations in the school to work to improve the quality of education.

Coordinating between the school and the locality, consulting with the Party committees and local authorities to develop education; mobilize resources of the community, economic, socio-political organizations, and individuals to build a developing school; organize for staff, teachers, and students to participate in social activities in the community [4].

3.2. Education 4.0 and improving strategic thinking for education administrators in ethnic minority, mountainous and disadvantaged areas

Industry 4.0 refers to the fourth industrial revolution. It calls for a dynamic transformation of how all aspects of business and production are done. A new wave of global technology will change global production. Internationalization, in all aspects of business and industry, will be the norm. Countries can no longer remain confined within their borders but must become citizens of the world. Leaders in this new era will need to be critical thinkers, problem solvers, and be able to interact across the globe. In short, they need to be liberally educated.

But how should this impact on education? Future workers will need to be highly trained in the emerging technologies but also, as importantly, in the values associated with using those technologies. In the future, we must not only possess the ability to develop the technology but also to know whether, when, and where to use that technology. That kind of thinking is both reflective and interdisciplinary. Schools must reinvent themselves quickly. They need to adapt to the demands of the RI4 and have the obligation to come out of its shell, its hermetic spaces and try to give as many opportunities as possible by creating the adequate contexts for students to be prepared for the future jobs. The problem in the future could not be the lack of employment, but the shortage of skills that the new jobs will demand.

Students need to understand how they can correlate and use and apply different knowledge in diversified contexts, what they really mean and how they can create synergies among different subjects to develop/create “something” that connects to the real world. This takes us to another very important point: students need to work in a framework of projects and from there they need to collaborate with their colleagues, with their teachers and with the outside world. They need to develop new ways of communicating; they need to be put in front of complex situations to develop critical thinking and complex problem solving and to learn how to be imaginative, creative, adaptable, flexible and to develop brain plasticity.

In other words, Industry 4.0 will require the world to produce a new kind of worker—a knowledge worker! Tomorrow’s industry leaders and managers must possess new skill sets to adapt, to manage, and to take advantage of Industry 4.0. They must be critical thinkers, problem solvers, innovators, communicators, and provide value driven leadership. They must be able to see beyond the technology at play to the implications for society for the use of that technology. These traits define the knowledge worker. They must know the technology but be able to meet and solve all aspects of the challenges engendered by this technology. This kind of leader requires a new approach to education.

As Alex Gray (2016) states “Change won’t wait for us: business leaders, educators and governments all need to be proactive in up-skilling and retraining people so everyone can benefit from the Fourth Industrial Revolution” [3]. So, we have the obligation to create the models and contexts to allow it to happen, otherwise we will have a generation with no skills shortage for the new demands of the labor market and that will become a big problem to society.

To meet the requirements and requirements of modern education in industrial revolution 4.0, the strategic thinking of an education manager must have the following basic requirements:

Firstly, education administrators must have political courage and comply with the guidelines, guidelines, and policies of the Party and State.

Second, there must be a vision to develop education strategies and policies. Education managers need to be equipped with knowledge, skills, and attitudes to determine the position, role, and mission of the education and the educational institution, thereby building strategies, educational development policy, and educational institutions.

Third, must have the capacity to manage human resources. Education administrators need to renew their thinking about the role and content of human resource management and development policies. Education administrators should apply the theory and legal basis to implement the contents of human resource management, work arrangement, assignment of tasks, assessment, reward and discipline, and remuneration policies.

Fourth, educational administrators must have professional competence. It is the ability to analyze and solve work, detect challenges and opportunities, propose solutions; Ability to properly identify the development trend of the system or organization. Education administrators must have the capacity to innovate thinking; adaptability and integration; cooperation capacity; the ability to test and evaluate; know education law and legislation; have analytical and synthesis skills; kindness, honesty, and humility; to apply foreign languages and informatics in management.

Fifth, educational administrators must have good leadership capacity, apply effective management methods to meet the roles and responsibilities of the leader.

Sixth, education managers must be capable in educational development at schools, taking learners as the center, creating conditions for learners to always strive for high results in learning; have a broad vision so that the school's educational innovation programs must closely follow the national educational goals, from which there are reasonable educational development orientations.

Eighth, must have different skills in operating and solving work such as: Arrange work scientifically, rationally, get along with people, cooperate and encourage people to work, promote the creativity of individuals; examine, evaluate and properly use the capacity of each person; Detect general and detailed problems, identify motivational factors.

3.3. Solutions to improve strategic thinking of education administrators in ethnic minority, mountainous and disadvantaged areas in the context of education 4.0.

To meet the requirements of education and training innovation, building "Smart schools, approaching the 4th Industrial Revolution", it is advisable to carry out synchronous

solutions to improve the quality of education and training. Among the solutions, it is necessary to improve the strategic thinking capacity of educational administrators. Solutions to improve the strategic thinking of education administrators in ethnic minority, mountainous and disadvantaged areas in the context of education 4.0 include:

Firstly, regularly grasp the resolutions and directives of the Party, the State and the Ministry of Education and Training on the contents of education and training; Directly are: Resolution of the XIII Congress of the Party, Project "Improving the capacity of teachers and managers of higher education institutions, meeting the requirements of a comprehensive reform of education and training in the period. period 2019 - 2020" according to Decision No. 89/QĐ-TTg, dated January 18, 2019, of the Prime Minister, and orientations, goals, tasks, solutions for the development of education and training up to 2030 and the following years, etc. Therefore, education administrators in schools need to raise awareness, consider this as a political and decisive task to the quality of education and training; from there, leaders and directions set out effective guidelines, measures, plans, and training programs. At the same time, strengthen inspection, supervision, review, and draw experience in fostering to improve the qualifications and quality of education management staff.

Secondly, the training of education administrators must be comprehensive in terms of content, focused, and focused, select appropriate training content for each audience. In addition to professional and professional training according to functions and tasks, it is advisable to focus on fostering Marxist-Leninist theory, Ho Chi Minh's thought, resolutions of the Party committee, laws and regulations, rules, and regulations on education and training of the school. Along with that, fostering health, soft skills, knowledge, and understanding about life and society; leadership and management experience; foreign language skills and information technology.

Third, flexibly apply forms of training, the theory associated with the practice. The fostering of education managers should be based on the requirements of reality, based on the requirements of education and training innovation; characteristics and requirements of professions, qualifications of the staff, so that each school determines the appropriate form of training.

Fourth, strengthen the fostering and training of revolutionary ethics for educational management.

Fifth, have a good remuneration policy, improve the material and spiritual life of the educational management.

In order to create motivation for education administrators, it is advisable to continue to innovate, supplement and perfect mechanisms, regimes, and remuneration policies for education administrators, especially salary policy; take care to ensure good material and spiritual life and working conditions; attract qualified and experienced cadres to add to the contingent of educational administrators. To perform well the emulation and commendation work, with specific forms of commendation and honoring; encourage and motivate excellent individuals, models, effective ways of doing things, and typical individuals in educational management.

Implementation of the above solutions will improve the quality of education management staff, thereby developing education in ethnic minority, mountainous and disadvantaged areas today.

4. Conclusion

Vietnamese education is entering a new stage of development, successful integration with the region and the world is becoming a requirement. We must make efforts to improve the quality of training and educational development. To fulfill that role well, each education manager needs to improve strategic thinking, which is an important factor for educational institutions to adapt to new conditions, improve operational efficiency to meet new development requirements of education. Well-implemented solutions to improve strategic thinking for education administrators will help education in ethnic minority, mountainous and disadvantaged areas develop on the path of international integration.

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FOREIGN MARKET ENTRY STRATEGY OF MULTINATIONAL ENTERPRISES FROM INSTITUTIONAL PERSPECTIVE

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Abstract

Foreign market entry strategy has an undoubtedly powerful impact on multinational enterprises' (MNEs) performance outcomes, and this subject has received much attention from the academic community and managers of MNEs for the past decades. However, only few studies from institutional perspective has been conducted. Thus, the aim of this paper is twofold. Firstly, this article summerizes the understanding of market entry strategy and institutional theory. It then identifies and describes entry timing, entry modes and entry market involved in institutional perspective. It is hoped that the research not only increases academic knowledge but also helps practitioners in selecting accurate entry strategies to penetrate foreign markets and implementing these strategies effectively.

Keywords: *Entry strategy; market entry strategy; foreign market; institutional perspective; institutional theory ; institutions*

1. Introduction

Market entry decision which is important to the survival, growth and market evolution of multinational enterprises (MNEs) has been the subject of inquiry for decades (Zachary et al., 2015). The choice of entry mode abroad is critical to the success and longevity of a foreign market operation (Root, 1994; Terpstra and Sarathy, 2000) and considered as one of the most significant strategic decisions affecting both internationalization speed and performance of MNEs (Zhao and Luo, 2002; Douma et al., 2006). The general concern of research agenda in market entry strategy has evolved into three fields, namely, factors deciding market entry, entry modes used to enter and outcomes as results of market entry (Zachary et al., 2015).

Foreign market entry subject has also been driven by research showing that institutional context in which firms operate has a direct effect on market entry strategies and outcomes (K. E. Meyer & Nguyen, 2005). This is an important issue to address because institutional theory has been viewed as the most popular source to explain firm strategies and local contexts (Meyer and Peng 2005). Foreign markets have varying characteristics based on infrastructural, institutional, and factor development to clarify the modes of entry for MNEs (Hoskisson et al., 2013). The institution strongly affects transaction and production costs and therefore the profitability of firms engaged in economic activities (North, 1990) and is also equally important for selecting an appropriate mode of entry (Brouthers, 2002).

Existing research on market entry choice has mostly focused on the resource-based and transaction cost while institution-based location lacks attention. Thus, understanding of locational factors, particularly insitutional subject on entry mode choice by MNEs, has been insufficient (Dunning, 1998). To date, only few research has addressed the questions of which entry strategies selected and when to penetrate the foreign markets based on institutional theory. Consequently, the principal purpose of this paper is to provide comprehensive knowledge regarding entry strategies as pertains to institutional perspective. To achieve this objective, research of market entry mode literature was conducted from wide ranges of well-known journals. This study should be crucial because its may help to facilitate a deeper understanding, from a perspective of institutional theory, the market entry strategies of MNEs. Additionally, the result is also useful for business managers in considering entry strategy to enter foreign markets.

2. Literature Review

Institutional theory has been viewed as the most relevant theoretical perspective in explaining firm strategies for penetrating foreign markets, especially emerging economies, compared with other theories (Peng, Wang, & Jiang, 2008). Institutional theory is a nonefficiency perspective that considers institutional environment and the differences between host and home instututions as the key drivers of MNEs location choices (Xu and Shenkar 2002).

In other word, institutional theory highlights the relationship between firms and the environment, including political, cognitive, and sociological factors (Handelman & Arnold, 1999). There are two categories of institutions: formal and informal forces (North, 1990). Formal institutions are organizations such as regulatory bodies, law enforcement agencies and economic reform committees (Yiu and Makino, 2002; Arregle et al., 2016) while informal institutions pertain to the social norms (Lahiri et al., 2014). The main concept of institutional theory is isomorphism (Di Maggio & Powell, 1983), a constraining process expected to force one unit in a population to resemble other units that experience similar environmental conditions (Hawley, 1986), as is the case with firms competing in the same industry and foreign markets (Schellenberg, Harker & Jafari, 2018).

In recent years, more studies examine the impacts of institutional changes and continuity on market entry strategy of MNEs. Institutional continuity and changes affect investment strategies of foreign firms. In a dynamic, complex and volatile global economy, the role of both firm- and location-specific institutions in reducing transaction costs of cross-border value-added and exchange activities are becoming more important (Dunning and Lundan, 2008). Benefits of location-based institution influence the geographical scope and organizational effectiveness of MNEs. In contrast, disadvantages of that may increase the trend of entrants in the economies with immature market-based institutions to reduce transaction costs through joint venture (Meyer, 2001; Kawai & Jonas, 2007). Institutions are more effective and evident in emerging markets than in mature markets (Meyer, Wright, et al., 2009).

3. Results

Market entry is defined as planned movements into a new or adjacent market for the creation and/or delivery of offerings, where 'markets' refers to service or product categories,

technology or resource spaces, or in terms of industry, sector and/or geography (Markman D. et al., 2019). An international market entry strategy is the planning and implementation of delivering goods or services to a new target international market (Kar, 2011).

Choice of the entry strategies plays important role not only for the firm's survival in the foreign market but also for their success (Brouthers, 2002; Rasheed, 2005). In order to penetrate foreign markets, MNEs need to decide strategies of when, how and where to enter. In this regard, general concern of research has evolved into three main subjects, entry timing, entry mode, and entry markets, respectively.

3.1. Entry Timing

The question of when firms should enter and operate abroad has been a consistent topic in international business research for past decades. The early entrants have the chance of obtaining substantial advantage as first movers, but at the same time they also experience some potential threats, compared to late entrants. Early market entry refers to the process that a firm establishes its operation in a certain host country before other foreign firms. Some scholars argued that early market entry of companies may affect positively on its performances (Kunkel, 1991; Patterson, 1993), and first entrants might have more advantages than late movers (Lieberman and Montgomery, 1988) such as reputation, switching costs, relationship with local government (Frynas et al., 2006; Gomez and Maicas, 2011). However, early movers also face with disadvantages in some cases (Shamsie et al., 2004), such as higher costs for infrastructure, or differences between the products of MNEs and the need of local consumers. Table 1 identifies key elements that might lead to risks or awards from early versus late entry.

Table 1. Common risks and rewards faced by early versus late entrants

Early entry	Late entry
Rewards	Rewards
Create barriers to followers	Learn from early entrants
Preempt scarce assets	Free ride on early entrants' investments
Create buyer and supplier switching costs	Wait until uncertainties are resolved
Enjoy less competition	More flexibility to adapt to changes in market
Create brand recognition & loyalty	Ability to react to early entrants' strategies
Risks	Risks
Lack of needed infrastructure	Established incumbents
Less flexibility to react to changes in the market	Locked-in buyers or suppliers
Lack of market knowledge	Greater competition
Lack of local familiarity with product	Early entrants have moved down learning curve
Late entrants might free ride	Scarce resources already locked up

Sources: C.E. Stevens and B.J. Dykes, 2013

According to the perspective of institutional theory, home-country culture may moderate the effect of MNE's early market entry. Institutional theory suggests that institutional factors, including cognitive and cultural elements has effects on the interpretation of problems or actions as they arise and exist (Scott, 2001). MNEs with similar

institutions may express their internal and external environment similarly, so they are more likely to set and execute similar strategies than firms with large cultural differences. Along with this, firms with similar cultures also have similar entry decision. Additionally, early market entry may also indirectly impact on the performance of market followers through deviation from the industry norms. In other words, the action of imitating early entry firm's strategy by many imitators may lead to the result that the imitation has been institutionalized (Li., Cai., et al., 2014).

3.2. Entry modes

Which entry mode is chosen and enacted may determine whether market entry strategies succeed or not (Agndal & Chetty, 2007; Ragland, Widmier, & Brouthers, 2015). Under an institutional context defined by specific rules, norms and values, how enterprises penetrate and operate abroad is investigated (Davis, Desai, & Francis, 2000; Meyer & Nguyen, 2005). Market entry mode based on the institutional theory is classified into following types, namely, activity mode, ownership mode, and establishment mode (Slangen & Hennart, 2008)

Activity mode

Activity mode is related to the question of whether a firm should enter new market through export or foreign production. Generally, export needs to pay higher cost than foreign production due to higher transportation costs and possible tariffs. Over past time, exporting is one of the most crucial and frequently strategy used by firms to internationalize (He, Brouthers, & Filatotchev, 2013). The exporting mode is a low level of investment and as a result it experiences low risk. In contrast, foreign production might incur a higher operating cost operation (Buckley and Casson, 1981). MNEs investing abroad by following foreign production mode have two options. Some might replicate their production process in foreign country to avoid trade costs, while others choose to offshore their production (or part of their production) with the aim of exploiting cost advantages in host countries. In the first case, MNEs' local partners should have the market access motives (Dardati & Saygili, 2020).

Studies on the effects of the institutional context on activity mode have recently attracted attention. Institutional differences could be viewed as a source of comparative advantages, some regions which are more attractive than others may obtain more investments. The quality of home institutions is considered as an important factor that strongly influences export performance both directly and indirectly (Yi et al., 2013). Additionally, it also impacts on export decisions of MNEs (Krammer et al., 2018) by shaping resource decisions and affecting resource allocations during internationalization process (Estrin et al., 2016). Otherwise, good institutions could also have a positive effect on foreign production outflows as they provide good conditions for MNEs to emerge, and thus to invest abroad.

Ownership mode

One of most important decisions when expanding into new market is the choice by MNEs between joint venture and wholly-owned subsidiary, the so-called the ownership mode. This choice represents the level of ownership and consequently the level of control that MNEs have on their abroad operation obtained through the investment. Joint venture is

defined as an entry strategy where two or more legally separate bodies (one a foreign entity) form a separate jointly owned entity in which they invest and engage in various decision-making activities (Geringer & Hebert, 1989). Following joint venture strategy, firms are allowed to share the risks and resources needed to enter international markets (Pan & Tse, 1996). Most joint ventures cooperate with a local company that deeply understands the local country's competitive conditions, legal and social norms, and cultural features, which help the companies to strongly compete in the new market (Hitt et al., 2001). However, it may lead to the potential that partners only focus on their benefits instead of joint venture's (Beamish, 1985). On the other hand, wholly-owned may protect proprietary technologies and core competencies of MNEs (Buckley and Casson, 1976). A wholly owned subsidiary allows the parent company to easily manage diversify, manage, and reduce the risk of business. Firms entering a foreign market through wholly owned subsidiaries might take advantage of managerial autonomy and full control over local operations.

Institutional theory in recent years has emerged as an alternative approach to explain entry strategies based on foreign ownership of the host market, more studies focus on the choice between joint venture, wholly-owned subsidiaries using institutional theory (Meyer, 2001; Brouthers, 2002). Instead of concentrating on the technical environment of individual transactions as transaction cost theory mentions, institutional theory deeply investigates different institutional contexts across economies and their effects on the MNEs' ownership strategies (Meyer, 2001). Higher levels of ownership may affect positively on the survival rates of foreign subsidiaries, depending on the institutional differences between home and host countries and foreign parents' operating experience in host countries (Gaur & Lu, 2015).

Establishment mode

Greenfield and acquisition are considered as two alternative establishment modes. A greenfield investment refers to the creation of new venture while an acquisition is the purchase of stock in an already existing firm in an amount sufficient to acquire control (Kogut & Singh, 1988). Acquisition is faster than greenfield in terms of entering new markets and viewed as the quickest mode and the largest initial international expansion of the alternatives. Additionally, it may help to eliminate potential conflicts with partners (Geringer & Herbert, 1989). However, firms following this mode may pay higher costs for gaining appropriate information to negotiate an agreement or multiple risks (Hitt et al., 2001).

From institutional theory, greenfield is the process of setting up new company, searching for and educating new employees, and gradually develop the business based on the understanding of local institutions. Greenfield investors own the technologies, knowledge, capital themselves while in acquisition's entry, these properties may belong to the local enterprises. Institutional theory claims that subsidiaries of MNEs experience conformity pressures from both their home-country (internal) and host-country(external) environments (Kostova and Zaheer, 1999). Scholars investigating the choices of establishment mode based on selection of international strategies, suggests that MNEs subsidiaries using a global strategy usually face the high pressures for internal conformity, while those of MNEs pursuing a multidomestic strategy are subject to external conformity.

Additionally, internal conformity is often through greenfield because it encourages an MNE's resources to be deployed from the outset, while external conformity is easier to obtain through acquisitions because they are local firms already deeply understand the host-country environment. Consequently, MNEs using a global strategy might choose greenfield, and those using a multidomestic may select acquisition (Harzing 2002).

3.3. Entry market

'Where to enter' is a crucial issue of MNEs when exploring new foreign markets. 'Where' refers to the area to focus, including technology corridors, product spaces, markets, industries, sectors, or geographies (Markman D. et al., 2019). Market orientation is an ideology that focusing on creation and maintenance of superior customer value at the highest level and encourages employees of MNEs to develop and exploit market information (Narver and Slater, 1990). New entrants might choose to directly compete with established firms, and less likely to create products and services that are complementary to incumbent offerings (Plummer & Acs, 2014; Rothaermel & Boeker, 2008). During the process of expanding into new market, enterprises could identify and select new market opportunities, and then develop strategies to capture these opportunities by offering existing products to new markets, or offer new products to new markets (Mohr, Sengupta & Slater, 2010). Institutional theorists emphasize that there is positive relationship between diverse regional knowledge pools and new venture creation. The sociocultural context can influence new company entry, but do not delve into business opportunities (Vedula et al., 2019). Firms need to choose accurate the foreign markets in which they operate, conform to local environments and, finally manipulate the environment in a way that allows firm to operate.

4. Conclusion

The aim of this article is to provide the deeper knowledge of foreign market entry strategies under institutional perspective. In particular, entry timing, entry modes and entry market of MNEs when entering new markets are analysed by using institutional theory. It is concluded that the entry choices of MNCs depend on various aspects of institutional environments, and MNCs need to adhere to the prevailing rules, standards, and procedures of the market in which they operate in order to survive and develop. This study hopes to contribute to the literature on market entry strategies in some ways and becomes useful for MNEs managers who are in need of selecting appropriate entry strategies to invest abroad.

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PLASTIC WASTE MANAGEMENT: AN OVERVIEW OF VIETNAMESE GOVERNMENT REGULATIONS AND COMPARISON TO OTHER COUNTRIES

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Abstract

Plastic has become one of the most widely utilized materials in numerous industries due to its adaptable features and low price. This has caused an alarming global concern due to the detrimental effects of plastic pollution on humanity. Several developed nations have regulations to restrict the consumption of plastic products. However, plastic waste management remains a challenge in some developing countries, especially Vietnam, and has not been investigated. This paper aims to review Vietnam's current plastic waste management policies and compare them to parallel policies in other jurisdictions.

Keywords: *Plastics, plastic waste management, policies, regulations.*

1. Introduction

Plastic waste is one of the biggest challenges for countries around the world. Vietnam is no exception. In 2017, Vietnam has officially ratified the Ministerial Conference on Marine Litter and Plastic Pollution and had the 5th meeting of the UN Environment Assembly in February 2021 ('Ministerial Conference on Marine Litter and Plastic Pollution', 2021). Consequently, in 2019, the Prime Minister launched a nationwide "Plastic Waste Prevention" campaign to reflect the previous commitment. Besides, Vietnam has to obey various strict environmental regulations in various modern Free Trade Agreements, including the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and Europe – Vietnam Free Trade Agreement (EVFTA).

In a research article by Cell Press, Vietnam was reported to be in the top 24 countries globally that had daily COVID-19 facemasks and global plastic waste, which is continually increasing (Benson et al., 2021). Vietnam is also a country with a long coastline, which could act as one of the main factors driving plastic waste pollution to deteriorate. If Vietnam arrives at the most acceptable solution for this challenge, Vietnam will not only develop significantly in all aspects but also gain greater prestige and respect in the world.

This paper examines Vietnam's policies on plastic waste to discuss the Government's efforts and the various challenges that lie ahead. This study has three main parts to answer the following questions: (i) Why governments must regulate plastic waste?; (ii) How Vietnamese Government regulate plastic waste?; (iii) What are the differences between these approaches in Vietnam and in other nations?

2. Method

This paper uses the logical and comparative methods to examine the policies governing plastic waste in Vietnam and other countries.

3. Results

3.1. Why governments must regulate plastic waste?

The presence and widespread usage of plastic offers a range of benefits to daily life. Yet at the same time, the ubiquitous appearance and uncontrolled disposal of plastic waste also has a plethora of unintended environmental implications (Li et al., 2021). Living species, particularly humans, are confronted with environmental challenges. Hence, the public's perception of this contentious issue is increasing day by day, and the concern around it is expanding tremendously, necessitating the Government's unwavering efforts to maintain a country's sustainable development.

The negative environmental consequences of plastic waste have been discussed continuously and extensively in recent years, with a particular emphasis on promising solutions for ongoing development of the field ('The environmental impacts of plastics and micro-plastics use, waste and pollution: EU and national measures | Think Tank | European Parliament', 2020). It is shown that there are two primary concerns: the impacts on human and the impacts on environment, including land, marine, and climate impact. All of these will be briefly explained in the following paragraphs.

Many scientific investigations have shown that plastic is hazardous to human health in significant ways and at different levels. The majority of health impacts are caused by chemical additives in plastics. Heavy metals and associated toxic mechanisms are the most common culprits. Direct toxicity from plastics includes lead, cadmium, and mercury ('Adverse Health Effects of Plastics | Ecology Center', 2021). Apart from that, carcinogens and other persistently poisonous elements contained in plastics can increase the risk of cancer, birth defects, and developmental issues in children mercury ('Adverse Health Effects of Plastics | Ecology Center', 2021). Consequently, as people's health and living standards deteriorate, labour productivity declines and health-care costs rise. These are all ever-increasing pressures on the government.

Plastic bags, disposable single-use plastics, and microbeads are all important sources of plastic pollution ('Legal Limits on Single-Use Plastics and Microplastics: A Global Review of National Laws and Regulations', 2018). Yet plastics and the environment have a positive relationship. It can be inferred that as consumption increases, so does the impact on the environment (Afzal et al., 2012). As a result, with plastic bags being the number one consumer item in the world today (Anderson, 2016), the environmental consequences are becoming more intense than ever.

Plastics and fossil fuel industries are inextricably linked. Plastic is produced out of chemicals sourced from fossil fuels in more than 99 percent of the total (Hamilton and Feit, 2019). The process of producing plastic accounts for 4–8% of oil and gas consumption worldwide (OECD Environment Policy Papers, 2018). Nevertheless, a global total of 15% of plastic waste is collected for recycling, and 25% is incinerated (Governments need to act to encourage plastic recycling markets - OECD, 2022). More notably, the rest will be accumulated in large landfills before being burned outside. Burning plastic in the open air creates a deadly poisonous chemical known as black carbon, which has a global warming potential 5,000 times that of carbon dioxide (Reyna-Bensusan et al., 2019). In addition, the plastic production lifecycle from extraction, production, consumption to destruction emits pollutants and greenhouse gases like carbon dioxide. According to a report released by the Center for International Environmental Law (CIEL) in 2019, greenhouse gases, which are emitted during the production of plastics, have adverse impacts on climate change (Hamilton and Feit, 2019). Rising sea levels, global warming, creating storms, floods, droughts, and erosion, among other things are the possible consequences of climate change (Grabowski, 2018) that every year the government has to spend billions, even trillions of dollars to deal with the repercussions they bring.

The above findings confirmed the need for governments to step in and manage plastic waste.

3.2. Existing policies on plastic waste management in Vietnam

Vietnam has become more and more proactive in engaging in environmental governance. In 2017, the country ratified the United Nations Environment Program (UNEP)'s resolution on plastic waste and ocean microplastics (Resolution adopted by the United Nations Environment, 2019). At the G7 Summit in Canada in 2018, the Prime Minister Nguyen Xuan Phuc promised to act as well as call for global cooperation to address the problem of marine plastic waste. Numerous agencies, organizations, towns, enterprises, and people have done many practical, meaningful, and successful efforts to minimize plastic trash since the Prime Minister began a countrywide crusade against it in 2019.

The Vietnamese state has promulgated numerous guidelines and policies in fighting against plastic pollution, including: (i) Resolution No. 24-NQ/TW dated June 3, 2013 on proactively responding to climate change, strengthening natural resource management, and environmental protection; (ii) Resolution 36-NQ/TW dated October 22, 2018 on the Strategy for sustainable development of Vietnam's marine economy to 2030, with a vision to 2045; (iii) Resolution No. 26/NQ-CP dated March 5, 2020 on proactively responding to climate change, strengthening natural resource management, and environmental protection; (iv) Resolution No. 36-NQ/TW dated October 22, 2018 Promulgating the Government's master plan and 5-year plan to execute Resolution No. 36-NQ/TW of the Party's Eighth Conference on the Strategy for Sustainable Development of Vietnam's Marine Economy to 2030, with a Vision to 2045, dated October 22, 2018. The aforementioned resolutions are mostly connected to take all appropriate measures to protect the ocean from marine plastic debris and minimizing damages to the marine ecosystem.

Furthermore, the government has published a series of documents relating to plastic waste management in particular, including:

• **The Prime Minister Decision No. 1216** on September 5, 2012, authorizing the National Strategy for Environmental Protection to 2030, with a vision to 2030 and an overall aim of managing and minimizing environmental degradation. The decision aims at reducing the production and use of non-biodegradable bags and packages, by (a) propaganda and advocacy to raise household awareness; (b) improving the responsibility of plastic manufacturers and importers; (c) research on easily degradable bags and packages to replace bags and packages that are non-biodegradable; (d) strengthen the responsibility of manufacturers and importers for the recall and handling of packaging, machinery, equipment, and tools after use.

• **The Prime Minister's Decision 582/QD-TTg** dated April 11, 2013, approving the project on improving the environmental pollution control for the use of non-biodegradable plastic bags by 2020. The project said that the shared aim is to gradually reduce the use of non-degradable plastic bags in daily life, to increase non-degradable plastic bag waste collection and recycling. By 2015, reduce the number of non-biodegradable plastic bags used in supermarkets and shopping malls by 65 percent compared to 2010; Reduce the usage of non-biodegradable plastic bags in residential markets by half compared to 2010; Collect and reuse half of the non-biodegradable plastic bag waste created in daily life. The project outlines tasks and solutions in the areas of policy reform, finance and human resources, research and technology, and international collaboration in order to achieve this goal.

• **The Prime Minister's Decision 622/QD-TTg** dated May 10, 2017, on the National Action Plan to Implement the 2030 Agenda for Sustainable Development. This decision establishes goals and tasks for sustainable development, including waste management. The decision specifies to prevent, considerably reduce, and regulate certain forms of waste by 2030. Marine pollution, particularly that caused by land-based activities, with a focus on solid waste, wastewater, and organic matter contamination. The Government has delegated this task mainly to the Ministry of Natural Resources and Environment.

• **The Prime Minister's Decision 491/QD-TTg** dated May 7, 2018, approving the adjusted national strategy on integrated management of solid wastes up to 2025, with a vision toward 2050. By 2025, there will be defined objectives for each form of trash: hazardous solid waste, urban household solid waste, rural domestic solid waste, conventional industrial solid waste, and other specialized solid waste. To accomplish this mission, the decision sets out the basic activities that correspond to the objectives for the waste types listed above. The answer to these duties includes improving systems and policies, expanding research and technology, assessing waste management, developing human resources, creating awareness, and allocating financial resources.

• On December 4, 2019, the Prime Minister signed **Decision No. 1746/QD/TTg**, promulgating the national action plan on marine plastic debris management through 2030. This plan specifically addresses ocean waste, with particular goals of reducing 50% of plastic waste in seas and oceans by 2025 and 75% by 2030. To that end, the plan provides five sets of duties and solutions for authorities: (1) To disseminate, raise awareness and change behaviors about plastic products and marine plastic debris; (2) To collect, classify, transport

and treat wastes and plastic debris in coastal areas and at sea; (3) To carry out at-source control of plastic debris; (4) To carry out international cooperation, scientific research, and technology application, development and transfer serving marine plastic debris treatment; (5) To investigate, survey, review, study and formulate a comprehensive, consistent, effective and efficient mechanism of marine plastic debris management.

• On August 20, 2020, the Prime Minister issued **Directive 33/CT-TTg**, urging key ministries and agencies, as well as the People's Committee of cities, province in order to harmonize policies and duties and boost the efficiency of waste management operations. The Ministry of Natural Resources and Environment is the primary agency in charge of implementing government policies, collaborating with other ministries such as the Ministry of Finance, the Ministry of Industry and Trade, the Ministry of Agriculture and Rural Development, and others to carry out the state's policies, regulations, and objectives.

• Recently, the Prime Minister issued **Decision 1316/QĐ-TTg**, approving the scheme for strengthening management of plastic wastes in Vietnam on July 20, 2021. The project's aims divided into three categories: (1) To improve mechanisms, policies and laws on management of plastic wastes; production and consumption of non-biodegradable domestic plastic bags; single-use domestic plastic products (including single-use tumblers, cups, bowls, plates, spoons, forks, straws, plastic packaging or food containers, plastic wrap and single-use plastic tableware, etc.); (2) To strive to the target by 2025: 100% of environmentally friendly plastic bags and packaging will be used at shopping centers and supermarkets for domestic purposes as replacement for non-biodegradable plastic bags; 85% of generated plastic wastes will be collected, reused, recycled and disposed of; 50% of marine plastic wastes will be reduced; 100% of tourist attractions, tourist accommodation establishments and hotels will not use non-biodegradable plastic bags and single-use plastic products; the production and use of non-biodegradable plastic bags and single-use plastic products will be gradually reduced in daily life; (3) To raise the awareness of agencies, organizations, enterprises, communities and people in the production, consumption and treatment of plastic wastes, non-biodegradable plastic bags and single-use plastic products in daily life.

In general, Vietnamese policies have increasingly focused on improving mechanisms, policies, and laws on the management of plastic wastes; production and consumption of non-biodegradable domestic plastic bags; single-use domestic plastic products (**Decision No. 1316/QĐ-TTg** on July 22, 2021). In many recent policies, the ambitions of the Vietnamese government have been demonstrated to be greater and more intensive through specific figures in the specific objectives section. As proof, **Decision No. 1746/QĐ-TTg** on December 4, 2019 specified one objective that was "By 2025, 80% of tourist attractions and sites, and establishments providing tourist accommodation services and other coastal tourism services will refrain from using disposable plastic products or non-biodegradable plastic bags". That figure of 80% rose to 100% in **Decision No. 1316/QĐ-TTg** on July 22, 2021.

In order to implement national strategies and plans, competent state agencies have issued law and regulations. The most prominent of which are the following documents:

• **Law On Environmental Protection 2020** has introduced provisions aimed at limiting and controlling the amount of plastic waste in the environment (especially the marine environment), encouraging and promoting activities of collecting, recycling and reusing plastic products (Articles 54, 55, 73).

• The tax rates applied to plastic bags, goods and products packaging have been specified in documents such as **Law on Environmental Protection Tax 2010; Resolution No. 579/2018/UBTVQH14** dated September 26, 2018, of the Standing Committee Of The National Assembly on Environmental Taxes; and **Decree No. 69/2012/ND-CP** amending and supplementing Clause 3 Article 2 Of The Government's Decree **No. 67/2011/ND-CP** dated August 08, 2011, detailing and guiding the implementation of the law on environment protection tax.

• **The Decree On The Management Of Wastes And Scraps No. 38/2015/ND-CP** outlines the general regulations on plastic waste and also explains the responsibilities and working principles of provincial and central agencies and departments in the process of handling, controlling and recycling all kinds of plastic waste. At the same time, it also sets out requirements for environmental protection in the process of importing scrap. These import requirements were later amended and supplemented in **Decree No. 40/2019/ND-CP**, which stipulates the import volume and the corresponding deposit more fully.

• Some other regulations on plastics imported are in the following documents: **The Consolidated document No. 09/2015/VBHN-BTNMT, Decision No 36/2016/QD-TTg**, etc. The main regulations of these documents are on the tax rate applied to imported goods and define the types of plastic bags and packaging.

• **Circular No. 07/2012/TT-BTNMT** provides criteria, order and procedures for recognizing environmentally friendly plastic bags.

• Regarding the recall and treatment of discarded products, **Decision No. 16/2015/QD-TTg** and **Circular No. 34/2017/TT-BTNMT** explain the list, quantity, implementation process of the recall, also treatment method and technical requirements for collection and recycling discarded products and the responsibilities of producers, consumers, and state management agencies in this process chain.

• **Directive No. 10/CT-BGTVT** stipulates methods of collecting, recycling and reusing plastic waste on board. In terms of treatment methods, it is similar to solid waste, with the treatment cycle specified in the **Circular No 41/2017/TT-BGTVT**, which clearly states the regulations on implementation, promotion of international cooperation and research and application of science and technology into the process of managing and treating plastic waste.

• **Directive No 08/CT-BYT** requires medical facilities to limit single-use plastics in daily life, medical examination and treatment activities, and at the same time conduct classification of non-biodegradable plastic waste.

• **Decision No. 2395/QD- BTNMT** was issued to implement **Directive No. 33** with specific requirements and tasks of central and provincial agencies and accompanying the implementation time.

According to the above list, waste is now more specifically separated based on many standards such as type, weight, materials. It could be demonstrated in Decree No. 38/2015/ND-CP dated April 24, 2015 on the management of wastes and scraps, Circular No. 34/2017/TT-BTNMT dated October 04, 2017 of the Ministry of Natural Resources on recall and treatment of discarded products. Especially, the National Assembly has already set out a particular article 73 in Law on Environmental Protection 2020 to regulate plastic waste issues. It is a remarkable change in Vietnamese Law on Environmental Protection 2020 compared to that of 2014. Nevertheless, similar to policies, the government now has not yet introduced guiding implementation documents, which might postpone the law implementation in practice.

Overall, the Vietnamese government is gradually paying more attention to the plastic waste issue, especially in the development of guidelines, policies, and laws. Regulations are becoming more and more comprehensive, with higher compulsion. The strengthening of cooperation between individuals, organizations, and state agencies is also emphasized. However, the regulations are still general and primitive. Despite being more mandatory than previous documents, regulations are still encouraging, based on people's awareness and self-discipline. The fact that the guiding documents have not been enacted drives the regulations unenforceable, or the practical implementation confronting many difficulties and shortcomings.

3.3. Compare and contrast the Vietnamese policies with those in foreign countries

3.3.1. Bans and restriction

Vietnam does not have many restriction orders: currently including regulations on tariffs related to products with microplastics, such as the tax rate corresponding to a certain amount of microplastics in the product (which stated in the Law on Environmental Protection Tax 2010, Decree No.40/2019/ND-CP dated April 24, 2019, etc.). In addition, there are national goals and policies to implement plans related to the control and limitation of plastic waste in the marine environment, health sector, daily life, import and export, etc. (e.g., Resolution No. 26/NQ-CP dated March 5, 2020; Decision 1281/QD-UBND of Hanoi People's Committee, etc.) but no specific laws.

In terms of bans, many countries have very stringent penalties, including hefty fines (e.g. in Germany, supermarkets and retailers that provide plastic bags to clients face a punishment of up to 100,000 euros; in Kenya, the fine is 38,000 USD; and in China, the goods are confiscated) or even imprisonment if recidivism occurs (up to 4 years in Kenya, 5 years in India, 10 years in South Africa, etc.). Especially, in China, the government also strictly monitors the people by setting up a system to track and detect cases of single-use plastic consumption (Giacovelli, 2018). Vietnam also has legislation limiting the use of a variety of single-use plastics (for example: banning the use of paper, cups, and discs in company meetings and parties in Directive No. 10/CT- Traffic Department dated October 7, 2020, etc.). But, when compared to other nations, it is obvious that Vietnam's scope of the ban is considered moderate and the measures to handle violations are not harsh, which leads to a lot of circumvention.

However, most recently, the Government issued Decree 08/2022/ND-CP, requesting to stop the production of single-use plastic products after December 31, 2030, along with improving regulations on manufacture, import and recycle plastic bags and non-degradable plastic packaging. This is a step forward in the state's efforts to strictly regulate the discharge of plastic products into the environment.

3.3.2. Economic instrument

To manage plastic waste, the Vietnamese government has employed economic methods. Plastic bags, in particular, are one of the subjects taxed in Vietnam, as defined in the Law on Environmental Protection Tax 2011. The general tax rate for taxable plastic bags is approximately at 50,000 VND (approximately €2), which is the responsibility of importers and producers (National Assembly, 2010). In general, Vietnam has employed taxation to manage plastic waste. However, this measure is not adequately regulated. While a low tax rate can alleviate businesses' financial burdens, it cannot affect how customers and producers perceive the issue of plastic waste management. In addition, Vietnam has only one tax on plastic bags, whereas many legislations in the world have many tax rates corresponding to different types of plastic bags (Tackling Plastic Pollution: Legislative Guide for the Regulation of Single-Use Plastic Products, 2020). Calculating tax rates is a critical step after establishing which categories of plastic bags should be charged (Tackling Plastic Pollution: Legislative Guide for the Regulation of Single-Use Plastic Products, 2020). Since the purpose of environmental taxes on plastic bags is to raise consumers' and producers' awareness and to shape their behavior, different levels of taxation could be considered to accomplish this objective. For example, The Latvian natural resource tax on plastic packaging is material-specific (Schweitzer, Gionfra, Watkins, Pantzar & Kettunen, 2018). Polystyrene source materials are charged at €1.56 per kilogram, the majority of plastic is charged at €1.22/kg, single-use plastic bags weighing more than 0.3 g are charged at €1.14 per kilogram (lighter bags are charged at €3.70 per kilogram), and oxo degradable plastic is charged at €0.70 per kilogram (Schweitzer, Gionfra, Watkins, Pantzar & Kettunen, 2018). Comparing to those tax rates above, the one tax rate applied for all types of plastic products in Vietnam could not reach the aim of increasing public awareness about the different impacts of each type of plastic bags on the environment.

3.3.3. Standards, certification and labelling

In terms of standards, certification, and labelling approach, the Vietnam Ministry of Resources and the Environment has issued Circular No. 07/2012/TT-BTNMT providing on criterion of, order of, procedures for recognition of environmentally friendly - nylon bags, which contains regulations on the criteria, order, and methods for recognizing eco-friendly plastic bags. It can be shown that, when compared to other nations, Vietnam's on standards, certification, and labelling are restricted, with few restrictions on standard systems, labelling, and certifications for plastic-related items. This criterion is used in a large number of developed countries (USA, Europe, Japan, etc.) (Tackling Plastic Pollution: Legislative Guide for the Regulation of Single-Use Plastic Products, 2020). Manufactures and suppliers can obtain a certificate through a due diligence procedure or through a third party (for

example, the Biodegradable Products Institute in the United States compliance with ASTM standards, the Japan Environment Association compliance with ISO standards) (Tackling Plastic Pollution: Legislative Guide for the Regulation of Single-Use Plastic Products, 2020).

Apart from certification, labeling is a frequently utilized approach. How2Recycle is a label based in North America that promotes recycling bottles with the cap on. A survey in the field of Food Technology in June 2019 by PhD from Packaging Technology and Research showed that 57% of total consumers in the market would be more inclined to buy products with the How2Recycle label over products without the label (Sand, Claire, 2019). The Vietnamese government is also beginning to recognize the need of establishing a comprehensive standard system to improve the legal policy on plastic waste management. This task is stipulated in the Prime Minister's Decision 1316/QD-TTg, approving the scheme for strengthening management of plastic wastes in Vietnam on July 20, 2021.

3.3.4. Post-consumer use and product end of life

Waste management legislation

Firstly, about prevention and minimization of plastic waste, Law on Environmental Protection 2020 just regulates the minimization, reuse and recycling of plastic wastes in culture, sports and tourism activities and Decision No. 1746/QD-TTg Promulgating the national action plan on marine plastic debris management through 2030 applies at-source control of plastic debris. In Directive 33/CT-TTg on strengthening management, reuse, recycling, treatment and reduction of plastic waste, Ministry of Agriculture and Rural Development is directed to limit the use of Styrofoam in the seafood industry. In medical services, Directive 08/CT-BYT on reducing plastic waste in the medical industry, the use of plastic straws and other disposable or non-degradable objects for eating and drinking by patients and their family members is restricted, as is their use at unit conferences, seminars, training sessions, and workshops.

Secondly, regarding collection, separation and recovery of plastic waste as well as payments and fees, Directive 33/CT-TTg on strengthening management, reuse, recycling, treatment and reduction of plastic waste dated August 20, 2020 imposes that plastic waste and other recyclable waste must not be mixed with organic waste. The process of separation is mainly manually carried out with a very limited interpretation of technological sorters. Environment Protection Law 2020 issues incentives for this and separation and collection for household waste and industrial waste. In case households or individuals fail to sort wastes or sort wastes not according to this Law, they shall pay waste collection, transportation and treatment service charges which are calculated based on quantity or volume of sorted wastes instead of per capita in the 2014 version.

Even though the Vietnamese law has been updated to international standards in terms of regulations on waste classification, collection, treatment, and minimization, Vietnam still has shortcomings in some areas, such as a lack of legislation on incentives to enhance manufacturing processes and persuade consumers to demand more environmentally friendly products, or no regulations for materials used for packaging in e-commerce activities, as France does in Law No. 2020-105 of 2020 on Combating Waste (LAW No. 2020-105 of February 10, 2020).

Thirdly, in order to control the cross-border transportation of hazardous wastes and their disposal, Vietnam must adhere to the international standard, such as the Basel Convention and ratified the Basel Convention on Control of the Transboundary Movement of Hazardous Wastes and Their Disposal. However, Vietnam has not yet ratified the Basel Convention Amendments to Annexes II, VIII, and IX (Basel Convention Amendments to Annexes II, VIII, and IX).

Extended producer responsibilities (EPR)

EPR approaches including reuse and recycle of products are proposed with concrete measurements in Appendix XXII of Decree 08/2022/NĐ-CP Detailing a number of articles of the Law on Environmental Protection. Directive 33/CT-TTg on strengthening management, reuse, recycling, treatment and reduction of plastic waste dated August 20, 2020, has also directed "regulations on recall and treatment of discarded products in the direction of increasing the responsibility of manufacturers, importers, brand owners, distributors and modern and traditional retailers in waste recovery and recycling". In order for individuals and organizations to understand and properly implement EPR, and to support and advise state agencies, Vietnam has issued regulations on the National EPR Portal and the National EPR Council in Decree No. 08/2022/ND-CP detailing a number of articles of the Law on Environmental Protection 2020 dated January 10, 2022.

Regarding EPR upstream, Vietnamese Law on Environmental Protection 2020 and Decree 08/2022/NĐ-CP has specifically identified products that are the subjects of EPR. Manufacturers and importers specified in Articles 77 and 83 of Decree 08/2022/NĐ-CP are responsible for disclosing information about the products and packages they manufacture or import, including the following: ingredients, fuel, and materials; guidelines for classification, collection, reuse, recycling, and treatment; and warnings about risks associated with recycling, reuse, and treatment.

According to Article 77 of this Decree, organizations and individuals manufacturing and importing the products and packages listed in Column 3 of Appendix XXII issued in conjunction with this Decree include disposable batteries of all types; disposable diapers, diapers, sanitary napkins, and wet wipes. There are, however, exceptions for manufacturers and importers of items and packages for export or temporary import, re-export or production, and import for the purpose of research, study, or testing. They are manufacturers of packaging with a combined revenue from sales and service provision of less than VND 30 billion in the preceding year; or importers of packaging with a combined revenue from sales and service provision of less than VND 20 billion in the preceding year.

This demonstrates that Vietnam has designated particular manufacturers or items as being subject to EPR and others as being exempt. However, Vietnam's policies are not considered comprehensive. They do not include regulations on eco-design standards, such as those in the 1991 Rigid Plastic Packaging Container Program of the US state of California (Reuters Westlaw, 2016), or economic instruments such as fees and taxes as part of a focus on eco-design in order to reduce plastic packaging and encourage the design of lighter products in Europe (EU, 2019).

Regarding EPR downstream, Vietnamese law has devoted Chapter VI of Decree No. 08/2022/ND-CP detailing a number of articles of the Law on Environmental Protection 2020 to stipulate in more detail the subjects and exemptions in article 77 mentioned above and their responsibilities of recycling, product handling and packaging of producers or importers. In particular, the Decree has specific regulations on the objects, implementation schedule, rate and procedure of recycling. The mandatory recycling rate for each type of product and packaging is specified in Column 4 of Appendix XXII issued with the Decree 08 for the first three years, for example, 22% for rigid PET packaging and 10% for rigid EPS packaging; and is adjusted every three years, gradually increasing to meet the national recycling target and environmental protection requirements.

Besides, mandatory recycling specifications define recycling systems that meet strict minimum requirements for material and fuel recovery from products and packaging. Column 5 of Appendix XXII produced with this Decree contains mandatory specifications for each product and package. For example, for rigid PET, HDPE, LDPE, PP, and PS packaging, three methods of recycling are available: (i) making recycled plastic pellets for use as raw materials in other sectors, (ii) manufacturing other products (including PE fibers), and (iii) chemical production (including oil). There are two forms of responsibility implementation, namely organizing recycling or making financial contributions in two ways: directly or authorised, which is submitted to the Vietnam Environment Protection Fund. The level of financial contribution and the level of support funding for recycling is determined by the type, volume, or unit of product and packaging as prescribed by law, to illustrate, for bottles, plastic boxes, it is 50 VND/piece (less than 500 ml) and 100 VND/piece (more than 500 ml). It can be seen that, in the stage of EPR downstream, Vietnam issues relatively as sufficient regulations as in other foreign developed countries like Germany or Australia.

3.3.5. Consumer education

Policies in Vietnam on the prevention of plastic waste (especially plastic pollution in the ocean and single-use plastic waste) mention a lot of propaganda and education issues, but they have not been effectively applied in practice (Nguyen T. T., 2021). Authorities in the major urban cities have been orienting towards organizing environmental movements (such as the "Green Consumption 2019" campaign taking place in Ho Chi Minh City), while small localities have essentially no precise policy to enact (Nguyen T. T., 2021). As can be seen, while many countries around the world put the prevention of plastic waste into the educational programs or organize a lot of extra-curricular sessions, summer camps and research seminars on plastic waste, etc., in Vietnam, such activities are quite rare (usually only at bilingual or international schools) and are often small in scale, media activities cannot reach many people (environmental movements have steadily become stronger since around 2016 – 2017 with the regular organization of summer camps and scientific conferences, but by 2020, they had ceased due to the epidemic) (Uyen, Linh & Hien, 2021).

4. Discussion and Conclusion

4.1. Discussion

The law on plastic waste in Vietnam is still in its infancy, with regulations that are tolerating rather than legal enforcing (Law on Environmental Protection 2020, 2020). This is demonstrated by the lack of specificity of the notions described. For example, there is no clear classification and definition of plastic trash and few quality standards in the importation, use, and management of plastic products (Law on Environmental Protection 2020, 2020); also no formula for estimating the rate and recycling procedure for plastic products.

Additionally, when compared to other types of waste, plastic waste is exceedingly difficult to decompose; also, some standard treatment procedures cannot be used to manage plastic waste (such as incineration since burning plastic will produce toxic substances that cause gas poisoning). As a result, the fact that rules on plastic products are coupled with other types of waste causes many inadequacies: the amount of plastic discharged into the environment is excessive, the treatment technique and degree of recycling are unsuitable, leading white pollution to worsen, and so on.

Because the law is still vague and lacking in practicality, each approach has not been clearly stated, thus affecting the depth of development of other approaches. For instance, waste classification is lacking, and people's awareness of environmental protection is low, in a context where the number of education instruments is limited, along with regulations rely heavily on individual awareness; the work of collecting, treating, and recycling waste plastic would therefore have many shortcomings.

At the same time, the development of safe and appropriate processes for recycling and reusing plastics in accordance with the common ground's economic and technical viability are heavily dependent on the detail of quality standards and criteria for evaluating and classifying plastic products. When the import of materials and recycling processes are not tightened, it severely hampered the Government's ability to control the amount of plastic production, consumption and discharge from companies and businesses.

4.2. Conclusion

Despite their low cost and simplicity of use, plastic products have the potential to cause harm to human health and the environment. Toxic elements in plastic items can affect human health. This can reduce quality of life, deplete labor resources, and raise health-care costs over time. Furthermore, plastic pollution has serious consequences for living organisms and climate change, which can lead to rising sea levels, global warming, and storms, floods, droughts, and erosion. Government must step in and regulate plastic waste since plastic pollution can have significant economic and social effects.

There have been numerous approaches adopted widely and effectively in many countries in the world. The most commonly applied measures nowadays are Bans and restrictions; Economic instruments including taxes and subsidies; Standards, Certification and Labelling; Post-consumer use and product end of life; and Information and Education instruments. In spite of many challenges in practical implementation, these approaches have been proved to be successful with many drastically positive results in the countries.

Vietnam's involvement in environmental governance has become increasingly proactive. The Vietnamese government has enacted various programs and legislation to tackle plastic pollution. The Vietnamese Government's objectives have been proved to be increasingly concentrated, as well as its regulations are becoming more detailed, comprehensive, and forced.

Yet, the legal system and the level of awareness of the Vietnamese people are both weaker when compared to the legal systems of other developed countries in the world. Generally speaking, the law in Vietnam is more vague; many regulations require to be elaborated in more detail to effectively regulate the consumption, treatment, and management of plastic waste in a sustainable manner. While this is going on, the propaganda and information-dissemination activities aimed at preventing plastic waste and white pollution haven't been particularly exciting. In order to create a greener, cleaner, and more beautiful environment, the Vietnamese government still has a long way to go in perfecting the environmental legal system which fights against plastic pollution.

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CORPORATE CRIMINAL LIABILITY: A COMPARISON OF VIETNAM AND FRANCE

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Abstract

Since the January 1 of 2018, corporate can be the subject of criminal liability in Vietnam. However, the type of corporate and the scope of crimes corporate will be prosecuted as a controversial issue in Vietnam that requires further research. Currently, only the commercial juridical person shall be liable for criminal penalties for certain crimes include economic crimes, terrorism financing, money laundering and environmental crimes under the Penal Code of Vietnam 2015 (amended in 2017). It is crucially important to understand current global trends and the attitudes towards corporate criminal liability in different jurisdictions because it is key to preventing crimes committed by corporate. This paper will study both legal theories and practices of corporate criminal liability in Vietnam in comparison with France to identify the key lessons learnt for Vietnam to reform the provisions on corporate criminal liability.

Keywords: *corporate criminal liability, commercial juridical person, criminal law, Vietnam, France.*

1. Introduction

Corporate criminal liability has been stipulated in the criminal law of many countries in the world. In Vietnam before 2015, the concept of corporate criminal liability is still quite new, causing a lot of controversies in research and law-making. Some researchers thought that it is necessary to stipulate the criminal liability of legal person or corporation in accordance with the socio-economic conditions of Vietnam and the goal of international integration. However, some others disagreed because so far in Vietnam, the offences of legal person is still governed by administrative law.

In fact, the legislators believed that corporate criminal liability should be regulated and completely consistent with the crime prevention and control of Vietnam because of some reasons. Firstly, the number of crimes committed by corporate in some fields is increasing recently, especially in environmental and economic areas, causing serious damage to the economy and people's lives. The current Penal Code lacks regulations on corporate criminal liability, causing many difficulties in law application. For example, when the corporate commits a crime, only the corporate representatives have criminal responsibility under the criminal law while the administrative sanctions are imposed on the corporate. The administrative sanctions are not severe enough to deter the crimes committed by corporate in future. Secondly, Vietnam needs to reform the criminal law to fulfil our obligations when becoming members of some international conventions, including establishing corporate

criminal liability. For example, the United Nations Convention against Transnational Organized Crime (UNTOC) requires member states to “establish the liability of legal persons for participation in serious crimes involving organized criminal group and for the offences established following articles 5, 6, 8 and 23 of this Convention”,¹⁸³ which are money laundering, obstruction of justice. As a member of this convention, Vietnam needs to regulated corporate criminal liability in the criminal law to fulfil our obligation. Besides, Vietnam is a member of the Asia/Pacific Group on Money laundering (APG- an autonomous regional anti-money laundering body established in 1997 in Bangkok, Thailand), so Vietnam needs to implement the Recommendation of the Financial Action Task Force on Money Laundering (FATF) regarding the regulation of corporate criminal liability. Thirdly, regulating corporate criminal liability will create equity in criminal law application between a natural person and a legal person. Furthermore, this is a common trend in many countries in the world.

Corporate criminal liability is pretty complicated new issue in Vietnam. Therefore the legislations had learned experiences of many countries which have long governed corporate criminal liability. In 2015, the Penal Code of Vietnam was promulgated formally stipulating the criminal liability of commercial legal entities. This Code was amended in 2017 and took effect on January 1, 2018. Since the January 1 of 2018, corporate can be the subject of criminal liability in Vietnam. Currently, under the Penal Code of Vietnam 2015, only a commercial juridical person shall be liable for criminal penalties for certain crimes, including economic crimes, terrorism financing, money laundering and environmental crimes. The type of corporation that can be imposed a penalty in Vietnam and many provisions of corporate criminal liability are also different from some other countries in the world. Some issues such as the types of corporate, the scope of crime which corporate shall be held criminally liable, or the conditions of prosecuting corporate are still controversial in Vietnam that requires further research, especially comparative law research. This study focuses on comparing the provisions on corporate criminal liability in Vietnam and France. Base on pointing out the similarities and differences between Vietnam and France, the developed country that have regulated corporate criminal liability for a long time, this research will suggest some recommendations to complete the regulations of corporate criminal liability in Vietnam.

The objective of the research is corporate criminal liability under the criminal law of Vietnam and France.

The primary purpose of the research is to suggest recommendations in reforming the regulations of corporate criminal liability in the Penal Code of Vietnam by comparing the provisions on corporate criminal liability in Vietnam and France.

Research questions include:

- (1) What are the provisions of corporate criminal liability in the Penal Code of Vietnam?
- (2) What are the main similarities and differences of corporate criminal liability between Vietnam and France?
- (3) What are lessons learnt for Vietnam to reform the provisions on corporate criminal liability?

¹⁸³ Article 10, United Nations Convention against Transnational Organized Crime (TOC)

2. Method

In order to suggest some valuable recommendations, this article will use the research methodologies: desk reviews, analysis, problem-solving and comparative study for achieving the research purpose.

3. Results

3.1. *The regulation of corporate criminal liability in Vietnam*

3.1.1. *Types of corporate*

The general provisions of corporate criminal liability of Vietnam are regulated in 16 articles from Article 74 to Article 89 in chapter XI of the Penal Code. Besides, some principle articles govern this issue, such as Articles 2, 3, 6, 8, 30, 33. According to the basis of criminal liability in Article 2, “commercial legal entity commits crimes which regulated in Article 76 shall bear criminal liability”. Under these articles, in Vietnam, the corporate type can be subject to criminal liability and shall be liable for criminal penalties for certain crimes is only a commercial legal entity. It means that the corporate shall be imposed penalty must be a juridical person who has the primary purpose is seeking profits and its profits shall be distributed to its members.¹⁸⁴ Currently, the State agencies, political and socio-political organizations, armed forces, the non-commercial legal entity (a juridical person whose primary purpose is not seeking profits and its possible profits may not be distributed to its members)¹⁸⁵ and organizations without legal personality are still not the subject of criminal liability and can not be imposed penalties.

“Article 5. Effect of the Criminal Code on criminal offences committed within the territory of the Socialist Republic of Vietnam

1. The Criminal Code applies to every criminal offence committed within the territory of the Socialist Republic of Vietnam.

It also applies to criminal offences committed on sea-going vessels and aeroplanes having Vietnamese nationality or operating in Vietnam's exclusive economic zones or continental shelves, or consequences thereof”

“Article 6. Effect of the Criminal Code on criminal offences committed outside the territory of the Socialist Republic of Vietnam

1. Any Vietnamese citizen or Vietnamese corporate legal entity that commits an act outside the territory of the Socialist Republic of Vietnam, which is defined as a criminal offence by this Code, shall face criminal prosecution in Vietnam as prescribed by this Code. This clause also applies to stateless residents of Vietnam.

2. Any foreigner or foreign corporate legal entity that commit a criminal offence outside the territory of the Socialist Republic of Vietnam shall face criminal prosecution as prescribed by this Code if such offence infringes the lawful rights and interests of Vietnamese citizens or the interest of the Socialist Republic of Vietnam or under an international agreement to which Vietnam is a signatory.”

¹⁸⁴ See Article 75 The Civil Code of Vietnam 2015

¹⁸⁵ See Article 76 The Civil Code of Vietnam 2015

Article 5 and Article 6 define that foreign corporates could be held criminally liable under the Penal Code of Vietnam if they commit an offence within or outside the territory of the Socialist Republic of Vietnam. In case the offence is committed outside the territory of Vietnam, the foreign corporation shall bear criminal liability if it infringes the lawful rights and interests of Vietnamese citizens or the interest of the Socialist Republic of Vietnam or under an international agreement to which Vietnam is a signatory.

3.1.2. The Conditions for liability

Under Article 75, a corporate shall only bear criminal liability if all of the following conditions are satisfied: (1) The criminal act is committed on behalf of the corporate; (2) The criminal act is committed in the interests of the corporate legal entity; (3) The criminal act is under instructions or approval of the corporate; (4) Still has time for criminal prosecution. That means corporate shall not bear criminal liability for actions of every member of corporate but certain peoples who are considered representative. When the representative commits a crime on behalf of the corporate, in the interests of and under the instructions or approval of the corporate, both corporate and the individual has criminal responsibility (Clause 2 Article 75). The corporate can be imposed criminal liability when the representative commits a crime on behalf of and in the interest of the corporation under the corporate's permissions or instructions. The Penal Code of Vietnam requires to prove four conditions when imposing criminal liability on corporate. However, proving all the conditions in practice has some difficulties. The first condition requires the crime committed by limited persons, only representatives of corporations such as director, president, chairman of the Board, or the legal representative recognized in the company's charter. The second condition determines representatives commit crimes on behalf of and in the interest of the corporate. That means the purpose of committing crimes is for the benefit of the corporate, not for the representative's benefit. The third condition asserts the action of the representative must be under the permission or approval of the corporate.

3.1.3. The scope of crimes for corporate

Corporate shall be imposed criminal liability when all the conditions for liability are satisfied. The Penal Code of Vietnam stipulates corporate criminal liability with the conditions for limits the scope of crimes which corporate can be prosecuted. Currently, according to Article 76, corporate can be held criminal liability for 33 crimes that corporate usually commit include economic crimes, terrorism financing, money laundering and environmental crimes.

The economic crimes which corporate can be imposed criminal liability are 22 crimes, for instance, Smuggling (Article 188); Illegal trafficking of goods or money across the border (Article 189); Manufacture or trading of banned commodities (Article 190); Storage or transport of banned commodities (Article 191); Manufacture or trading of counterfeit foods, foodstuff, or food additives (Article 192); Tax evasion (Article 200).

Chapter XIX of the 2015 Penal Code regulates environmental crimes with 12 articles (from Article 235 to Article 246), of which 09 articles have supplemented the corporate criminal liability. For example, Causing environmental pollution (Article 235); Violations

against regulations on environmental emergency prevention, response, and relief (Article 237); Violations against regulations on the protection of irrigation works, embankments, and works for protection against natural disasters; Violations against regulations on the protection of river banks (Article 238); Import of wastes into Vietnam's territory (Article 239).

When promulgated in 2015, the Penal Code of Vietnam only stipulated 31 crimes for which corporates must bear criminal liability. However, in 2017, Law No12/2017/QH14 on the amendment to the Criminal Code No100/2015/QH13 added two more crimes to the scopes of crimes which corporate can be held criminally liable. These are terrorism financing (Article 300) and money laundering (Article 324).

3.2. Corporate criminal liability in France in comparison with Vietnam

3.2.1. Types of corporate

“Corporate” usually refers to a company, but the definition of this concept in law is broader and has some differences in each country. In this research, corporate means legal person that is the subject of criminal liability. However, the types of corporate shall be held criminally liable are not the same in every country.

In France before 1994, corporate criminal liability was not recognized because of the principle of “*societas delinquere non potest*” (a legal person can not be held criminally liable). However, regulating corporate criminal liability in France was necessary for some reasons. Firstly, both the European Financial Action Task Force (FATF) and The United Nations Commission on Crime Prevention and Criminal Justice have urged the establishment of corporate criminal liability to combat money laundering. In 1988, the Council of Europe asked those member states whose criminal law had not yet provided for corporate criminal liability to reconsider the matter.¹⁸⁶ Besides, France had to implement the requirement of Recommendation No. R (88) 18, adopted by the Committee of Ministers of the Council of Europe on October 20 1988, on the Criminal Liability of Corporate Bodies, set up under the authority of the European Committee on Crime Problems.

Appendix to Recommendation No. R (88) 18:

“The following recommendations are designed to promote measures for rendering enterprises liable for offences committed in the exercise of their activities, beyond existing regimes of civil liability of enterprises to which these recommendations do not apply.

They apply to enterprises, whether private or public, provided they have legal personality and to the extent that they pursue economic activities.

...

3. To render enterprises liable, consideration should be given in particular to:

a. applying criminal liability and sanctions to enterprises, where the nature of the offence, the degree of fault on the part of the enterprise, the consequences for society and the need to prevent further offences so require.”

¹⁸⁶ Orland, Leonard, and Charles Cachera, Fall 1995, *Corporate Crime and Punishment in France: Criminal Responsibility of Legal Entities (Personnes Morales) under the New French Criminal Code (Nouveau Code Penal)*, Connecticut Journal of International Law, vol. 11, no.1, pp.121.

Secondly, the corporation's potential caused more and more significant harm to society therefore, the Government needed to find the solution for controlling and preventing this circumstance. Furthermore, many European countries under the Common law system had recognized the corporate criminal liability to deal with crimes committed by corporations. In 1994, the Penal Code of France was adopted to officially regulate corporate criminal liability for the first time. Under Article 121-2 of the French Criminal Code, a corporation may be held criminally liable for offences committed on their behalf by their organs or representatives:

“Legal persons, with the exception of the State, are criminally liable for the offences committed on their account by their organs or representatives, according to the distinctions set out in articles 121-4 and 121-7.

However, local public authorities and their associations incur criminal liability only for offences committed in the course of their activities which may be exercised through public service delegation conventions.”

According to this Article, all types of corporations can be criminally liable, include all corporations, non-profit organizations, even some (but not all) governmental or State-controlled organizations except the State. However, in some cases, local public authorities and their associations incur criminal liability. They can be imposed a penalty under the Penal Code for offences committed in the course of their activities which may be exercised through public service delegation conventions. Moreover, foreign corporations with establishments in France may be criminally responsible according to Article 113-2 of The Penal Code, and the French jurisdiction will extend for crimes committed outside France in some cases.

Unlike France, the criminal law of Vietnam defines only commercial legal entity can be the subject of criminal liability. Under Vietnamese law, the scope of corporates shall bear criminally liable is limited; therefore, the State agencies, political and socio-political organizations, armed forces, the non-commercial legal entity (a juridical person whose primary purpose is not seeking profits and its possible profits may not distribute to its members)¹⁸⁷ and organizations without legal personality can not be prosecuted and applied criminal sanctions. This difference can be explained on some main points: (1) Regulating corporate criminal liability for the first time, Vietnam needs to take careful steps by limitation the type of corporate can be prosecuted; (2) The goal of applying criminal liability to corporates is to punish and prevent them from committing crimes for profit, therefore applying this provision to commercial juridical person is reasonable; (3) Corporate shall only be held criminally liable for some types of crimes include economic crimes, terrorism financing, money laundering and environmental crimes which commercial juridical person usually commits.

The Conditions for liability

It seems to be obvious that corporate can not think and act as natural person; therefore, determining the conditions for corporate criminal liability is quite complicated.

¹⁸⁷ See Article 76 The Civil Code of Vietnam 2015

There are some ways to prosecute a corporate base on some theories of corporate criminal liability. This article only mentions three of them include: Vicarious Liability, Identification Theory, The Corporate Culture Model.

Vicarious Liability “puts more emphasis on accountability by corporate administrators as an 'agent' of the corporation's actions, based on the employment principle and the delegation principle”.¹⁸⁸ This doctrine defines in some cases, even though a criminal offence might not specifically be made for companies, the law considers it appropriate for a corporate to be held vicariously liable for criminal acts done by its employees or agents. A court might consider that it is appropriate for employers to take criminal responsibility for offences committed by their employees.¹⁸⁹ However, vicarious liability was only used for a small number of offences and later replaced with the identification theory.

Identification Theory is the doctrine that defines the crime committed by certain people in some circumstance as the corporate's action. It means that corporate shall bear criminally liable for the crime committed by the person who controls and manage the corporation. According to this theory, “those who control or manage the affairs of a company are regarded as embodying the company itself”.¹⁹⁰ Therefore, the action and mistake of senior managers are identified as the action and mistake of the corporation.

The Corporate Culture Model is the later doctrine that determines that corporate shall be held criminal liability if the crime is committed because of the corporate culture. “Corporate culture” means “an attitude, policy, rule, course of conduct or practise existing within the body corporate generally or in the part of the body corporate in which the relevant activities take place”.¹⁹¹ Corporate will be prosecuted if the corporate culture which directed, encouraged, tolerated or led to a non-compliance with the relevant provision or that the corporation failed to create and maintain such a corporate culture. In addition, it is sufficient to establish that the Board of directors intentionally, knowingly or recklessly carried out the relevant conduct, or expressly, tacitly or impliedly authorized or permitted the commission of the offence or that a high managerial agent, knowingly or recklessly engaged in relevant conduct, or expressly, tacitly or impliedly authorized or permitted the commission of the offence.¹⁹²

In France, criminal liability can be imputed to corporate when: (1) the criminal offence committed by an organ or representative; (2) the criminal offence must be undertaken on behalf of or in furtherance of the goals and objectives of corporate. In some limited circumstances, corporate criminal liability can occur even without the conduct of an organ or representative.¹⁹³ Generally, the conditions for corporate criminal liability in France base on the content of Identification Theory.

¹⁸⁸ Muchammad Chasani, 2017, *Corporate criminal liability in Indonesia on the perspective of comparison*, Indonesian Journal of criminal law studies II (2), pp.148.

¹⁸⁹ See Ali Shalchi, 2021, *Corporate criminal liability*, House of Commons Library, Briefing paper, pp.5.

¹⁹⁰ Law Commission Legislating the Criminal Code Involuntary Manslaughter (Law Com No 237, 1996) at [6.27].

¹⁹¹ Criminal Code Act of Australia 1995, s. 12.3(6).^[11]

¹⁹² Markus Wagner, 1999, *Corporate Criminal liability: National and International Responses*, 25 Commonwealth Law Bulletin 600, pp. 604.

¹⁹³ Circular, *supra* note 53, 148-49.

The crime committed by an organ or individual legal representatives can rise to corporate criminal liability. The organ means the body of law consisting of one or more individuals to whom the law or the statutes provide a specific function by loading the "administration or management," including the decision-making and representation organs¹⁹⁴ such as the Board of directors or the supervisory Board. The individual representatives who are mentioned before can be directors, managers, general managers and presidents, who are vested, by the law or the bylaws, with the power to administrate, manage and control the corporation. The representatives can also be de facto directors or managers, or persons, vested with the delegation of powers (including employees) or acting within a specific mission for the corporation (such as liquidators). As regards the liability arising out of acts of employees, and given that the delegation of powers does not need to be made in writing, certain Supreme Court cases refer to the status or quality of the employee to determine whether they are acting as "representatives" of the legal person.¹⁹⁵

Moreover, the illegal act must have been committed on behalf of or in furtherance of the goals and objectives of the corporate. However, in fact, even when the corporate did not get benefit from the illegal act, the courts can still impute criminally liable to the corporate if the offense simply occurred in the conduct of its activity, for instance, offenses arising out of failure to act in accordance with regulations relating to safety or supervision. Moreover, in case the offense was not committed for personal interest, the corporate's interest can be considered to exist.

The conditions for prosecuting corporate in the criminal law of Vietnam have some similarities with the corresponding regulations of France. In the Penal Code of Vietnam, the Court can impose criminal liability on corporate if all the following conditions are satisfied: (1) The criminal act is committed on behalf of the corporate; (2) The criminal act is committed in the interests of the corporate legal entity; (3) The criminal act is under instructions or approval of the corporate; (4) Still has time for criminal prosecution. Vietnam has more conditions for corporate prosecution than in France. The corporate can be imposed criminal liability when the representative commits crimes on behalf of and in the interest of the corporation under the corporate's permissions or instructions. The Penal Code of Vietnam requires to prove four conditions when imposing criminal liability on corporate. The first condition requires the crime committed by limited persons, only representatives of corporations such as director, president, chairman of the Board, or the legal representative recognized in the company's charter. The second condition determines representatives commit crimes on behalf of and in the interest of the corporate. That means the purpose of committing crimes is for the benefit of the corporate, not for the representative's benefit. The third condition asserts the action of the representative must be under the permission of the approval of corporate.

¹⁹⁴ Claudia Ghica-Lemarchand, 2012, *The criminal liability of legal persons*, The International Conference Education and Creativity for a Knowledge Based Society – LAW, Titu Maiorescu University, pp.11

¹⁹⁵ Eric Lasry, *Corporate liability in France*, <https://www.globalcompliancenews.com/white-collar-crime/corporate-liability-in-france/>

The conditions for criminal liability of corporate in Vietnam are based on a combination of doctrines of corporate criminal liability. Therefore, these conditions for criminal liability of corporate have both similarities and differences compared to the corresponding regulations in France. The first and second conditions specified in Clause 1, Article 75 of the Penal Code of Vietnam are quite similar to the conditions for corporate criminal liability in France. This similarity is explained by two main points. First, identification theory and vicarious liability are the fundamental doctrines for regulating the conditions for corporate criminal liability in Vietnam. Second, Vietnam regulates the corporate criminal liability later; therefore, it was the opportunity for Vietnam to learn from the experiences of other countries, especially France. However, the third condition mentioned in Clause 1, Article 75, was established close to the content of The Corporate Culture Model doctrine. This condition is quite different from the corresponding in France.

When prosecuting a corporate, the Court has to prove all of the conditions in Clause 1, Article 75. Nevertheless, in practice, proving all the conditions of corporate criminal liability according to the Penal Code of Vietnam has some difficulties. For example, proving the criminal offence committed by the representative under the approval or direction of the corporate in some cases is quite complicated. Usually, this consent or direction is oral, so it is difficult to collect evidence.

3.2.2. The scope of crimes for corporate

When recognizing corporate criminal liability, each country has to establish the conditions and the scope of crimes for which the corporate can be held criminally responsible. The scope of crimes for corporate is different from country to country, depending on its criminal policy and law application.

For the first time stipulating corporate criminal liability, The Penal Code of France limited the scope of crimes in which corporations can be held criminal liability. Section 121-2 of the French Criminal Code is restricted by the requirement that a corporate can be punished for a specific crime, the application of corporate criminal liability is confined to a limited number of crimes which is provided by law or the regulations. However, there was inequality between corporations and individuals. Since December 31 2005 (**Law No 2004-204** of March 9 2004), the words "as provided by law or the regulations" in Article 121-2 were deleted. Thus, the new general principle of corporate criminal liability, which is corporations are criminally liable for all crimes, was made. The main corporate criminal offenses include fraud, bribery, misuse of corporate assets, money laundering, and ^[1]market manipulation offenses.¹⁹⁶

The number of crimes in which corporations can be prosecuted under the Penal Code of Vietnam is less than the crimes for corporate in France. This is quite similar to the previous Penal Code of France (The Code Penal of 1992, which took effect on March 1, 1994) and is different from French criminal law currently. According to Article 76 of the Penal Code of Vietnam, the corporate can only be held criminal liability for 33 crimes that corporate usually

¹⁹⁶ Jones Day, 2020, *2020 Cross-border corporate criminal liability survey*, One Firm Worldwide, pp.57.

commit include economic crimes, terrorism financing, money laundering and environmental crimes. Moreover, unlike France, Vietnamese criminal law have not yet recognized corporate criminal liability for crimes of fraud, bribery and corruption. In addition, only natural person can be imposed criminal liability for such crimes. This is the first time Vietnam has recognized corporate criminal responsibility, so limiting the scope of crimes for which corporates are criminally responsible is appropriate and prudent. France had the same step in the past, like Vietnam, before stipulating that corporate must be criminally responsible for all crimes.

4. Discussion and Conclusion

Although Vietnamese criminal law has officially recognized corporate criminal liability, these regulations are still limited to a certain extent on the type of corporate, the scope of crimes corporate will be prosecuted, and the conditions of corporate criminal liability. These issues are still controversial and sometimes cause difficulties in law application. For example, the scope of crimes which corporate will be prosecuted for only 33 crimes, but there are no crimes of fraud, bribery or corruption. Many researchers believe that expanding the crimes for which corporations can be prosecuted, including bribery or corruption, is appropriate because these crimes are often committed by corporates and can cause serious damage. Besides, as mentioned at the end of section 3.2.2, applying the conditions of corporate criminal liability in practice is quite complicated and difficult. On the basis of the above-mentioned comparative studies between Vietnam and France, some lessons learned for Vietnam are as follows:

Firstly, France consider determining criminal liability for both non-legal entities or non-profits organizations because these organizations can also cause damage in their operation.

Secondly, France regulates corporate criminal liability for certain crimes such as bribery, corruption, fraud or other crimes. These crimes are usually committed by corporate and cause serious damage.

Thirdly, whether they are stipulated in the written or unwritten law, the conditions for prosecuting corporate for criminal liability in France must also be based on certain principles from the fundamental doctrines of corporate criminal liability. Moreover, these conditions will be specifically considered in law-making or law application. Basically, it is not necessary that all the conditions must be satisfied at the same time and for each case, only certain conditions need to be considered and proved to convict a corporate. Sometimes the law may provide for the non-applicability of the general principles in some special cases.

Learning from experiences in law-making and law application of experienced countries as France is very useful for reforming the provisions of The Penal Code of Vietnam on corporate criminal liability. Some recommendations for Vietnam to reform the regulations of corporate liability include:

First, expanding the types of the corporate can be held criminal liability such as non-commercial legal entity, non-profits organization in some cases. Theoretically, all types of the corporate can be imposed criminal liability for the crimes committed by their representatives or members if they were committed on behalf of or for the benefit of the corporate, or under the construction or approval of corporate. In fact, it will be unfair in case

a member of corporate (even if the corporate is non-commercial juridical person or non-profits organization) commits a crime for the benefit or on behalf of the corporate, causing damage, only the individual who commits crimes shall be held criminal liability, but the corporate is not. In addition, it is also inequitable that only commercial legal entities should be held criminally responsible while non-commercial legal entity should not for committing crimes.

Second, expanding the scope of criminal offences for which corporate shall be criminally liable, such as fraud, bribery, or corruption. These crimes are often committed by corporates and can cause very serious damage, but currently, according to Vietnamese criminal law, only individuals to be held criminally responsible even they commit these crimes on behalf of or for the benefit of the corporate, or under the construction or approval of corporate. Prosecuting corporate for the offences mentioned above is completely reasonable and also consistent with international conventions that Vietnam has signed.

Third, applying the conditions of corporate criminal liability need to be flexible; thus, it is necessary to change the way it is prescribed in the current criminal law. In Article 75 of The Penal Code, instead of stipulating that “all of the following conditions are satisfied”, it should be “one of the following conditions is satisfied” or “prove one of the following conditions”. Reforming this article will make criminal prosecution for corporate easier and more effective in practice.

Corporate criminal liability is still a controversial issue in Vietnam with many opinions. The establishment and the promulgation of legal provisions on corporate criminal liability still have many problems. Furthermore, applying the law in practice to prosecute the criminal liability of corporate still faces many difficulties. Reforming the provisions of The Penal Code of Vietnam on corporate criminal liability will help to solve the problems mentioned above. Studying the provisions of corporate criminal liability from the perspective of comparison in Vietnam with the developed country like France will identify the key lessons learnt for Vietnam in law-making and law application. Recommendations from these useful lessons will be able to assist Vietnamese law-makers in reforming the provisions of corporate criminal liability and support the law-applicators in imposing criminally liable on corporate.

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PREVENTION OF VIOLATIONS OF LAW ON ENVIRONMENTAL PROTECTION IN INDUSTRIAL ZONES IN THE SOUTH KEY ECONOMIC AREA BY FUNCTIONS OF ENVIRONMENTAL POLICE

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Abstract

Many years after the war, Vietnam has implemented the innovation policy and achieved many great milestones and is aiming to become a modern industrialized country with the formation of 04 key national economic zones which is assigned the task of leading, the locomotive for the development process of the whole country. In particular, the Southern Key Economic Zone (SKEZ), chose Ho Chi Minh City as the center of attraction for the development of the whole region, has been and is the area with the largest contribution to the budget compared to other regions. However, the rapid development of industrial zone (IZ) here, has left negative environmental impacts such as: pollution of water, soil, air, noise is increasingly complicated and difficult to control; the number of cases of violations of the law (VOL) on the environment in IZ, in spite of being under control, has increased at times, seriously affecting people's health. Faced with that situation, the Environmental Police force (EPF) with its functions and duties, needs to study and evaluate the status and causes of VOL on environmental protection (EP) in IZ and propose appropriate solutions in the prevention of violations of the law (VOL), contributing to sustainable development of the country.

Keywords: *Southern key economic Region, environmental law violations, industrial zones, Environmental police.*

1. Introduction

SKEZ, Vietnam includes 08 provinces and cities: Ho Chi Minh City and Dong Nai, Ba Ria - Vung Tau, Binh Duong, Tay Ninh, Binh Phuoc, Long An, Tien Giang Province - Region has the fastest growth rate and the most IZ in the country. As of 2019, SKEZ is also the largest foreign investment attraction center in the country with more than 15,000 effective FDI projects; there are 140 IZs in operation. A large system of seaports and international airports supported this economic region to become a center of tourism, to develop all kinds of information technology, telecommunications, logistics services... the largest in the country¹⁹⁷... The development of IZs in the region has been changing the economic landscape of localities, making an important contribution to the economic development of the country. However, along with the development of many IZs without paying due attention to EP, the situation of crimes and VOL on EP is very complicated,

¹⁹⁷ Encouraging the development of Southern Key Economic Zone: <https://www.nhandan.com.vn/tphcm/item/41895702-thuc-day-phat-trien-vung-kinh-te-trong-diem-phia-nam.html>. Access on 19/4/2022.

widespread in most fields, seriously affecting the environment, people's health and sustainable economic and social development.

Faced with the above situation, the author has taken measures in scientific research and assessment of the development of IZs; guidelines, policies and laws of the State of Vietnam in economic and social development in IZs creating the driving force for socio-economic development of localities here. The article also researches and analyzes data to evaluate the basic characteristics of IZs in the SKEZ; statistics on VOL situation on EP in IZs. Thence, the author has evaluated the achieved results, limitations, shortcomings and their causes in the prevention and control of VOL on EP in IZs and proposed solutions to contribute to improving operational efficiency. Preventive action against VOL on EP in IZs in the SKEZ in the coming time according to the function of the EPF.

2. Method

The author uses specific research methods as follows:

- Document research method: By this method, the author researches and acquires knowledge from document sources promulgated by the Vietnamese Communist Party, State, relevant ministries and a number of related scientific works.... thence to draw theoretical problems, then analyze and synthesize documents and data related to the research content. The author also uses the method of analysis and synthesis to record and interpret documents and data that have been processed in the entire research process, thereby synthesizing and evaluating.

- Statistical, comparative and practical methods: With this method, the author makes statistics of the existing works and compares them with the research matters to propose the contents that need to be further researched; statistics of legal documents, guidelines, related to the research matters. Most of the research materials were provided by the EPF and other state management agencies of Ho Chi Minh City, Dong Nai, Binh Duong, Long An and Tien Giang province. The purpose of viewing is in areas where many IZs are concentrated with fewer areas; localities have many VOL on EP with less happening in localities.

3. Results

3.1. Basic awareness of industrial parks in key economic zones

3.1.1. The concept of key economic zones

Currently, in research works, articles, policies of the Vietnamese Communist Party and State referring to regions in general and economic zones in particular was widely used. However, when mentioning to this issue, depending on the research purpose and different approach, then there are corresponding way seeing and evaluating the region. In particular, geography considers "region" to be a geographical unit of the earth's surface. On the other hand, economics understands that "region" is a relatively complete economic unit in terms of economics. Politics for "region" is the administrative unit that performs administrative management. Sociologists consider "region" to be a settlement with similar social characteristics of a community of people (language, religion, ethnicity, culture). In some cases, the terms "region", "locality", "area", "domain", "range" have not been clearly distinguished¹⁹⁸.

¹⁹⁸ Nguyen Xuan Thu – Nguyen Van Phu (co-editor) (2006), *Regional economic development in the process of industrialization and modernization, Monograph, Publisher National Politics, Hanoi 2006.*

In Vietnam, IZs are defined as a part of the national territory of a collection of provinces and cities that have many similarities but cannot develop the same economic and social development between them. Equally, it is necessary for localities to develop ahead of them to form a key economic area, to act as the locomotive for the entire economic zone to develop accordingly, that has formed the KEZ.

Up to now, there are many concepts of the KEZ, but most of them agree that it is the place that fully converges development conditions, has the ability to create competitive advantages, and act as the locomotive of rapid growth to accelerate the development process for themselves and play a decisive role in the national economy, so it can be understood that: *A key economic zone is a part of the national territory including provinces and cities according to the regulations of the Government of Vietnam, converging favorable development conditions and factors, has great economic potential, plays the role of driving force for the overall development of the country.*

3.1.2. Features of key economic zones

After a period of formation, construction and development of key economic zones and the current reality and future development directions, it can be generalized that the KEZ has the following characteristics: the KEZ accounts for a large proportion of the country's total GDP, is the driving force, the locomotive of economic development for the whole country; The KEZ converges favorable conditions such as infrastructure, technical labor, national and regional training and scientific research centers, which have an attractive position for domestic and foreign investors... it has the ability to attract IZs, new industries and key service industries. Thence, its effect is to spread the industrial distribution to the surrounding regions with the function of being the center of a large territory. In addition, another outstanding feature of KEZ is that IZs are mainly concentrated here, so besides the socio-economic achievements, the environmental pollution in IZs matters in KEZ is developing complicatedly, increasingly difficult to control, this is both an immediate and long-term threat and in the KEZs and in each specific location.

3.1.3. Concept and characteristics of industrial zones in key economic zones

3.1.3.1. Concept

In Vietnam, the establishment of IZs has created a great impetus for industrial development, attracting foreign investment capital, strongly promoting economic restructuring in localities, creating jobs for employess, forming new urban areas as well as developing supporting industries and services, tourism. On April 24, 1997, the Government issued Resolution No.36/ND-CP on promulgating regulations on industrial zones, export processing zones and high-tech zones. Thence there comes the concept of IZ: "an IZ is an area where enterprises specialize in manufacturing industrial goods and providing services for industrial production, having definite geographical boundaries, and having no inhabitants; established under the Government or the Prime Minister's decision, there may be an export processing enterprise in an IZ¹⁹⁹. Accordingly, *an Industrial Zone is an area*

¹⁹⁹ Government (2008), Decree No.29 Regulations on industrial zones, export processing zones, economic zones, Hanoi.

specializing in the production of industrial goods and provision of services for industrial production, with defined geographical boundaries, and established according to the conditions, order and procedures prescribed by the Government. This is a concept that is approached from the perspective of State management to serve the management of competent State management agencies with the goal of economic development, ensuring social security... Facts in countries around the world and in Vietnam show that IZs are often invested, built and developed in KEZs because there are converging favorable factors in terms of natural conditions, traffic, human resources and other factors such as policies and regimes of the State for investment and development. This is one of the characteristics to distinguish IZ in KEZ from those built in other regions.

From the perspective of security science, research to serve the prevention of VOL on EP according to the function of the EPF, the IZ of the KEZ can be conceptualized as:

An IZ in a KEZ is an area where many domestic and foreign enterprises invest in the construction and provide services for industrial production, established and operating in accordance with Vietnamese law where environmental law violations often occur, requiring the Environment Police Force to actively grasp the situation, take measures according to their functions and tasks, to serve the prevention of law violations. environmental law, contributing to environmental protection, maintaining social order and safety.

Thus, the IZ of the KEZ approaches from the perspective of security science, prevention of VOL of EP of the EPF, first of all, it is an area where many domestic and foreign enterprises are engaged in processing, assembling and manufacturing activities industrial products for export or domestic consumption. In addition, the IZ is also the place where a lot of waste (wastewater, exhaust gas, industrial waste) is generated in large quantities, potentially causing environmental pollution of land, water, and air, seriously affecting the people's health and life so it is the key areas of the VOL on EP that the EPF needs to focus on preventing and combating.

3.1.3.2. Characteristics of industrial zones in key economic zones

The actual operation of the IZ in the KEZ shows a number of outstanding features related to the prevention of VOL on EP according to the functions of the following EPF:

- IZ in KEZ is area with a defined scope but not an administrative unit. There are clear boundaries around the IZ (with a protective barrier). However, VOLs on EP occur in IZs not only within the IZ but often affect a large area of the population outside the IZ.

- The IZ in KEZ is the place where many factories, enterprises, domestic and foreign companies are engaged in production and business activities with interwoven diverse types. There are a lot of Vietnamese and foreigners here, so they are related to foreign policy, investment, and jobs. The main purpose of businesses is to make a profit. Because there are many domestic and foreign enterprises, investment forms are diverse and complex. These matters have greatly affected the EP nwork because there are specific requirements unlike any other area or location. Therefore, the prevention of VOL on EP must be in harmony with other economic-political requirements in IZs.

- The process of formation and operation of IZs in the KEZ is related to many policies and laws of the State, such as the Law on Investment, the Law on Enterprises, the Commercial Law, the Law on Customs, the Law on Environmental Protection... Ministries, branches and Local authorities also promulgate regulations to manage and guide the implementation. The subject of State management of IZs is the Government, ministries, branches and provincial-level People's Committees operating under the specific "one-stop door, on-site" mechanism. Currently, many localities that want to attract investment have issued preferential policies, including issues related to the environment. It is the involvement of many management subjects, coordination relations, international cooperation, diplomatic issues, etc., which has influenced and influenced the direction and conduct of prevention of legal violations on environmental protection in IZs.

- During the operation of enterprises, there are still many old, broken and outdated equipment and machines for operation and production, which, when used, will cause environmental pollution. This feature also easily raise to factors that can be the causes and conditions of VOLs on EP that the EPF has to carry out effective prevention and control.

- VOLs on EP are mainly caused by enterprises, the harmful consequences are often very serious, especially serious, environmental pollution not only occurs in the IZ but also affects a large area around which is hard to fix. This greatly affects the prevention of VOLs on EP in IZs.

From the above characteristics of the IZ of the Key Economic Zones above, the environmental protection force needs to be aware that: the IZ of the key economic zones are both a key area and area for economic development as well as a complex and frequently occurring area. legal acts on environmental protection. Dealing with the above issues poses a requirement for the environmental police force to implement preventive measures against legal violations on EP in the IZs of the KEZ in particular, in accordance with those characteristics.

3.2. Situation of violations of environmental laws in industrial zones in the southern key economic zone

3.2.1. Characteristics of the southern key economic zone

The SKEZ was established according to Decision No. 44/1998/QĐ-TTg, February 23, 1998 of the Prime Minister, including Ho Chi Minh City and the provinces of Dong Nai, Binh Duong and Ba Ria-Vung Tau. During the Conference of the SKEZ Provinces on June 20-21, 2003, the Prime Minister decided to expand the boundary of the SKEZ, then the Government Office issued the Notice No. 99/TB-VPCP 2/7/2003 on the conclusion of the Prime Minister, including the decision to add 3 more provinces to the SKEZ: Tay Ninh, Binh Phuoc, and Long An. On August 13, 2004, the Prime Minister issued Decision No. 148/2004/QĐ-TTg on "main directions and tasks of the key economic zones up to 2010 and a vision to 2020", the SKEZ includes 7 provinces and cities. By 2009, after adding Tien Giang province, the SKEZ included 8 provinces and cities: Ho Chi Minh City, Ba Ria - Vung Tau, Binh Duong, Binh Phuoc, Dong Nai, Tay Ninh, and Long An. Tien Giang has an square area of approximately 30585.8 km² with a population of approximately 17.2 million people, the population density is roughly 563 people/km², the urbanization rate of the region is 49.6% compared to the whole country, the

region has only 8% of the area and 17% of the population, but for many years now, the region's production has reached more than 40% of the gross domestic product (GDP), the export value accounts for about 40 %, average economic growth is more than 1.5 times, budget revenue accounts for more than 43% of the total budget revenue of the country, attracting 56% of projects and 45% of foreign investment capital into Vietnam²⁰⁰.

The outstandingly relevant feature of the SKEZ is that Ho Chi Minh City is the most dynamic economic and development center in the country, which is considered as the "leading" economic, driving force and leading the whole southern economy; the SKEZ has a large area, large population scale, rapid urbanization rate, and convenient transportation system for economic development; is the place with the fastest concentration of IZs in the country, with high operational efficiency and the largest contribution to national income compared to other KEZs. However, the development of IZs in the whole zone is not in the proper range. Development is more quantitative in breadth than in depth; the development of IZs still lacks planning and synchronization in the whole zone; The development of IZs entails a series of complex, outstanding and urgent problems in environmental protection.

3.2.2. Basic characteristics and developments, structure of violations of the law on environmental protection in industrial zones of the Southern key economic zone

- Basic characteristics of industrial zones:

According to statistics from the EPF of the SKEZ by 2020, the whole zone will have 132 operating IZs (Ho Chi Minh City has 16 IZs; Long An province has 34 IZs; Dong Nai province has 31 IZs; Binh Duong has 27 IZs; Ba Ria-Vung Tau has 9 IZs; Binh Phuoc has 8 IZs; Tien Giang has 4 and Tay Ninh has 3 IZs in operation and more than 50 IZs under construction and expected constructed project). In which, 23 IZs have an area of over 500ha; 27 IZs with an area from 300ha to 500ha; 62 IZs with an area from 100ha to 300ha and 25 IZs with an area of less than 100ha with 5,853 domestic and foreign enterprises investing. Investment in the development of IZ in the SKEZ has changed the economic landscape of many localities, making an important contribution to the overall economic development of the country. However, the development of IZs over the years has revealed many negative sides, unsustainable development, not coupled with environmental protection, has adversely affected the environment, people, ecosystems, air pollution, etc. waste water, solid waste, hazardous waste, environmental incidents have happened such as: Vedan company directly discharge untreated wastewater into Thi Vai river; the case of Sonadezi Long Thanh Company discharging unqualified wastewater into Ba Cheo canal; Hao Duong Tannery Joint Stock Company repeatedly discharged wastes causing environmental pollution in Dong Dien canal as well as many other IZs in the area which are directly or indirectly polluting the environment.

With the number of IZs as above, there are always over one million, six hundred thousand workers, experts, technicians... working and living in the IZs have been discharging a huge amount of household waste into the environment. In addition, the concentration of many people with local characteristics in one place and in a certain period of time has often

²⁰⁰ Phung Ngoc Bao (2021), Accomplishing the coordination mechanism to improve the operation quality of the southern key economic zone, Communist Journal, Hanoi.

caused frequent traffic congestion, noise pollution, and emissions from vehicles... affects the lives and health of workers and people living in the vicinity. Besides, the distribution of IZs is not equal among localities, the number of IZs is concentrated mainly in Ho Chi Minh City, Dong Nai, Binh Duong, and Long An because there are favorable regional connections and favorable conditions. Infrastructure is relatively invested. The provinces with fewer IZs are Binh Phuoc, Tay Ninh, Ba Ria - Vung Tau and Tien Giang. However, these localities are also implementing many preferential policies, so the number of IZs is increasing gradually and attracting about 6,000 businesses to attract investment.

- *Developments and tricks of violating environmental laws in the SKEZ::*

+ *Developments:*

The number of cases of VOL on EP occurring in IZs of the SKEZ detected by the EPF from 2011 to 2020 is 3,526 cases out of a total of 12,772 cases of VOL on EP in the whole SKEZ, accounting for 14.5 %. The analysis shows that the IVOL on EP in the entire SKEZ are common: Violating regulations on wastewater, emissions, noise and causing environmental pollution; violation of regulations on management and treatment of hazardous wastes; violation of regulations on food safety and hygiene; violations of EP work documentation procedures; Violations against regulations on hazardous waste management and treatment...

The number of VOL on EP occurring in IZs tends to increase gradually over time from 2011 to 2017. Starting from 2018, the number of VOL on EP occurring in IZs tends to decrease gradually. However, the structure of legal regulations on EP in IZ still accounts for a high proportion of the total number of legal documents on environmental protection in the whole zone. From 2019, especially in the recent 2020s, due to the serious impact of the COVID-19 pandemic, the production and business processes of enterprises in IZs have stalled, the EPF is also limited. As a result, the number of violations has decreased compared to previous years, but there are still many potential risks and complications about EP in these areas.

However, all cases of VOL on EP were found to be handled only administratively, none were prosecuted criminally although many violations left great consequences for the environment, causing a lot of damage to the people's life. The failure to criminally handle many cases of environmental law violations IZs of the SKEZ is due to the shortcomings of the provisions of the Criminal Law and a number of other legal documents, such as: environmental crimes in the Criminal Law over the period often stipulates the consequences that make it difficult to determine the damage, the consequences often do not happen immediately but have to go through a long time.

+ *Methods and tricks of the VOL on EP occurring in IZs:* are very diverse and complex, but focus on a few methods and tricks as follows: Taking advantage of loopholes in management, inspection and examination of authorities to violate such as: Most of the enterprises have not complied with the requirements in the decision approving the EIA (Environmental Impact Assessment) report or the confirmation of the registration of meeting environmental standards and commitments on environmental protection when prepare an EIA report or a registration of environmental standards of the project showing the following

contents: When treating wastewater, especially without waste treatment equipment, toxic (SO, CO₂, NO₂, HCl...) by absorption method to minimize pollution before discharging into the environment; failing to invest in industrial wastewater treatment systems according to regulations; Waste water treatment does not meet environmental standards...

3.3. Some causes of legal violation on environment protection in industrial zones in the Southern Key Economic Zone

Over the years, although all levels and sectors have implemented a lot of solutions to implement environmental protection in general and in IZs in particular, there have been many results achieved that are recognized by society. However, due to many objective and subjective reasons, the status of VOL on EP in IZs is still complicated. Specifically:

- Most of the production facilities and economic organizations in profit-driven IZs do not strictly comply with the provisions of the law on EP during operation, do not treat or treat waste by different methods to cut costs; production technology in craft villages is very outdated, small-scale production is usually individual households, not enough financial and technical capacity to invest in waste treatment technology; due to limited knowledge and awareness of environmental protection, left by historical practices;

- The current legal system on handling 1 VOL on EP still has many shortcomings, limitations, and lacks, creating loopholes for subjects to take advantage of and commit illegal acts on environmental protection or difficult to handle crimes. Example: Crime of causing environmental pollution is prescribed in a timely manner but still applies only to the act of emitting gas and dust, but not yet for about vibration, noise, smell. Moreover, according to current regulations, the act of discharge must reach a certain amount to be prosecuted for criminal liability, this regulation causes certain difficulties in practice by determining this load with the air environment is relatively complex, possibly beyond the capacity of the prosecuting agency. By adding the provisions of criminal liability of commercial legal entities to the Criminal law so the Criminal Procedure Code 2015 also added a separate chapter to regulate the proceedings for prosecution of the criminal liability of legal entities. However, the regulation is still in principle, and has not been criminally prosecuted for commercial legal entities in the IZs of the SKEZ... Or Decree No. 155/2016/ND-CP (amended and supplemented by Decree No. 55/ 2021/ND-CP) regulations on sanctioning administrative violations in the field of environmental protection show that it is very difficult for environmental protection officers to carry out penalties for violations specified in Article 8; Points b, c, Clause 1, Article 9 and points a, b, c, d, Clause 1, Article 10 of Decree No.155/2016/ND-CP; Although these groups of violations are often found in the production and business activities of enterprises in IZs, because they do not have the authority to impose penalties according to regulations.

- Caused by difficulties and obstacles in the prevention of 1 VOL on EP of local authorities in general and the EPF of provinces and cities in the SKEZ in particular, such as:

- + The situation of many localities rolling out the red carpet to attract investment and focus on economic development while neglecting EP is quite common. The environmental inspection and examination by the authorities for businesses is still a formality, the

phenomenon of "penalty to survive" is still common. The appraisal and assessment of environmental impacts for investment projects are still inadequate and have not been given due consideration, there will still be a situation where many places only carry out a formality, roughly for all procedures.

+ The legal power of the EPF is not really strong enough (the EPF has not been specified as a specialized investigation agency in the People's Police) which will also limit the effectiveness of detection, prevention, fight and handling VOLs on the environment in IZ; The outstanding contingent of officers and soldiers of the EPF of the provinces and cities of the SKEZ were trained from many different sources, so the level of awareness and professionalism is not uniform and inconsistent; The number of staff with skills and knowledge in science and technology, especially in the field of environment, is still limited. On the other hand, the arrangement of cadres in some sections and of the environment police force is not really rational, sometimes it is not suitable with the training expertise and not with the capacity and forte; equipment, technical means, professional services for the inspection, detection and handling of VOL on EP in the coming time have not yet met the requirements of practice. Therefore, in many cases, the EPF cannot detect the sophisticated tricks of enterprises discharging pollutants into the environment, as well as it is difficult to determine the basis for handling environmental violations of the business organizations and individuals in violation in IZs.

- The development and increase of IZ in the SKEZ affects the work of environmental protection: in the coming time, there will be an increase of IZs, accompanied by the massive development of the transportation system, the means of transport, the number of workers will be millions of people, along with the amount of water used for daily life, as well as wastewater, emissions... will be complicated, potentially pose many risks to environmental security; some enterprises have taken advantage of loopholes in management to put into IZ old and outdated technologies and machines when they operated, have consumed a lot of electricity and polluted the water and air environment, noise ... until it can't operate, it wastes a lot of money to repair, destroy or can't handle it, causing environmental pollution.

- The effectiveness of environmental communication and urging the implementation of environmental protection regulations in the IZs of the SKEZ has not brought about the expected high efficiency. The awareness of many business owners to comply with the law on environmental protection is still low. For profit, many business owners have designed and constructed very sophisticated sewers and pipes deep underground to stealthily discharge illegally waste into the environment. They include State-owned enterprises.

- Human resources directly conducting EP inspection and examination are lacking, with limited capacity; funding for the operation has not met the requirements; post-inspection work has not been paid due attention; the assignment and decentralization of EP management in the IZs between the Management Board of IZs and the Department of Natural Resources and Environment is still overlapping and has many shortcomings...

- Thus, it can be seen the situation the regulations on environmental protection in the IZs the SKEZ in the coming time will still be complicated, the operation tricks of the subjects

are more and more sophisticated in order to conceal violations and deputy law enforcement agencies. VOLs on EP in SKEZ are still mainly in the field of waste discharge (wastewater, exhaust gas, smoke, dust, hazardous solid waste) into the environment without treatment.

4. Discussion and Conclusion

4.1. Discussion

Some solutions to improve the effectiveness of prevention of violations of the law on environmental protection in industrial zones in the Southern Key Economic Zone according to the function of the number of Environmental Police Force

Firstly, the police force needs to positively and actively advise the Directors of the Public Security of the provinces and cities as a basis to propose to the Party committees and local authorities in the SKEZ in need of review, adjusting the planning of IZs, planning and land use plan; it is necessary to re-examine the interrelationship between the planning for development IZs and the planning of other socio-economic branches in the zone; IZ development planning should be suitable to natural resource conditions, socio-economic characteristics and market prospects. The planning process must immediately take into account the factors causing environmental pollution and propose solutions to reduce and protect the environment. The establishment and development of IZs must ensure compliance with the approved planning²⁰¹.

Second, the State management agencies, the management of IZs, the EPF need to positively, proactively and regularly coordinate in propagating and mobilizing the masses, officials, employees of the agencies, socio-political organizations, economic units, especially business owners in IZs actively protect the environment. In order to achieve this requirement, first of all, the Communist Party of Vietnam needs to rely on Party committees at all levels and mass organizations to actively disseminate and propagate the law as well as the Party's and State's policies on public affairs. prevention of 1 VOL on EP. Dissemination of information can be carried out in many different forms, such as organizing forums on environmental legislation and environmental pollution in the mass media, communicating to each household, each enterprise, and each institution. production and business establishments, combined with propaganda sessions on occupational safety, health, insurance, salary...

Thirdly, the EPF should recommend to investors that build and trade in technical infrastructure of IZs to accept only projects with modern, high-tech production technology or less polluting; projects applying cleaner production technology, environmentally friendly technology. Based on environmental standards, the investor in business construction and IZ infrastructure develops specific rules on wastewater, emissions, and solid waste to be applied to customers in the IZ. At the sewer lines that collect wastewater from investors, it is necessary to have wells to allow access and sampling, monitoring the flow and quality of wastewater from factories in the industrial park. IZ infrastructure investors need to clearly

²⁰¹Le Thanh Quan, Situation and solutions to protect the industrial environment - A couple of things to discuss: <http://www.khucongnghepchulai.vn/index.php/tin-tuc-su-kien/53-thc-trng-va-gii-phap-bo-v-moi-trng-kcn-oi-iu-cn-ban>. Access: on 11 May, 2022.

agree with contractors on the quality of input water to the wastewater treatment plant, inspection and troubleshooting measures. Enterprises periodically report results of monitoring and control of wastewater quality, emissions, solid waste and hazardous waste management to local environmental management agencies and send reports to management units. industrial park infrastructure. Conduct periodic inspections twice a year for the entire drainage and wastewater treatment system of enterprises to obtain information and provide practical treatment solutions.

Fourth, strengthen coordination in state management of EP for enterprises in IZs: environmental protection forces need to consult with state management agencies on construction investment, licensing, and management activities of IZs must have synchronous coordination among sectors and levels in the field of EP; projects that are licensed for construction must fully comply with EP procedures before being built and put into operation; strengthen inspection, remind and apply strict sanctions against organizations and individuals who frequently repeat offenders such as suspension for a definite time to improve or complete waste treatment works.

Fifth, to renew and improve the professional work efficiency of the EPF; use modern equipment and technology to support timely detection of all VOLs on EP of enterprises; mobilize the masses, workers with the spirit and responsibility of EP working in IZs and adjacent areas to actively detect and notify the EPF of the VOLs on EP of enterprises in the IZs; strengthen inspection and post-inspection for enterprises and production facilities that have many legal complaints on environmental protection and propose strict handling according to law.

Sixth, to build and form a close coordination mechanism between the school's EPF and other forces in preventing VOLs on EP occurring in IZs. Specifically:

- In relation to the professional forces of the Public Security: to closely coordinate with the Traffic Police to arrest the transportation of hazardous wastes; close relationship with the Economic Police force in the use of basic investigation documents in IZs opened by the Economic Police; establish a close relationship between the EPF of the Department and the Department, the relationship with the Police at the IZ Police Stations in exchanging information and coordinating with each other to solve specific problems.

- In relation to state management agencies on environment: PC49 leaders of local police need to direct and command units to directly build close relationships with leaders of related units. When there is a request for coordination, the commanding leader must raise issues directly with the partner unit, promote the effectiveness of the organization, and direct the implementation of the coordination contents.

- Promote international cooperation in crime prevention and environmental law enforcement in IZs. In fact, in the IZs in the SKEZ, there are many foreign enterprises investing, especially the 4 EPZs all have foreign elements, so the problem is international cooperation. In the content of international cooperation, it is necessary to effectively implement international treaties on EP to which Vietnam is a member. In addition, it is necessary to cooperate with countries with advanced science, environmental protection work is respected and experienced

in handling environmental incidents to train staff, transfer technology, sponsor facilities, equipment in detecting and handling acts of environmental pollution.

4.2. Conclusion

Investment and construction of IZs in the SKEZ is one of the objective and important requirements to promote economic and social development of the whole region. Reality has proven that the chapters and policies of the Party and State in investment and construction of IZs in the SKEZ are very correct. The development of IZs has been and is an important factor promoting industrial growth; increase the ability to attract domestic and foreign investment capital in industrial development; receiving new technology transfer, boosting production to increase the source of export goods; create jobs and income for workers.

However, most of the IZs in the SKEZ have multi-industry and multi-field production, so they emit many different types of waste. Due to different reasons, but mainly due to not paying enough attention to EP of enterprises along with shortcomings and limitations in the state management of functional agencies, including the responsibility of the local government. quantity of EPF. In order to take effective measures in environmental protection work in IZs, it is required that state management agencies from the central to local levels in the SKEZ need to base themselves on the general development orientation of the Government. to the specific factors of each locality to develop and issue appropriate guidelines and policies to develop stable and sustainable IZs.

In the face of the above remaining problems, from all levels of government, state management agencies from central to local levels as well as there have been many researches and evaluations on the status of legal documents on EP in IZs of SKEZs from different angles and with different results. However, from the perspective of security science, specifically, the responsibility of the EPF in the prevention of VOLs on EP occurring in IZs in the SKEZ is still lacking and there are no scientific works on security, Police in-depth research in this area. In addition, EPF with assigned functions and roles also need to be proactive, strengthen coordination and advise with local authorities at all levels to issue legal documents to regulate legal acts on EP in IZs in the SKEZ. On the other hand, EP officers need to be proactive and positive in implementing their professional measures to grasp information, documents and developments of enterprises with sign of VOLs on EP in IZs in the SKEZ, contributing to the sustainable development of Vietnam's economy, society and environment. D.A.T

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THE COMMUNIST PARTY OF VIETNAM LEADS THE STATE IN THE MANAGEMENT, CONSERVATION AND PROMOTION OF ETHNIC MINORITY CULTURAL VALUES IN VIETNAM TODAY

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Abstract

Vietnam is a multi-ethnic country with 54 ethnic minorities living together, including 53 ethnic minorities with 14.1 million people (accounting for 14.7% of the total population of the country). Ethnic minorities in Vietnam alternately reside in a large area, occupying a particularly important position in politics, economy, security and national defense. Over thousands of years of labor and production, ethnic minorities have formed and developed their own unique cultural identities, contribute to building a rich and diverse Vietnamese culture imbued with national identity. The Communist Party of Vietnam is the leading force of the state and society, leading in all fields of social life, in which culture and preserving national cultural identity are one of the leadership tasks of the Party's concern. The Party always pays attention to the State leadership in managing, preserving and promoting the cultural values of ethnic minorities, creating endogenous strength to contribute to socio-economic development. The article focuses on studying the leadership process of the Communist Party of Vietnam through the State for the management, conservation and promotion of cultural values of ethnic minorities in Vietnam.

Keywords: *Communist Party of Vietnam, leadership, state, preservation and promotion, ethnic minority culture.*

1. Introduction

The cultural values of people are a measure of the level of development and show the unique characteristics of each nation. Vietnamese culture is the cultural collection of 54 ethnic minorities. Along with the Kinh culture, all 53 ethnic minorities [22] have their own cultural identity. President Ho Chi Minh used to say “For survival as well as the purpose of life, humans have invented language, writing, morality, law, science, religion, and literature, art, tools for daily living in terms of clothing, food, accommodation and methods of use. That whole creation and invention is culture” [13, vol.3, p.458]. He also admonished: “The Kinh or the Tho, the Muong or the Man, the Giarai or the Ede, the Xedang or the Bana, and other ethnic minorities are all descendants of Vietnam and are all siblings” [12, vol. 4, p.217]. The country of Vietnam, in the historical process, is the gathering place of many ethnic minorities, all of which have contributed with the Vietnamese people in the process of building and defending the country. Along with the sustainable community, stemming from their geographical and historical conditions, the ethnic minorities in Vietnam have built unique cultural values.

The cultural identity of a nation is the material and spiritual values that are permanent with that nation. It is distilled and handed down from generation to generation, reflecting and crystallizing the cultural and spiritual life of people. Those are the material and spiritual values that have been accumulated and preserved in the entire history of the nation's development. Ethnic minority cultural values manifest in all areas of social life, from ideas, feelings, conceptions, symbols, ethics, aesthetics, lifestyle to spiritual values created by people such as art, architecture, painting, music... bring to a diverse and colorful cultural picture.

Ethnic minority culture expresses the richness, diversity and uniqueness of Vietnamese culture. This is the merit and creative result of 54 ethnic minorities, a spiritual product born from the sentiments and souls of many communities residing in different geographical and natural circumstances. About the cultural identity of ethnic minorities in Vietnam, it is the richness and diversity in unity: "If the ethnic minorities in Truong Son - Central Highlands have a tradition of making famous tomb statues, has a very rich and unique set of gongs and epic epics... the Cham people in the central coast have temples, stone sculptures, and inscriptions on stone. If the Khmer people in the South have a rather large treasure of Buddhist literature, Buddhist sculpture and architecture, pagodas are cultural centers and many unique festivals, the Tay and Thai people live in the highlands in the North have beautiful stilt houses, a treasure of diverse folklore, rich in genres... But between them, there is a common feature of Vietnamese culture. All belong to a Southeast Asian cultural base. The Vietnamese are the subject ethnic minorities and have many influences on other ethnic minorities. Vietnamese culture is the core, nucleus, and cultural attraction of other ethnic minorities" [10, p.30].

The beauties in the traditional culture of Vietnam's ethnic minorities have ensured the existence and development of those ethnic minorities in history. Those beauties further clarify the unity in the diversity of the culture of the ethnic communities in Vietnam. Vietnam has 54 ethnic minorities, which are 54 colorful flowers in the cultural flower forest imbued with Vietnamese national identity. It is also an invaluable endogenous resource for Vietnam's strength in the process of national renewal, industrialization and modernization of the country, and realizing the goal of rich people, a strong country, a democratic society, and a democratic society.

2. Method

To carry out this research, theoretically, the author bases on the point of view of Marxism - Leninism, Ho Chi Minh's thought, the point of view of the Communist Party of Vietnam on the issue of ethnicity and ethnic minority culture. Regarding the scientific research method, the author uses the method of scientific inheritance from the authors who have studied before; methods of specialized research in history and methods of summarizing and analyzing information and data to give an objective view of the Party's leadership over the State in the performance of conservation management and promotion. Ethnic minority cultural value - one of the ways to ensure cultural rights of ethnic minorities in Vietnam - an important basis for realizing equality among ethnic minorities.

3. Results

3.1. The view of the Communist Party of Vietnam on preserving and promoting the cultural values of ethnic minorities in Vietnam

The Communist Party of Vietnam since its establishment (from 1930 to present), having spent more than 90 years leading the revolution and leading the country, the Party has always been aware that ethnic minority culture and culture is an important factor, an indispensable front in the cause of revolution, construction and development of Vietnam. The preservation and promotion of ethnic minority cultural values has been paid special attention by the Communist Party of Vietnam throughout the process of leading the Vietnamese revolution from its inception to the present.

The Vietnamese cultural outline was born in 1943, marking an important event in the field of culture in general and ethnic minority culture in particular. Right from that moment, the Party's position on the cultural issue was very clear with three major issues: The Cultural Front was one of the three fronts (economy, politics, culture) in which communists had to work; not only political revolution but also cultural revolution; Only when the cultural movement can be led, the Party can influence public opinion, and the Party's propaganda will be effective. There are times when the Party insists that the cultural revolution is very important, even ahead of other revolutions to bring about a comprehensive victory for the Vietnamese revolution.

Immediately after independence, before the chaos of work in consolidating and building the fledgling government, at the Conference of cadres of the Party Central Committee (from April 3 to April 6, 1947) the Resolution was issued, which affirms: "Respecting customs, promoting the capacity of national minorities" [4, vol.8, p.196].

The report of the 4th Central Committee Conference (Second session) stated: "It is necessary to support the cultural and intellectual elements in ethnic minorities so that they can carry out the task of propagandizing in their own nation, and must know how to promote the local dances and songs to entertain and educate the people, making the culture of the nations develop" [5, vol.14, p.117].

The document of the 3rd National Congress of the Communist Party of Vietnam clearly stated: "It is necessary to have a comprehensive and long-term plan for economic and cultural development in mountainous areas... In terms of culture, it is necessary to continue eradicating illiteracy and building ethnic letters in necessary places, etc. to develop national culture" [6, vol.21, p.609-610].

The Resolution of the 4th National Congress of the Communist Party of Vietnam affirmed: "Preserve and promote the good and progressive customs, traditions and cultural traditions of ethnic minorities; to lead and guide ethnic minorities to build a new way of life" [7, vol.37, p.1036].

At the document of the 5th National Congress of the Communist Party of Vietnam, our Party clearly stated: "The new culture harmoniously combines the quintessence with its own style of the ethnic brothers in the great Vietnamese national family" [2, vol.1, p.94].

At the 6th National Congress of the Communist Party of Vietnam, the Party made the point of view: "The State together with the people build the necessary material and technical

foundations for culture and art, preserve and embellish the relics of the history and culture. Completing the collection of cultural and artistic capital of the nations...” [15].

The document of the 7th National Congress of the Communist Party of Vietnam continues to affirm: “Unity, equality and mutual assistance among nations, jointly building a prosperous and happy life, while preserving and promoting the fine identity of each nation is the consistent policy of our Party and State” [9, vol.51, p.104].

At the 8th National Congress of the Communist Party of Vietnam, the Party emphasized: “Culture is the spiritual foundation of society, both a goal and a driving force for socio-economic development... conditions of the market economy and expansion of international exchanges, special attention must be paid to preserving and enhancing the national cultural identity” [16].

The Resolution of the 5th Central Committee (Session VIII) in 1998 marked the great development of culture not only in theoretical thinking but also in its practical value. The Resolution affirmed: “Vietnamese culture is the sum of material and spiritual values created by the Vietnamese ethnic community in the process of nation building and defense” [3, p.20] and “Appreciate and preserve and promote the traditional values of building and developing new cultural, literary and artistic values of ethnic minorities” [3, p.45].

In the document of the 9th National Congress of the Communist Party of Vietnam, the Party continued to affirm: “Implement well the policy of ethnicities’ equality, solidarity, mutual assistance and mutual development;... preserve, enrich and promote the cultural identity and fine traditions of the nations; implement social justice among ethnic minorities, between mountainous and lowland areas” [5, p.127-128].

In the document of the 10th National Congress of the Communist Party of Vietnam, our Party emphasized: “Develop the economy, take care of the material and spiritual life, eliminate hunger and reduce poverty, raise the people's intellectual level, preserve and promote the cultural identity, language, writing and fine traditions of the nations” [8, p.122].

The document of the 11th National Congress of the Communist Party of Vietnam clearly stated: “Continue to build an advanced Vietnamese culture imbued with national identity, preserve and promote the good cultural values of the nation, at the same time absorbing the quintessence of human culture” [17].

At the 12th National Congress of the Communist Party of Vietnam, our Party emphasized: “Improve the quality and efficiency of cultural activities. Mobilize the strength of the whole society to preserve and promote traditional cultural values of the nation;... Build a mechanism to reasonably and harmoniously deal with the conservation and promotion of cultural heritage with socio-economic development” [18].

At the recent 13th National National Congress of the Communist Party of Vietnam, the Party continued to affirm: “Focus on improving the quality and effectiveness of various cultural and artistic forms. There are plans, mechanisms and solutions to properly handle the relationship between preserving and promoting traditional cultural and historical values in human construction and socio-economic development... Paying attention to and creating conditions for the development of culture and arts of ethnic minorities” [19].

For nearly a century, in the process of leading the construction and development of the country, the Communist Party of Vietnam has always paid special attention to and focused on leading the development of the cultural field in general as well as the preservation and promotion of the cultural values of ethnic minorities in particular because this is an invaluable resource of the nation.

3.2. The Communist Party of Vietnam leads the State of the Socialist Republic of Vietnam in managing, preserving and promoting ethnic minority cultural values.

A prominent feature of Vietnamese practice over the past century has been the leading role of the Communist Party of Vietnam in the political arena, as well as in all areas of social life. This is not the will of anyone, the “impression” of a certain group of people, but an objective necessity of history and of the entire Vietnamese nation for the merits and roles of the Party in practice during the past time. As the leading force in the state and society, the Party demonstrates its leadership role through many different methods.

In this article, the author would like to present the leadership method of the Communist Party of Vietnam in preserving and promoting ethnic minority cultural values through the state because a fairly clear feature of contemporary Vietnamese society is the prominent role of the state in all fields as a force leading, regulating and performing tasks of national stature. In the field of culture in general and the preservation and promotion of ethnic minority cultural values in particular, the state has an irreplaceable role in managing national cultural issues in order to ensure advanced cultural development, imbued with national identity and sustainable according to the common goal of the United Nations. Specifically, the Party's leadership method through the state in cultural management and preservation and promotion of ethnic minority cultural values is demonstrated through a number of specific works:

Firstly, the state plays the role of establishing and orienting the development of the nation's traditional cultural values. This role is confirmed when the state distinguishes between what needs to be preserved and promoted and what is backward, outdated and counter-evolutionary in the separate traditional cultural heritage of each ethnic minority which has been specifically prescribed in the legal documents of the Law on Cultural Heritage of Vietnam.

Secondly, with a huge financial resource in hand, the state has conditions to actively invest in cultural development and preserve and promote ethnic minority cultural values. UNESCO's recommendations have stated that: Governments of countries need to invest in culture not less than 2% of total national income [11, p.28]. This is a very high requirement that not all countries can fulfill. In Vietnam, the Tenth Conference of the Central Committee of the Party (IX term) pointed out the need to gradually raise the investment rate for culture from the state budget to at least 1.8%.

Thirly, the state plays an irreplaceable role in solving cultural exchange issues and international cooperation in preserving and promoting ethnic minority cultural values. In this area, the state participates in international discussions to reach consensus on rules, standards and practices at the national and international levels in international exchanges and cooperation. In the context of international economic integration, the state adheres to the

principle of protection for the products of its cultural industry. Because a cultural product is not an ordinary good, it is first and foremost a product carrying the characteristic spiritual value of each group of people and each ethnic minority.

Forth, the state plays the role of guiding the cultural cause and preserving and promoting ethnic minority cultural values to truly become the cause of the entire people, of all ethnic minorities, of all population groups, of everyone. The people really become the creative subject and at the same time the object of enjoyment of cultural achievements and the preservation and promotion of ethnic minority cultural values.

Some results have been achieved in preserving and promoting ethnic minority cultural values in Vietnam

Firstly, the work of collecting, preserving, embellishing, restoring and promoting the value of the nation's cultural heritage has achieved many achievements, meeting the people's demand for diverse cultural enjoyment and creation. Thanks to the right guidelines and policies, 62,283 intangible cultural heritages of 63 provinces and cities have been inventoried, and 288 intangible cultural heritages have been included in the list of national intangible cultural heritages. family (including 145/288 heritages of ethnic minorities – accounting for more than 50% of the total heritage); 05 heritages in the form of spoken and written form... In the period from 2016 to 2020, there have been 3 special national relics, 8 historical - cultural relics, and scenic spots related to the ethnic minorities. ethnic minorities are ranked as national monuments; there are 126 intangible cultural heritages, 276 elite artisans are ethnic minorities [20]... tangible and intangible cultural heritages are recognized at the national, international, and international levels into common heritages of human culture; at the same time become a unique resource of Vietnam tourism..

Secondly, Equal rights among ethnic minorities have been recognized in the Constitution and reflected in the resolutions and policies of the Party and the State. The Party and State's interest in ethnic minority areas is shown in detail. The solidarity between the peoples continued to be consolidated.

Thirdly, Traditional culture, culture of ethnic minorities is focused, invested in development, making a worthy contribution to the cause of conservation, affirming the values and identity of Vietnamese culture. Many cultural movements and campaigns have achieved positive results, contributing to creating a cultural environment, protecting and promoting the fine traditional values of the nation. Culture has made an important contribution to raising people's intellectual level, democratizing social life, enhancing creative dynamism, self-control and social activeness of people.

Fourthly, international cultural exchange and cooperation activities with the region and the world have been expanded, gradually developed in depth, are stable and sustainable, contributing to the introduction, promotion and honor of culture. Vietnam, absorbing the cultural quintessence of humanity. Cultural international integration has many achievements. Many new cultural values and cultural creations of humanity have been received, contributing to enriching and improving the people's spiritual and cultural life. Many cultural events are held to honor and affirm the cultural identity of the nation.

It can be seen that, along with economic resources, natural resources, national defense - security... cultural resources and the preservation and promotion of ethnic cultural values are playing an increasingly important role, govern, influence and directly affect the development of the country.

Some limitations in preserving and promoting ethnic minority cultural values in Vietnam

In addition to the achieved results, in the past time, in leading the preservation and promotion of ethnic minority cultural values, the Party has some limitations as follows:

Firstly, cultural identities of some ethnic minorities are in danger of being deformed and lost due to the pressure of the process of industrialization and modernization; Some backward and superstitious practices tend to develop. Socio-economic changes are taking place very quickly in some areas; a part of young people who are unfamiliar with ethnic cultural traditions, pursuing ideas that are new, but in fact hybrid are a challenge for the process of preserving ethnic minority cultures. The trend of “Kính lize” is a prominent trend in the culture of ethnic minorities today.

Secondly, policies in this field are both lacking, not synchronous, following socio-economic changes, investment projects have both insufficient financial potential and lack of implementation ability when human resources are lack and weak in expertise.

Thirdly, the level of cultural enjoyment is still low and there is quite a distance compared to the plains and developed economic zones, which is a prominent issue in culture and information in mountainous provinces and ethnic minority areas. Many communes do not yet have some basic cultural and information institutions such as commune cultural post offices, commune reading rooms, commune radio stations, places for community cultural activities, limiting the ability to attract people to participate in cultural activities. Meanwhile, cultural activities from the central, provincial and district levels have been brought down to a low level due to lack of funding and ability to organize the implementation.

Fourthly, the socialization of cultural and information activities has been implemented very limitedly in the provinces with ethnic minorities and mountainous areas, still heavily subsidized in the context of the state budget for culture and preserving and promoting ethnic minority cultural values must be spread evenly for all activities.

Fifthly, the staff working on culture and preserving and promoting ethnic minority cultural values is still lacking and weak, has not met the requirements in terms of quantity and quality, there is a shortage of ethnic minority cadres in the management and professional activities.

Sixthly, some party committees have not really paid attention to identifying tasks and solutions to preserve and promote ethnic minority cultural values and tasks; The proposed solution is not suitable with local reality, lacks tasks and breakthrough solutions.

Seventhly, State leadership activities institutionalize the Party's guidelines and policies, showing that the system of policies and laws promulgated by the State is large, but in general, there is a lack of synchronization and overlap.

3.3. Strengthening the leadership of the Communist Party of Vietnam in preserving and promoting ethnic minority cultural values in the context of international integration

Firstly, raising awareness and responsibility of Party committees, key cadres, the state and local authorities and responsibilities of officials and party members from the

Central Committee to grassroots levels for the preservation and promotion of cultural values. Ethnic Minority Culture and Strengthening Party Leadership for the Preservation and Promotion of Ethnic Minority Cultural Values in Vietnam.

Secondly, renewing and improving the quality of activities of Party agencies, cadres and party members from central to grassroots levels to meet leadership requirements for the preservation and promotion of ethnic minority cultural values.

Performing synchronously, creating a clear change, correcting the way and innovating the working method; modernize offices and apply information technology to serve the activities of Party committees, ministries and branches in preserving and promoting ethnic minority cultural values; specific decentralization of responsibilities in preserving and promoting ethnic minority cultural values for localities. Promulgating professional standards and regulations of the ranks of civil servants and public employees of agencies in preserving and promoting ethnic minority cultural values.

Thirdly, formulating, supplementing and perfecting a system of policies and laws for the preservation and promotion of ethnic minority cultural values.

Completing the system of legal documents and mechanisms and policies in preserving and promoting ethnic minority cultural values in a comprehensive and synchronous manner in all areas of cultural life in line with the national guidelines, policies of the Party, State and laws of Vietnam; adjust and supplement issued policies to suit the country's development practice and international commitments to which Vietnam participates; eliminate mechanisms and policies that are no longer appropriate and hinder development.

Fourthly, building a contingent of staff engaged in cultural management, conservation and promotion of ethnic minority cultural values who are capable, qualified, and on par with their duties.

Developing standards and mechanisms for selecting and assigning leaders, managers, and consultants in the field of cultural management, conservation, and promotion of ethnic minority cultural values with sufficient capacity, qualifications and skills. quality of the job. Prioritizing the training of cultural intellectuals for ethnic minorities, ensuring preferential regimes so that they can return to work in the locality. Focus on training knowledge on management and organization of cultural activities for grassroots officials; overcome the shortage of cultural activities cadres in the localities.

Fifthly, strengthening the socialization of conservation and promotion of ethnic minority cultural values

Strengthening the Party's leadership and the State's management of culture and preserving and promoting ethnic minority cultural values, following the principle that the Party leads, the State plays a pivotal role. at the same time, mobilize the potentials and resources of all forces and sectors of society to participate in the creation, provision and dissemination of culture, and to preserve and promote ethnic minority cultural values, create favorable conditions for for these activities to develop strongly, widely, diversify actors, democratize but not commercialize the conservation and promotion of ethnic minority cultural values..

4. Conclusion

Over 92 years of construction (1930 - 2022), the Communist Party of Vietnam has always performed well its leadership role and historical mission to the Vietnamese people, especially through the specific method of state leadership materializing the guidelines and lines of the Party by policies, laws and state management activities. Since the Party led the renovation until now, the socio-economic life of the people of the country in general and of the ethnic minorities in particular has undergone significant changes. The achievements made in the past time have helped the Vietnamese people believe in the leadership of the Party more and more. People's economic life is constantly improving, which is a great influence on changes in the cultural activities of individuals as well as the community, and the trend of international integration is becoming more and more significant impact on preserving and promoting national cultural identity in general and ethnic minority culture in particular. In order to preserve and promote the cultural values of ethnic minorities, contributing to building an advanced Vietnamese culture imbued with national identity, it is necessary to synchronously implement the five solutions mentioned above in order to further improve the leadership of the Party, contribute to the construction of a developed country, a prosperous society, and firmly defend the socialist Vietnamese Fatherland./.

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MATERNITY REGIME IN VIETNAM'S SOCIAL INSURANCE AND INTERNATIONAL EXPERIENCE

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Abstract

Maternity insurance regime is one of the social insurance's regimes implemented to insure female employees' health and income while performing motherhood including pregnancy, childbirth, and newborn rearing, taking contraceptive measures. Hitherto, Vietnam has had a progressive system of laws and policies on gender equality, ensuring the rights of female workers to access the maternity benefits. However, most women face higher barriers to entering the workforce (such as those doing unpaid work after pregnancy, childbirth, and childcare period), making it difficult for women to be entitled to social security benefits. Therefore, Vietnam needs a specific, multi-dimensional strategy and international experience to improve the status and living quality of female workers today.

Keywords: *Maternity regime, social insurance, international experience.*

1. Introduction

Social insurance plays an important role as one of the main contents of social security, contributing to improving people's living quality, compensating for lost or reduced income during the working process. In the social insurance system, maternity accounts for an important part in terms of scale of implementation, specialised content and workers' needs of participation in society. However, to date, very few studies have examined the impact of maternity policy on women's health and have focused on childbirth (Dagher et al, 2014) in order to complete the maternity regime for female workers. Maternity policies can have a long-lasting effect on a mother's long-term health by preventing or alleviating the stress, difficulty, and pressure of childbirth. Several studies have highlighted that woman who have just given birth to newborns face a high risk of psychiatric disorders including depression, post-traumatic stress disorder, and postpartum anxiety (Brockington, 2004). Research by Wisner et al (2002) highlights that between 10% and 15% of mothers experience depression in the postpartum period and this may increase the risk of subsequent major depressive episodes and other psychotic disorders as they age (Hammen, 2003). Therefore, many countries around the world have conducted long-term studies to evaluate and perfect the appropriate, humane, and effective maternity regime for workers in general and female workers in particular.

In Vietnam, the maternity regime has a fairly progressive system of laws and policies on gender equality. It is very necessary for employees in general and female employees in particular to participate in social insurance in order to ensure their rights when facing risks and determine the employer's legal responsibilities, as well as when facing difficulties through mandatory financial obligation contributions. In 2007, the first year of implementation of the Law on Social Insurance, there were about 2 million turns of people

enjoying sickness benefits, 300,000 turns of maternity benefits, 750 turns of convalescence and rehabilitation benefits (CRB) (Statistical data of the Ministry of Labour, Invalids and Social Affairs). By 2018, there were more than 9.75 million people enjoying the sickness and maternity benefits, the CRB increased more than 4 times compared to 2007. It can be seen that the sickness and maternity regime has great significance for employees and ensuring its appropriateness and transparency are very important. Therefore, the payment of Social Insurance is an alternative guarantee to compensate a part of the income for employees when their income is lost or decreased due to illness, maternity, occupational accident and disease, disability, unemployment, old age, death, on the basis of a financial fund contributed by the parties participating in social insurance, under the protection of the State in accordance with the law, in order to ensure life safety for employees and their families, and at the same time contribute to ensuring social safety (Law on Social Insurance No. 58/2014/QH13).

Maternity insurance is one of the main schemes of compulsory social insurance programs along with sickness, occupational accident, and retirement insurance. This is an important policy that contributes to improving health care for employees, ensuring children's right to care and promoting a sustainable quality of life. However, besides the positive aspects that Vietnam's maternity regime has achieved, there are still some limitations when it comes to the common support framework, compared to some regional and international countries. Therefore, learning from international experience in order to complete the maternity regime will make an important contribution to creating favourable conditions for female workers so that they can feel secure while performing their maternal functions as well as to improving living quality and comprehensive post-natal support for women. Therefore, the article "Maternity regime in Vietnam's social insurance and international experience" will contribute a basis for perfecting the maternity regime, ensuring the wellbeing of female workers during pregnancy and childbirth and childcare; as well as they're not being left behind on re-entering the workplace.

2. Method

In order to provide a comprehensive picture of maternity benefits in social insurance and international experience, the main method of this paper is to review and analyse the literature. The author group uses research from some main sites such as Google scholar, libgen.rs, etc. with some key phrases: "*social insurance, maternity benefits, international experience on maternity regime*". The purpose of the literature review is to find theoretical as well as practical instructions for the author to detect and analyse the research problem. At the same time, the overview analysis of documents helps the author to synthesise the necessary information and data in order to point out the gaps in documentation, theoretical tools, and methods in order to identify new research tools and methods.

3. Results

3.1. Maternity benefits in Vietnam's social insurance

Hitherto, Vietnam has had a fairly progressive system of laws and policies on social insurance in general and maternity insurance in particular in terms of gender equality. The Law on Gender Equality was passed by the National Assembly of Vietnam in 2005, ratifying

most international conventions related to gender equality and women's rights, the most important of which is the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW). This is partly reflected through the legal system, the Constitution, and other normative documents to create opportunities for women to participate in and enjoy socio-economic development achievements. Social Insurance has been gradually expanded, thereby enhancing physical care and rehabilitation among females, and improving the life quality of female employees, especially through maternity regime, death, occupational accident and disease, unemployment, risks, or other issues.

According to the provisions of the Labor Code, male and female employees are entitled to participate and pay for social insurance equally. Participants in compulsory social insurance are those working under labor contracts of indefinite term, definite term, seasonal or specific working contract with term from 3 months to less than 12 months, including labor contracts signed between the employer and the legal representative of the person under the age of 15; labor contract from 1 month to less than 3 months and other subjects as prescribed in Article 2, Law on Social Insurance 2014. Considering maternity benefits, the Law on Social Insurance stipulates conditions for enjoying maternity benefits for both male and female employees in the following cases - pregnant female employees; female workers giving birth; female workers as surrogates and mothers asking for surrogacy; employees adopting children under 6 months old; female employees using IUDs, employees taking sterilisation measures; male employees who are paying social insurance having wives being giving birth to children. Under the sickness regime, the Law on Social Insurance stipulates that both parents are entitled to work leave to take care of their sick child if the child is under seven years old. The revised Labor Code in 2012 introduced many advanced regulations to protect the health of mothers and children according to CEDAW principles to protect the reproductive health of women, mothers and children, and at the same time create opportunities for babies of breastfeeding in the first 6 months.

In particular, the Labor Code was approved by the 14th National Assembly of the Socialist Republic of Vietnam, 8th session, on November 20, 2019, and the President signed the proclamation Order No. 08/2019/L-CTN December 3, 2019; Effective from January 1, 2021, replacing Labor Code No. 10/2012/QH13. Accordingly, Chapter X of the Labor Code with 8 articles From Articles 135 to 142 presents separate regulations for female employees and ensures gender equality. The content of the articles focuses on the State's policies, the responsibilities of the employer, the rights and interests of the pregnant and child-rearing employee, etc. Accordingly, regulations for pregnant and child-rearing female employees in the 2019 Code inherits a number of provisions of the 2012 Labor Law, emphasizing the views and policies of the Party and State on women and gender equality. When developing the maternity leave regime, Vietnam has shown the importance of legal policies and laws on Gender Equality when approaching most of the Convention on Prenatal Protection, 2000 (No. 183) along with the Recommendation on Prenatal Protection, 2000 (191). Convention 183 extends coverage to all women, regardless of job and type of business including dependent work and increases maternity leave to 14 months. Convention 183 is an important document aimed at protecting the health and well-being of a large number of female workers

and their children around the world. Although Vietnam has not ratified Convention 183, its domestic law has met most of the Convention's requirements.

When it comes to benefits of prenatal and postnatal care, health protection of female employees, Maternity Insurance also emphasizes that it is not allowed to handle labor discipline for pregnant female employees, employees taking maternity leave, female employees raising children under 12 years old. Clause 3, Article 37 of the Labor Code 2019 stipulates that an employer is not allowed to exercise the right to unilaterally terminate a labor contract with a pregnant female employee, an employee who is on maternity leave or raising a child under 12 months age. In order to ensure employment and health for female employees after giving birth, Article 140 emphasizes that, after the employee takes maternity leave, he/she can secure his/her current job without any reduction in salary, rights and benefits compared to these before maternity leave. In case the previous job is no longer available, the employer must arrange another job with a salary at least equivalent to the previous job. However, Article 142 also stipulates occupations and jobs that adversely affect reproductive function and child rearing. According to the 2019 Labor Code, the Minister of Labour, Invalids and Social Affairs promulgates a list of occupations and jobs that adversely affect reproductive function and child rearing for both men and women. Employers offering jobs on this list are obliged to provide full information on the dangerous nature, hazards, requirements of the work and to ensure the occupational safety and health conditions according to the regulations. These regulations show an improvement in gender equality in Vietnam, contributing to upgrading the quality of life, children care and women's health.

3.2. The international situation of applying maternity insurance

At its 35th Session, the General Conference of the ILO was convened by the Governing Body of the International Labour Office in Geneva on June 4, 1952, after deciding to accept a number of proposals on minimum legal norms on social security, on June 28, 1952, the ILO adopted Convention No. 102 - Convention on Social Security (Minimum Standards), marking an important turning point in social insurance in the world. Accordingly, Convention No. 102 on social insurance includes 9 regimes related to social insurance, including medical care; sickness allowance; unemployment benefits; old age allowance; occupational accident or occupational disease allowance; family allowance; maternity allowance; disability allowance; survivor's allowance. In particular, ILO Convention 183 has shown comprehensiveness when it comes to maternity insurance policies and has been participated and studied by many countries around the world. Each country participating in the Convention, depending on socio-economic conditions in each specific historical period, when implementing social insurance in general and maternity insurance in particular, has the right to implement recommendations to different degrees.

Up to now, many countries around the world have also developed maternity regimes based on different studies and criteria. Many studies look at how maternity benefits affect mental health. The results of studies of changes of enactment of maternity leave legislation with time in European countries (Gornick and Meyers, 2003), across a variety of different approaches, have provided evidence of an impact of paid maternity leave time around the

birth of the first child on end-of-life depression. End-of-life depression is a growing public concern. The Global Burden of Disease Report ranks major depressive disorders as the second leading cause of disability (Ferrari et al., 2013). In the United States alone, depression costs \$83.1 billion in economic costs (Greenberg et al, 2003). The prevalence of end-of-life depressive symptoms in European women ranges from 18% to 37% (Castro-Costa et al, 2007). Depression leads to impaired social functioning, decreased quality of life, and an increased risk of health problems (McCall and Kintziger, 2013).

Many countries around the world have made progress in changing eligibility criteria for social insurance programs, including informal workers. For example, Latin America has made notable progress in providing informal workers (primarily domestic workers but some other informal groups) with maternity protection. In Brazil, rural workers and domestic workers were granted maternity leave in 1991. Chile and Costa Rica also granted maternity leave to temporary workers. In Salvador, the government launched a national campaign in 2011 to extend maternity protection benefits to uninsured domestic workers, with the goal of covering 27,000 domestic workers in five years (25%) (ILO 2014b). The program includes the provision of a maternity cash benefit with 100% wages covered for 12 weeks, plus access to outpatient health care services for workers and children under 12 years of age. The program is organized based on monthly voluntary contributions by both callers and employers who are provided with income tax breaks in order to promote adoption rates (ibid.). In the case of health insurance, national governments have expanded social insurance coverage by retreating from voluntary programs, which have proven difficult to get participation.

In general, female workers in the formal and private sectors are better off than those in the informal sector because they often have access to statutory social security schemes, such as health care or retirement benefits. Even so, multifaceted gender inequalities are also prevalent in such systems, with women primarily suffering the negative consequences. Female participation rate in the workforce in ASEAN is much lower than male counterparts. According to the ILO, 81.8% of the male working population participates in the labor market in Southeast Asia compared with 58.8% of women. In addition, women are often paid lower wages, face more barriers to enter the workforce, and are more prone to layoffs after having children and taking maternity leave, retiring earlier, or working at home with no salary. These factors are crucial to women's right to social insurance, especially when benefits are based on contributions accumulated during work (e.g., pension). In addition, benefits may not meet the needs of target groups, especially given the limited number of maternity benefits, mothers are made to return to work earlier than recommended.

3.3. International experience on designing maternity regime in social insurance

The majority of women of working age in Southeast Asia are shorter than men and often receive lower wages. In addition, women face higher barriers when entering the workforce, such as after spending time with pregnancy, childbirth and childcare, doing no-paid housework. This makes it difficult for women to participate in social security benefits. Therefore, Southeast Asian countries have been pursuing complementary strategies to increase social protection for female workers, ensuring female workers have access to social insurance programs in general and maternity insurance in particular.

It can be seen that in the process of completing the maternity regime, countries in the ASEAN region have also shown their efforts in accessing benefits based on the CEDAW convention. Under the maternity regime in Brunei, the 2011 Maternity Leave regulation emphasizes measures to coordinate the needs of mothers pre and after birth, and to take care of mothers' health; at the same time emphasizes an increase in maternity leave from 56 days to 105 days. Regulations on maternity leave will also be extended to the private sector. In Malaysia, it is emphasized that female employees are entitled to a maximum of 300 days of maternity leave during the working period, in which the employee has the right to be flexible in determining the period of maternity leave from 60 days to 90 days to prepare for giving birth. Female employees are also entitled to unpaid leave of up to 1,825 days (5 years) during their employment under the Public Service Circular on Child Care Leave which was effective on September 3, 2007. According to government directives, some private companies such as domestic and foreign banks, through a collective agreement with the National Association of Bankers (NUBE) have extended the period of Paid Maternity Leave from 60 days to 90 days, effective August 10, 2010. Maternity regime in Singapore found that women who quit their jobs because of postnatal care responsibilities may have difficulty returning to the workforce. The Government has partnered with a labor movement to introduce a program called "Back 2 Work With U" to: (i) Support women to enter or re-enter the workforce through recruitment events such as job fairs; (ii) Enhance women's employability by providing training opportunities; and (iii) Help women continue to participate in the workforce by promoting integration between work and life. Maternity regime in Thailand ratified ILO Declaration of Fundamental Principles and Rights at Work, stipulating maximum working hours, revising non-conforming work categories to allow women to work jobs that are not harmful to health. Under the national health coverage program, all people have access to free medical services, including antenatal care. Establishing a women-friendly environment at the micro level or at the workplace such as promoting the establishment of workplace and industrial childcare centres to share responsibility for childcare supports women's participation in the market.

In some developed countries like the US, maternity leave is 3 months and unpaid. IOM's milestone 2001 report, named *Overcoming the Quality Pit*, called for a fundamental redesign of the US healthcare system. The report provides a sound framework for improvement across six aspects of care: An ideal maternity care system that protects, promotes, and supports physiological childbirth and experiences optimal for women giving birth based on shared decision-making and respect for informed choices; provide coordinated, evidence-based care and follow ongoing performance measurement and quality claims; and promote a satisfying work environment for his or her caregivers. In Germany, since the mid-1950s, working mothers are entitled to a paid leave of six weeks before and eight weeks after childbirth, during which they are not allowed to work. During this so-called 'mother protection period', women are guaranteed not to be fired and, when they return to work, they have the right to be placed in a job equivalent to their previous job. The benefits during this period correspond to a 100% replacement rate and are equivalent to the average income of women in the three months before childbirth. This pre-reform setting is, to some

extent, comparable to the current maximum of 12-week unpaid and job protected leave in the US (under FMLA), and a minimum of 14 week of paid leave with job protection in the EU. Specifically, female employees are entitled to a total of 14 weeks of maternity leave, 6 weeks before giving birth and 8 weeks after giving birth. Maternity leave is divided into maternity leave of the mother and parental leave of both parents, the longest period of leave lasts until the child turns 3 years old, including 1 year of paid leave.

The Swedish maternity system emphasizes maternity leave that lasts several years and is divided between both parents. Female employees are entitled to a 7-week leave before the due time, and both parents are allowed to stay at home to take care of their children until the child is 1 and a half years old. When the child turns 8 years old or finishes primary school, parents can get a $\frac{1}{4}$ reduction of the working time, both parents can receive 480 days of allowance, whose amount is equivalent to 80% of the actual income before taking leave. In addition, a number of other developed countries have also shown interest in gender equality in improving the quality of maternity insurance for female workers. In the UK, a pregnant woman can take 26 weeks off, 11 weeks before her due date and her husband can take 2 weeks, the first week receiving basic salary and the second week receiving government allowance. In case the wife does not take full maternity leave and has returned to work, the husband can continue to take the wife's leave. In Denmark, each couple is entitled to a total leave of 1 year when giving birth. Accordingly, the mother's leave is 18 weeks and the father's are 2 weeks; The remaining 32 weeks are divided equally between the couple. In Canada, women giving birth are entitled to 17 weeks of leave and the leave will be extended to 35 weeks divided by both parents. The government also provides a monthly allowance to help families raise children under the age of 18. Similarly, in France, postpartum women are entitled to 16 weeks of leave and receive 100% of their salary; The husband is also entitled to 11 consecutive days of leave after his wife's childbirth. The mother is also allowed to take leave and reserve her job and income for up to 3 years to stay at home for the sake of childcare and receive childcare allowance and other allowances. Agencies and enterprises will not be allowed to fire female employees after their giving birth...

4. Discussion and Conclusion

Maternity benefits are a great source of income, as family costs increase dramatically when babies are born. Therefore, maternity insurance is an essential support for a mother's physical and psychological health. From a broader societal perspective, the economic costs of childbearing should not be disproportionately borne by women and families, but should be shared among families, employers, and society in general. Compared with many countries in the world, Vietnam has a fairly progressive system of laws and policies on gender equality, ensuring the rights of female workers to access the maternity regime. Accordingly, the Law on Social Insurance has many advanced regulations related to gender equality, considering the care and protection of the rights of men and women. It can be seen that the maternity regime in social insurance has introduced many advanced regulations to protect the health of mothers and children according to CEDAW principles. However, to build a more complete maternity regime, Vietnam also needs to refer to the experience of international countries.

Maternity insurance in social insurance has an important meaning to increase the participation of female workers in the labor market and protect women's rights and interests during working time and after maternity leave. International experience in building maternity regimes of countries in the ASEAN region and outside ASEAN shows that the distribution of maternity benefits is uneven across countries. In some developed countries such as the US, the maternity regime for female workers has not been presented equally and comprehensively. However, in some other developed countries such as Sweden, Denmark, UK, Germany... and countries in ASEAN such as Singapore, Thailand, maternity regime is implemented based on international criteria and has recorded many achievements. Maternity insurance will encourage employers to employ women, as a result, promoting the role of women in the labor market. However, unequal care and responsibilities within the family have great impacts on access to and benefit from social insurance programs in terms of women's ability to contribute financially to programs when they do not participate in the labor market, as well as other issues such as the time involved in the application and insurance claims processes. Therefore, while it is important to recognize and value the reproductive role of women, it is also important to support paternity or paternity leave (UN Women, 2015). This requires comprehensiveness in the introduction of measures to promote gender equality more broadly (UN Women, 2015). Several insurance plans, including microinsurance services, have attempted to address women's time constraints by providing geographically close service and investing in distribution mechanisms, such as using agricultural extension agents and field staff, to support women in the application and insurance claim process... Therefore, with an aim of building a comprehensive maternity regime, ensuring gender equality and especially protecting female workers during pregnancy, childbirth and child-rearing, Vietnam needs a specific strategy, multi-dimensional approach, and international experience to improve the status and life quality of today's female workers.

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BASIC FUNCTIONS OF STATE MANAGEMENT OF THE ECONOMY IN THE SOCIALIST-ORIENTED MARKET ECONOMY IN VIETNAM TODAY

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Abstract

In building a socialist-oriented market economy, the State plays a particularly important role. The State must perform economic management functions both to ensure that the economy operates according to the market mechanism in a correct and effective manner, but at the same time always maintain the socialist orientation in the country development and economic growth. Researching and clarifying the functions of state management of the economy in the socialist-oriented market economy; Achievements and limitations in the process of performing these functions are extremely necessary and meaningful because this is the basis for the Party and State to develop solutions to improve and better implement these tasks this function, thereby improving the capacity and effectiveness of state management of the economy in our country today.

Keywords: *Socialist state, function, market economy*

1. Introduction

The state's function in managing the market economy is the most general activities that the state must perform to achieve the set goals, answering the question: What must the state do? The specific content of the state's functions in the management of the market economy is not fixed but has been mobilized and developed to suit the objectives and requirements of the periods. Under specific conditions, due to changes in goals and socio-economic conditions, the roles and priority order of functions may have certain changes little change. The 12th Party Congress also affirmed: "The State plays the role of orienting, building and perfecting economic institutions, creating an equal, transparent and healthy competitive environment; use tools, policies and resources of the State to orient and improve the economy, promote production and business and protect the environment; implement social progress and justice in each step and development policy". The 13th Party Congress affirmed: "The socialist-oriented market economy is the general economic model of our country during the transition to socialism. It is a modern economy with international

integration, fully and synchronously operating according to the rules of the market economy, under the management of the socialist rule of law state, led by the Communist Party of Vietnam leadership, ensuring the socialist orientation for the goal of rich people, strong country, democracy, justice and civilization"²⁰².

2. Method

The article uses document collection methods, document reading and data analysis, synthesis, comparison, generalization, take into consideration

3. Results

3.1. The role of the state in managing the market economy

The function of state management of the economy in our country today according to the requirements of serving political and socio-economic tasks of each period, the prioritization and the specific content of the functions subject to change, specifically:

Firstly, the function of creating the environment and conditions for business activities

Creating a business environment and creating favorable conditions for business activities is one of the basic conditions for promoting the strong development of the market economy. The business environment is the necessary conditions for individuals, organizations and businesses to feel secure, trust and willing to invest capital in business. Historically, according to J.B. Say (1766-1832) upholding the role of the state in creating a favorable environment for wealth, he said that the state only stopped at the level of ensuring social welfare (constructing public works) public works or preserving security and sovereignty). Therefore, such conditions can only be made and guaranteed by the State. Through the law and policy system, the State creates a safe legal corridor, encouraging all individuals and organizations to freely do business in all fields not banned by the State. The Resolution of the 13th Party Congress sets out three strategic breakthroughs suitable for the new period, in which the first strategic breakthrough is: "To perfect synchronously the development institution, first of all the development institution socialist-oriented market economy Renovating national governance towards modernity and effective competition Focusing on prioritizing perfecting synchronously, having quality and well organized implementation of the legal system, mechanisms and policies, creating a favorable, healthy and fair investment and business environment for all economic sectors, promoting innovation and creativity; effectively mobilizing, managing and using all resources for development, especially land, finance, public-private cooperation; promote decentralization and decentralization in a reasonable and effective manner, and at the same time strengthen inspection, supervision and control of power through the legal system the law"²⁰³.

With the supreme and unifying power given to society by society, only the State is able to build and ensure a favorable and equal environment for production and business

²⁰² Communist Party of Vietnam (2021), Documents of the 13th National Congress of Deputies, Volume 1, National Political Publishing House Truth, pp.128

²⁰³ Communist Party of Vietnam: Document of the 13th National Congress of Deputies, Volume II, National Program Publishing House ST, H., 2021. pp. 337-338.

activities, while also ensuring the environment. the right environment for the new mechanism that is forming, developing and bringing into play. This function of the State is performed specifically as follows:

- Building a stable political environment, really promoting the resources and creativity of the people and businesses.

- Building a stable legal system, creating a favorable legal environment, suitable for the development of the market economy and international integration.

- Build and perfect infrastructure for the economy to move and develop smoothly, including traffic systems, roads, railways, airways, electricity and water, cultural and communal infrastructure associations, information infrastructure...

- Building and perfecting the information environment. The State must be the center that provides the most reliable information for businesses on a regular, timely and accurate basis...

- Building a cultural and social environment suitable for the market economy.

- Ensuring the security of property and life for the production and business world by effective means and forces of the State.

Second, the function of guiding the development of the entire economy

This can be seen as the most important function of the State in managing the economy. In fact, most of the instability of countries in the current context, especially for developing countries, comes from the weakness and limitations of the state in orienting the economy. The State determines the direction and direction for the development of the economy on the basis of perception and application of objective laws and also on the basis of the socio-economic development goals set by the country. .

For the process of developing the market economy in our country today, the guiding function of the State is especially important because this is a prerequisite for the economic development process not to deviate from the socialist direction. That also means determining the ultimate goal of economic growth and development is to improve and enhance the material life of the people towards the realization of the common goal of socialism as the people rich, strong, democratic, fair and civilized country. Thus, in this function, the main responsibility of the State is through tools such as strategies, planning, policies, plans, information and resources of the State to guide business people economic organizations operating in line with the common goals of the country.

Third, the organizational function of managing the economy

With this function, the State must carry out specific and direct activities for the economy in order to create a regular and synchronous management framework, create and maintain a reasonable economic structure, ensuring the stable development of the macro-economy. Specifically, the State needs to perform the following tasks:

- To rearrange and re-organize economic units, of which the most important and urgent is to rearrange and strengthen state-owned enterprises, to organize economic zones, industrial parks, and export processing zones to create a reasonable economic structure;

- Reorganize the management system, rearrange the state management agencies in charge of the economy from the central to the grassroots level, renovate institutions and administrative procedures, train and re-train, re-arrange the staff the ministry of civil servants in state management and enterprise management;

- Ensuring major balances of the market economy such as total supply - aggregate demand, export - import balance, budget revenue - expenditure balance, etc., ensuring macroeconomic stability of the economy market;

- Establishing economic relationships with countries and international organizations....

Fourth, the function of regulating the economy

While operating the socialist-oriented market economy, the State must both comply with and apply the objective laws of the market economy in order to promote the positive aspects of the market mechanism, at the same time must use the tools of their power to regulate the activities of the national economy according to the orientation of the State, ensuring the stable, fair and efficient development of the economy. To regulate the economy, the State must use a series of measures including:

- Developing and implementing a policy system with policy impact tools: financial, monetary, income and trade policies;

- Supplementing goods and services to the economy in necessary cases: the private sector cannot or does not want to do it (especially in the field of providing public services);

- Support people to set up economic business: Build preferential investment banks, develop and implement the production and business insurance regime...

Fifth function check, control

In fact, the State's inspection and control function in a market economic order is especially important, especially for a newly developed, primitive market economy with many phenomena negative, disorderly and spontaneous development in many areas as in our country today. The State performs this function in order to establish order and discipline in economic activities, detect and prevent phenomena of law violation and policy violation, and protect national property and interests of the State people, contributing to economic growth and gradually realizing social justice. In order to ensure compliance with the law, protect public assets, overcome defects of the market economy and create a healthy competitive environment for state business and production activities, it is necessary to strengthen inspection work, control. The main content of this function focuses on the following tasks:

- Inspect, control and handle violations in the activities of market participants in the implementation of the State's guidelines, policies and laws on the economy;

- Inspect, control and handle violations in the activities of the State's economic management agencies and officials and civil servants.

At present, the State's functions must demonstrate and ensure that it is truly a constructive State, that the State serves businesses and the people. The State must encourage, support, protect and protect the economic entities, for the people to do business in accordance with the law.

3.2. The actual situation of performing the function of state management of the economy in the socialist-oriented market economy in our country over the past time

**** Achievement***

In recent years, the implementation of state management functions on the economy in the development of a socialist-oriented market economy has achieved many remarkable achievements. Specifically:

Firstly, the State's management and administration of the market economy is more and more realistic and effective. Basically, the State has established a legal framework to ensure the management of the economy based on law in all fields. As a result, it has partly created a stable, equal and safe business environment, contributing to encouraging all individuals and organizations in all economic sectors to confidently participate in investment, production and business, promoting strong economic growth. In addition, the State has also implemented a series of specific policies to effectively support production and business activities.

The economic orientation function of the State has always been maintained and implemented more and more effectively. As a result, the goal of socialist orientation for the entire economy at each specific period is always maintained; businesses and entrepreneurs in the economy get a complete overview of the overall national economy, the country's general economic development strategy, the movement trend of the economy, of the market... so that they can actively plan their own activities, avoid losses, failures, breakdowns, and general damage to the economy.

The State's economic organization and management function has also achieved many great achievements: The government structure is becoming more and more compact; The functions, tasks and organizational structure of State agencies from central to local levels are adjusted and arranged appropriately, ensuring better and better state management of the economy in the new conditions. Administrative procedures and operations of state administrative agencies are renewed; the contingent of cadres and civil servants in the state management of the economy has been increasingly strengthened. The rearrangement and reorganization of important sectors, fields and economic zones, including state-owned corporations, corporations, state-owned enterprises, industrial parks and export processing zones, has many steps. Thanks to that, the economic structure is changing in a more and more reasonable direction. The process of international economic integration is accelerating we are increasingly expanding and establishing economic relations with many countries and territories around the world as well as signing more and more bilateral agreements multilateral and multilateral in the economic field...

The use of economic management tools (mainly fiscal policy, monetary policy) to regulate the market economy instead of administrative interventions has made much progress relatively stable economic development. Basically, we have maintained our strategic goals in developing the national economy, maintaining macroeconomic balances, stabilizing and developing the economy, and partly responding to and reducing minimize the negative effects of the economic cycle...

Second, the State's function of checking and controlling the economy is also being performed better. As a result, in many cases, the State has timely: detected and prevented mistakes of market participants; ensure the strictness of the law in economic development; protect the national property and resources and the people's interests; maintain the confidence of the government and foreign investors in the purity and fairness of the domestic economy...

The fact that economic achievements have been achieved after more than 30 years of conducting the renew process is the clearest proof that the State has been performing well its economic management functions to a certain extent. As a result: The economic growth rate, in general, is constantly being improved; The size and potential of the economy continues to increase; The structure of economic sectors continued to shift towards promoting the potentials of all economic sectors: State-owned enterprises were rearranged, renewed and reorganized, contributing 38.4% of GDP, dominating many industries key economic sectors and focus more on key sectors of the economy. Private enterprises develop quite quickly, operate effectively in many fields, contribute 45.7% of GDP make an important contribution to socio-economic development, especially in job creation and improvement improve people's lives; The structure of industries and fields has changed markedly in the direction of industrialization and modernization, the proportion of industries and services has continuously increased; The economic structure of the region has been adjusted in the direction of bringing into play the advantages of each region, key economic zones, industrial zones, economic zones and specialized production areas for crops and livestock are developing quite well rapidly, making an important contribution to the growth of the economy; Total social investment as well as the ratio of social investment capital to GDP increased continuously and remained at a high level; Economic growth is always associated with progress and social justice in every step of development, people's average living standards are raised, social security is increasingly expanded: the proportion of investment from the bank State budget for social security accounts for about 28%/year. Resources mobilized from the community, individuals, businesses, economic organizations, social organizations and international cooperation for social security account for about 30%; International economic integration is deepening: in terms of bilateral cooperation, Vietnam has established diplomatic relations with 170 countries around the world, expanded trade relations, exported goods to over 230 countries and territories, signed over 90 bilateral trade agreements, nearly 60 investment promotion and protection agreements...; Regarding multilateral and regional cooperation, Vietnam has a positive relationship with financial and monetary institutions such as the Asian Development Bank, the World Monetary Fund, the World Bank, etc²⁰⁴

²⁰⁴ See Dinh The Huynh, Phung Huu Phu, Le Huu Nghia... (Co-editor): 30 years of innovation and development in Vietnam, National Political Publishing House, Hanoi 2015, p. 102-112.

* Limit

In addition to the achievements, the process of performing state management functions on the economy also has many limitations and shortcomings. Specifically:

The State has not really created a business environment to ensure fair and healthy competition among enterprises of all economic sectors. There is still a ask-for-give mechanism and "favours" for state-owned corporations and enterprises, which should create a virtual environment for these businesses. The legal system, infrastructure system, information environment, socio-cultural environment... suitable and serving the development of a socialist-oriented market economy still have many shortcomings really make new entrepreneurs feel secure to invest capital and develop business smoothly and stably.

The state's function of guiding and directing the economy has not really taken effect: The investment is too large for the state economic sector with the expectation that this economic sector will become the core of the economy, leading the remaining economic sectors to follow the socialist orientation did not bring the expected results. Strategies, master plans and plans for economic development by industry, region, and product have many unreasonable points. Policies to support and encourage industries and fields that are beneficial to the strategic goals of the economy as well as to limit unprofitable sectors and fields are slowly promulgated...

The organization of the state management apparatus is still heavy, the relationship of assignment and cooperation is not clear and there are still many obstacles; corruption, wastefulness, bureaucracy, and fragmentation are still serious; State cadres and civil servants still have many limitations in terms of qualifications, capacity and quality, not commensurate with the requirements of their tasks.

The use of macroeconomic management tools to regulate the economy is still formal, legal and imposed. The decentralization and decentralization of management authority in the system still have many shortcomings and problems. Regulation of budget revenue and expenditure, regulation of money circulation, regulation of savings - investment, regulation of export - import balance is still limited...

State inspection and control in economic development is not comprehensive, unified, and lacks publicity and transparency; There are still many loopholes in the supervision mechanism of economic groups, creating abuses of power by corporations; the strictness of the law at many times and places has not been guaranteed; detecting and handling violations in the operation of agencies and officials and civil servants in economic management of the State is still limited...

In general, the effectiveness and efficiency of state management of the economy has not met the requirements of developing a socialist-oriented market economy, has not brought into full play its positive aspects, and has limited spontaneity negative, defects of the market economy. Because of that, in recent years, our country's economy has faced many difficulties and challenges. The macro-economy is stable but not yet firm; economic growth is fast but not sustainable; the economic structure's transformation is

still slow; human resources and infrastructure for economic development have not been synchronized; laws, mechanisms and policies for economic development are few but overlapping and contradictory in many places; the distribution mechanism is still unreasonable; resource allocation is still spread; International economic cooperation has only grown in breadth, not really in depth....²⁰⁵

Thus, it can be affirmed that the 13th Party Congress, on the basis of summarizing 35 years of national renewal, especially from the 9th Congress (2001) up to now; 10 years (2011 - 2020) of implementing the socio-economic development strategy and more than three years of implementing Resolution No. 11 - NQ/TW dated June 3, 2017 of the 5th Plenum of the 12th Central Committee, added, raise the level of guidelines, viewpoints, tasks and solutions to complete and improve the quality of institutions to develop the socialist-oriented market economy fully, synchronously, modernly, and integrate... These views, tasks and solutions come to life, on the basis of a deep grasp of the contents, a unified perception and action of the entire Party, people, army and political system with high and decisive political determination, the National Assembly's Party Committee directed the development and completion of the legal system and supervised the implementation. The Government Party Committee shall direct the formulation and organize the successful implementation of action plans, strategies, master plans and plans, ensuring the promotion of advantages and effective use of all resources for the country rapid and sustainable development.

In order to do well the set goals, first of all, re-perceive the roles and functions of state management of the economy, and perform well the assignment and decentralization in the performance of functions. Continuing to be aware of the role and function of state management of the economy in the socialist-oriented market economy, clearly distinguishing it and placing it in relation to the functions of the market, the function of enterprise; Secondly, well handle the relationship between the leadership of the Party and the State management of the economy, between the management of the State and the business administration of enterprises. It is necessary to be aware of and clearly distinguish between the leadership function of the Party and the function of state management of the economy; Third, well implement the principle of democratic centralism in the state management of the economy; Fourth, concentrate all resources to well implement three strategic breakthroughs: perfecting the socialist-oriented market economy institution; building infrastructure systems and improving the quality of human resources. Fifth, improve the quality and efficiency of international integration, promote the application of the results of the fourth industrial revolution; Sixth strengthen inspection and handle

²⁰⁵ See Dinh The Huynh, Phung Huu Phu, Le Huu Nghia...(Co-editor): 30 years of innovation and development in Vietnam, phone number, p. 122-123.

violations. Strengthen inspection, supervision, preliminary and final review; promptly detect and properly deal with major, important and complex socio-economic problems of the country. Strengthen coordination and control of power between the legislative, executive and judicial branches; Saturday reforming state governance, building a constructivist State. Renovating the mode of state governance; properly and fully perform the State's functions in the market economy. Managing the economy not only ensures short-term goals, but also aims to realize medium and long-term goals. Improve analytical and forecasting capacity, especially strategic forecasting. To fundamentally and comprehensively renovate the formulation and implementation of socio-economic development master plans and plans, public investment and public finance really according to the market mechanism, to overcome the situation of "please - give", subjective, will-only.

4. Discussion and Conclusion

During the renovation period, our country changed from a centrally planned and subsidized economic model to developing a socialist oriented market economy. This is a completely correct policy of the Party to create the impetus to bring our country out of the serious socio-economic crisis in the 80s of the twentieth century. This transformation of economic model also means that it is necessary to fundamentally renew the function of state management of the economy.

The economic management functions of the State in the process of developing the socialist-oriented market economy in our country today are specifically expressed in such points as: The State orients the economic development - society by means of economic development, strategic forecasting, planning and planning. The state establishes order for the economy by means of a legal system and sub-law documents. The State creates conditions and environment for production and business; First of all, maintaining a stable political environment, creating trust as well as ensuring the safety of businesses' operations. The State regulates through policies and macroeconomic instruments such as stabilizing the currency, controlling inflation, balancing the balance of payments domestically and internationally ensuring sustainable and stable economic growth. The State builds infrastructures such as transportation and communication systems and invests in training human resources for economic development. In the past time, besides the achievements, the process of performing the state management function on the economy still has many limitations and shortcomings. This is one of the basic reasons why our country's economy has not achieved the goals set by the Party and State. On the basis of studying the actual state of performing the function of state management of the economy in the socialist-oriented market economy with all its achievements and limitations, the Party and State should continue to build a system of solutions to improve and better perform these functions. This is also a prerequisite for our country's economy to grow rapidly, stably and sustainably, and to keep the socialist orientation in the process of development.

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**PART 7:
SOCIAL AND HUMANITIES ISSUES**

THE DIFFERENCE IN IMPLEMENTATION OF INNOVATIVE WORK BEHAVIOR AMONG DEMOGRAPHIC GROUPS IN VIETNAM

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Abstract

Innovative work behavior, which is an essential part of supporting individuals in finding and coming up with new and unique ideas for the organization, is the key to improving work productivity and creating a competitive advantage. Each employee with a distinct personality trait, however, shows different levels of efficiency. Therefore, this research aims to study and point out the difference of demographic variables on employees' innovative work behavior in Vietnamese organizations. To draw an accurate conclusion, the authors conducted a survey among 397 employees working in many types of organizations in Vietnam. The research has determined that gender, age, and income are three variables that make differences in the implementation of innovative work behavior of employees in Vietnam. Based on the results, recommendations are made to assist organizations in developing appropriate recruitment, selection, and training plans.

Keywords: *Innovative work behavior, demographic, Vietnam*

1. Introduction

The world is increasingly developing thanks to the guidance of Industry 4.0, and the strong impact of the Covid-19 pandemic on the global social economy requires organizations to adapt fast. The need for change is also climbing due to the rapidly increasing competition. The more severe the competition is, the more unique the organization has to be to overcome the rivals. And to have that uniqueness, organizations must carry out the process of continuous innovation, improving old ideas and developing new ones.

Innovation is considered the most fundamental element to the success and survival of every enterprise (Abbing, 2010). Apart from gaining competitive advantages, innovation

helps boost their work efficiency. This allows them to easily reach more customers and build market dominance. To public organizations, innovation helps strengthen and complete the mechanism, and it helps them work more effectively. Innovation also aids organizations to utilize their strengths and improves their weaknesses.

Various researchers found that innovative work behavior of employees is one of the main factors in contributing to the organization's modernization and work efficiency enhancement (Janssen, 2000; Mumford, Scott, Gaddis, & Strange, 2002). Individuals with innovative work behavior tend to be more creative and they dare to propose to apply it in practice (Janssen, 2000).

However, each individual has their own traits, so do their innovative mindset and creativity. (Tuominen & Toivonen, 2011) showed that each employee has a different skill level regarding innovative work behavior. (Ng & Feldman, 2013), for example, reported about the impact of age and seniority on innovative work behavior. They realized that to a certain extent, age and seniority do have a positive effect on the learning process and the acquiring of suitable skills for the job. This shows that different characteristics among individuals can influence Innovative work behavior considerably.

Personal traits play an important role in the employees' innovative work behavior. Yet, they have not been studied deeply enough, especially in Vietnam. For that reason, this research observed the difference in implementation such as gender, religion, age, organizations, income, education levels, on innovative work behavior of employees in Vietnam.

2. Literature Review

The term innovative work behavior has been concentrated on by scholars since the nineties of the last century. When the research of West and Farr (1989) was published, they defined that innovative work behavior is the deliberate launch and implementation, in a function, group, or organization, of ideas, processes, products or procedures, new to the relevant unit of approval, designed to crucially advantages the individual, the group, organization or the larger society. After this definition, a series of other definitions and research works of multiple scholars have been developed, including the study of Scott and Bruce (1994). They argued that innovative work behavior is a behavioral complex consisting of three behavioral components: idea generation, idea marketing, and idea execution, along with this, they also built a one-way scale with 6 items.

Janssen (2000) followed the point of Scott and Bruce (1994) and clarified that innovative work behavior is defined here as the deliberate creation, launch and implementation of new ideas in a work function group or organization, in order to advantages role performance, the group, or the organization. Furthermore, Janssen is the first researcher who tried to develop a multi-dimensional scale (nine items) using both his own and others' ratings of innovative work behavior.

The research work of Jassen was quickly reviewed and widely accepted by later scholars, such as De Jong and Den Hartog (2007) with their definition of innovative work behavior, which consists of individual behaviors, such as exploring, generating, championing, and implementing creative ideas. Tuominen and Toivonen (2011) interpreted

innovative work behavior as innovation and activities that create change. In other words, innovative work behavior is all activities that aim at contributing to the creation and utilization of beneficial novelties in an organization.

Thus, innovative work behavior is often described as a type of extra-role behavior at work that is necessary for organizations to survive (Tuominen & Toivonen, 2011), with innovative work behavior, employees would contribute to the innovation and development of the organization. However, each person belongs to a different demographic, which then impacts their ability to innovate (Amabile, 1988; George & Zhou, 2001).

Rogers Everett (1995) analyzed demographic impact on innovativeness and concluded that the early adopters group is usually younger, better education, higher income, low dogmatism. Recently, Soni and Bakhru (2019) studied the impact of demographic factors on innovative work behavior and found that age and education levels both have an impact on innovative work behavior. While, Korkmaz (2020) demonstrated that there are differences in innovative work behavior implementation among different groups of people in terms of experience in different fields, age and education levels.

Although there are many previous studies that realized the connection between demographic factors and innovative work behavior, in the context of Vietnam, it is really limited and no research has shown specific results. Therefore, we are proposing hypotheses on the differences in the implementation of employees' innovative work behavior among different demographic groups:

H1: There is a difference in implementation of innovative work behavior among gender groups.

H2: There is a difference in implementation of innovative work behavior among groups in different regions.

H3: There is a difference in implementation of innovative work behavior among age groups.

H4: There is a difference in implementation of innovative work behavior among organizational groups.

H5: There is a difference in implementation of innovative work behavior among income groups.

H6: There is a difference in implementation of innovative work behavior among groups of education levels.

3. Method

Data collection

The authors implemented a qualitative research method to evaluate and adjust the questionnaire, and at the same time we collected opinions from various demographic groups (gender, working region, age, organization, income, education qualification). Then, we determined if there were any differences in the innovative work behavior of employees from those groups. We conducted in-depth interviews with 15 people in Vietnam. The content of the interview revolved around the following issues: demographic information of respondents, how and how often employees created and developed their new ideas in the

workplace. We recorded by phone, took notes with pen and paper to gather and summarize the information, then the information was analyzed, encrypted, and stored in the computer.

From the results of in-depth interviews, the authors built a complete research model. To evaluate and adjust the questionnaire most completely before conducting the official survey, we conducted quantitative research with employees in different organizations in the North, Central, and South of Vietnam. Table 1 below showed the demographic profile of respondents.

Table 1. Demographic characteristics of respondents

Characteristics	Category	Sample	
		Number of respondents	Percentages (%)
Gender	Male	177	44.6
	Female	216	54.4
	Other genders	4	1.0
Working region	North	241	60.7
	Central	106	26.7
	South	50	12.6
Age	From 18 to 22	115	29.0
	From 23 to 30	124	31.2
	From 31 to 40	73	18.4
	From 41 to 50	67	16.9
	Over 50	18	4.5
Organization	Private enterprise	159	40.1
	Foreign Direct Investment enterprise	57	14.4
	State-owned enterprise	19	4.8
	State agencies	160	40.3
	Other organization	2	0.5
Income	Under 8 million	157	39.5
	From 8 to less than 15 million	179	45.1
	From 15 to less than 25 million	40	10.1
	From 25 to less than 40 million	13	3.3
	Over 40 million	8	2.0
Education qualification	High School	148	37.3
	Vocational School	10	2.5
	College	28	7.1
	University	173	43.6
	Postgraduate	38	9.6

The authors conducted the survey by directly sending participants photocopies and via the Internet (social networks and email) through the Google Forms tool. Within 45 days (from October 10, 2021, to November 23, 2021), completed surveys were received from 529 respondents. After the exclusion of 132 invalid questionnaires with missing information or the respondents answered one choice for the total questions, we have officially gathered 397 valid feedbacks in a quantitative study that gave sample results about employees in organizations in Vietnam. The data shows that the number of women and men filling out the survey does not deviate much from the 50% mark (females with 54.4% and males with 44.6%). Observing the distribution in 3 regions, it is evident that participants mainly reside in the North, accounting for more than half of the total number of observations, at 60.7%, followed by the Central at 26.7% and the South at 12.6%. One hundred and twenty-four respondents are from age 23 to 30 (accounting for 31.2%) and respondents from 18-22 of age equate to 29.0%. Of the data gathered, there is not much difference in the number of employees between state agencies (40.3%) and private enterprises (40.1%), with 179 people (45.1%) earning from 8 to less than 15 million every month. In addition, in terms of the education qualification, 43.6% of the surveyed people graduated from university and about 37.3% of them had high school diplomas.

Measures

After synthesizing documents and carrying out in-depth interviews, the authors drew scales with observations and similar models taken from previous studies. Then, we selected, composed, and translated them from English into Vietnamese in the most appropriate way. All items were measured using a five-point Likert-type scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree).

The theoretical construct in the model's measurement approach was described briefly below. The study used six items built by Scott and Bruce (1994), to measure innovative work behavior with evidence detailing how and how often employees created and developed their new ideas in the workplace.

4. Results

The scale of "innovative work behavior" was tested for reliability with Cronbach's Alpha coefficient and exploratory factor analysis EFA. The analysis results show that Cronbach's Alpha coefficient is 0,878 and among the 6 observed items, the lowest total variable correlation coefficient is 0,602. The exploratory factor analysis EFA showed that Eigenvalues reaches $3,736 > 1$, the total variance extracted is $62,268\% > 50\%$. KMO coefficient = 0.896 and Bartlett's Test has sig equals $0,000 < 0,05$. All conditions are satisfied, therefore the scale is completely reliable and accepted. This study examines the evaluated difference in implementation of innovative work behavior among demographic groups in Vietnam.

Gender

Table 2. Test for gender differences

Gender	N	Mean	Sig of Levene Statistic	Sig of ANOVA
Male	177	3,8230	,480	,032
Female	216	3,6667		
Other	4	3,9167		

The first variable explored was gender. The male group reached 177 participants, the female group reached 216 participants, while the other gender groups had only 4 participants. Because the number of participants belonging to other gender group is too small and not representative enough, this group will be ignored. The test results show that there is a difference in innovation work behavior between different gender groups. Males tend to perform innovative work behavior better than the female group (Table 2).

Regions

Table 3. Test for working region differences

Working region	N	Mean	Sig of Levene Statistic	Sig of ANOVA
North	241	3,7040	,082	,284
Central	106	3,8160		
South	50	3,7433		

Research conducted in all three regions - the North, Central, and South of VietNam shows that the level of implementation of innovative work behavior in all three regions is at an average level, in the range of 3,7 – 3,8. However, because the Sig value of Levene Statistic is 0,082 > 0,05 and the Sig value in the ANOVA test is 0,284. Therefore, there is not enough evidence to conclude that there is a difference in the innovation work behavior of the three domains (Table 3).

Age range

Table 4. Test for age differences

Age	N	Mean	Sig of Levene Statistic	Sig of ANOVA
From 18 to 22	115	3,7043	,385	,040
From 23 to 30	124	3,6680		
From 31 to 40	73	3,7352		
From 41 to 50	67	3,9453		
Over 50	18	3,6944		

ANOVA test was used for the analysis because the Sig value of Levene Statistic is 0,385 more than 0,05 and obtained a Sig value of ANOVA test is 0,040, which is less than 0,05. Therefore, there is a statistically significant difference in innovation work behavior between different age groups. At a certain age, the ability to do innovative work is also different, employees aged from 23-30 years old scored at the lowest level of more than 3,6, while the age group from 41 to 50 rated for the highest level of 3,9 (Table 4).

Types of organizations

Table 5. Test for types of organizations differences

Types of organizations	N	Mean	Sig of Levene Statistic	Sig of ANOVA
Private enterprise	159	3,6593	,913	,147
FDI enterprise	57	3,7281		
State-owned enterprises	19	3,8596		
State agencies	160	3,8125		
Other organization	2	3,3333		

For types of organizations, the study conducted surveys on many different types of organizations and obtained the following results: the state sector, including state-owned enterprises and state agencies, selected the score level. The highest innovative work behavior reached 3,8596 and 3,8125 respectively. The ANOVA method continued to be used because the Sig value of Levene Statistic reached $0,913 > 0,05$. However, the Sig value of ANOVA has a value of $0,147 > 0,05$, which is not enough evidence to conclude that there is a difference in the innovative work behavior of employees in different types of organizations (Table 5).

Income

Table 6. Test for income differences

Income	N	Mean	Sig of Levene Statistic	Sig of Robust Tests
Under 8 million VND	157	3,6624	0,026	0,014
From 8 to less than 15 million	179	3,7402		
From 15 to less than 25 million	40	3,8583		
From 25 to less than 40 million	13	4,0641		
Over 40 million	8	4,0833		

The Sig value of Levene Statistic is only $0,026 < 0,05$, so the Welch test in the Robust table is used instead of the ANOVA test. The Sig value of Welch's test results in $0,014 < 0,05$, so there is a difference in innovative work behavior at different income levels. Table 5 shows that as the income increases, so does innovative work behavior. At the income level of less than 8 million, employees rated the level of innovative work behavior as the lowest - reaching 3,6624, steadily increasing to 4,0833 which is the highest of the income group over 40 million (Table 6).

Education qualification

Table 7. Test for education qualification differences

Education qualification	N	Mean	Sig of Levene Statistic	Sig of ANOVA
High school	148	3,6565	,401	,065
Vocational school	10	3,6833		
College	28	3,7262		
University	173	3,7630		
Postgraduate	38	3,9737		

Starting from the high school level group assessed at 3,6565, to the college graduate group at 3,7389. In particular, there is a clear difference between the graduated group and the rest of the groups. Although Table 6 clearly shows the positive change of education levels with innovative work behavior, it is not possible to confirm that there is a difference in the implementation of innovative work behavior of groups with innovative work. The levels are different because the Sig value of Levene Statistic = $0,401 > 0,05$ and the Sig value of the ANOVA test is $0,065 > 0,05$ (Table 7).

5. Discussion and Conclusion

This study analyzes the differences of demographic groups in the implementation of innovative work behavior in various types of organizations in Vietnam. Simultaneously, based on the obtained results, the research team will provide recommendations and useful solutions in recruiting, selecting, and training employees in an organization.

Research has shown certain differences in demographic variables to the innovative work behavior of employees. With a small difference in study results, the male gender tends to perform innovative work behavior better than the female gender, thus supporting hypothesis H1. Besides, the level of implementation of innovative work behavior of all three regions of Vietnam is at medium level, but there is not enough evidence to support hypothesis H2. Hypothesis H3 is supported when the results have a clear difference in the innovative work behavior of employees with gradual increasing performance reported from the 23 - 30 age group to the 41 - 50 age group. With the obtained results, hypothesis H4 has no basis to conclude that there are differences in employees' innovative work behavior different types of organizations. Particularly, the research results show that there is a positive relationship between income and education levels with innovative work behavior. But while hypothesis H5 is strongly supported with a significantly shorter interval of implementation of innovative work behavior in this group than in other groups, hypothesis H6 is not supported because it has not been able to confirm the distinctiveness.

From the aforementioned results, the authors recommend that organizations that want to promote innovative work behavior among employees need reasonable policies for human resources. In the recruiting process, when it is necessary to select employees for positions and departments that require creativity, the organization can also prioritize selecting male employees, especially between the ages of 31 - 50 years old, and should also consider paying higher wages to attract people with high innovative work behavior. In addition, in the process of training and building organizations, it is also necessary to have different policies for each group of people to stimulate creativity and encourage them to participate in the innovation process.

Apart from some significant contributions, this study still has limitations that can be overcome in the next topics. Due to financial constraints along with having to conduct research in the context of the Covid-19 outbreak in Vietnam, data collection faced many difficulties. This had a great impact on the research results where the research sample has not covered the entire territory of Vietnam but still focused mainly on the North and Central regions. Along with that, because of the unequal distribution in the data on the variables of organization types and education levels, the research results have not recognized the difference in these 3 variables to the innovative work behavior of the employees.

The research team suggests that future studies should expand the sample size further to include all regions in the country or collect more uniform data samples on specific demographic variables in terms of regions, organizations, and education levels. Along with that, it is possible to study more varieties of demographic variables, contributing to the theory as well as practical implications to help Vietnamese organizations raise innovative work behavior of their employees.

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Appendix

Variable	Label	Item	Reference	
Innovative work behavior	HV	HV1	At work, I come up with innovative and creative notions.	(Scott & Bruce, 1994)
		HV2	At work, I try to propose my own creative ideas and convince others.	
		HV3	At work, I seek new service techniques, methods or techniques.	
		HV4	At work, I provide a suitable plan for developing new ideas.	
		HV5	At work, I try to secure the funding and resources needed to implement innovations.	
		HV6	Overall, I consider myself a creative member of my team.	

THE IMPACT OF WORK-FROM-HOME ON JOB PERFORMANCE: AN EMPIRICAL RESEARCH IN VIETNAM

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Abstract

The main objective of this study is to explore the relationship between working from home and job performance through studying the impact of physical and spiritual conditions with the moderating variable: work environment towards job performance. The research was conducted by two methods: qualitative research and quantitative research. First of all, the research team conducted a qualitative survey by asking and collecting expert opinions. After that, the results of the answers were compared with relevant theories that the team had used in the research, thereby considering the relevance between theory and reality, the context of Vietnam. Next, the research team conducted a quantitative study by conducting a survey to survey data from 312 full-time and part-time home workers across Vietnam. The authors use the model of intermediate variables and the software SPSS 22 to process the data. Research results show that working from home has both positive and negative impacts on job performance. Based on the research results, the authors make some recommendations to evaluate the job performance of Vietnamese workers.

Keywords: *Work-from-home, Job performance, Work environment*

1. Introduction

Work-from-home (WFH) is a new worldwide trend that many firms are actively pursuing. In fact, this is a long-established way of working, popular in European and American countries, and used by a few firms in specific fields. In Vietnam, this form of working is still relatively new and has not been favored by business managers.

Working from home has been adopted as a solution to the unfavorable situation in Vietnam due to the harmful influence of the COVID-19 epidemic on all aspects of life such

as economics and society at the time when guidelines on restricting contact and seclusion at home are routinely issued. In a forced circumstance, employees working from home must progressively develop flexibility in working style and self-balancing among their work, family and themselves as well as self-studying and the development of new abilities in the use of technology gadgets that facilitate remote connection.

Currently, the number of studies on the effect of working from home on job performance is very substantial; however, this remains a controversial issue (Allen et al., 2015). The researchers propose that people can work from home and interact by using online technological platforms. Working from home also enables employees to have more flexible work schedules as saving time and money on transportation. According to Allen & Associates (2015), working from home is acceptable when the nature of the task is one or it can be done online. In contrast to this view, several researches done by measuring and assessing employee views indicate the following results: “Workers are not at all comfortable or flexible as a result of their jobs. Working from home limits their ability to completely focus on work, and their promotion opportunities are restricted, thus they progressively lose motivation to work.”

On the other hand, these studies are typically undertaken and assessed in industrialized countries and countries with advanced infrastructure and technology. As a consequence, these study findings are inappropriate for the context of developing countries as Vietnam, which makes it difficult for our country's administrators to implement these ideas and solutions to enterprises and organizations in their position. The result of research focuses on investigating the effect of work-from-home on job performance: Empirical in Vietnam through physical and spiritual conditions with the moderating variable: work environment.

Work-from-home

The concept of working was first mentioned by Niles (1988) under the name "telecommuting" and redefined in various terms over the past four decades. Working from home is defined by Margrethe H. Olson (1989), Gibson et al. (2002), and Bello (2018) as a type of working remotely (or at a location other than the organizational office) with the support of technology-supporting devices and necessary telecommunications services rather than have to move, travel between different locations, or work directly at a specific location. According to Lamond, Standen, and Daniels (1998), the concept of working from home should be approached from multiple perspectives, particularly *physical conditions* aspect including: (1) telecommunications and IT equipment and services; (2) flexibility in working from home; (3) the degree of social interaction with colleagues; (4) frequency of working, communicating, and meeting with customers and partners; and (5) knowledge and skills. Baker et al. (2007) also said that four variables relating *spiritual conditions* of working from home affect employees: (1) organizational environment factors, (2) job characteristics, (3) social connection with colleagues and customers, and (4) personal working style. Therefore, the concept of working from home is a multidimensional concept that needs considering in two main aspects: physical conditions and spiritual conditions.

Job performance

According to Dingel and Neiman's (2020) analysis, 37 % of employment in the United States might be accomplished at home during the COVID-19 pandemic, such as financial administration, corporate management, and educational services. Meanwhile, many occupations, such as healthcare, agriculture, and hospitality, cannot be performed from home. Similarly, research conducted by Jean-Victor Alipour et al (2020) in Germany reveals that 56% of employment is believed to be appropriate for working from home, with the majority of them being in industries with a high degree of digitization. Baker et al. (2007) conducted a study based on data collected from employees working in more than 20 organizations in Australia, which demonstrates that working from home is influenced by many factors such as organization, job, family, satisfaction, and self-assessment of the individual's job performance rather than personal style and family life. As a result, Timsal and Awais (2016) and James (2016) suggest that it may not be appropriate for all employees. Furthermore, Jizba and Kleiner (1990) consider that it limits prospects for personal growth and destroys individuals' job motivation and advancement capacity.

According to Campbell et al. (1993), Borman and Motowidlo (1993), Sonnentag and Frese (2002), job performance encompasses the observable behaviors that a person exhibits when performing his or her job in order to achieve the organization's goal-defined goals. Different from the above views, Motowidlo (2003) defines job performance as the value that a company expects from certain employee actions. Similarly, Befort and Hattrup (2003) contend that job performance is inextricably linked to job requirements, corporate goals, and mission.

Huong and Lien (2017) conducted research on establishing a model to address mental problems impacting the job performance of 224 employees in the customer service industry in the financial - banking sector. Factors have all been studied: work motivation, leadership, organizational structure, organizational culture, training, and technology - telecommunications. Research results show that *spiritual conditions* have both positive and negative effects on job performance. Syamsu Alam (2020) conducted a research with the involvement of the work environment as the moderating variable and examined data gathered from 60 government workers in Makassar. According to studies, there is a positive relationship between *physical conditions* and job performance.

Work environment

Kohun (1992) defines work environment as the overall workforce, actions and other factors that have an impact on the relationship between working progress and job performance. In other words, the work environment is the sum of the interactions between workers and the environment in which they work. Besides, work environment is a multidimensional of three categories of environment: technical environment relating to *physical conditions*, the human environment and organizational environment relating to *spiritual conditions* (Opperman, 2002). Therefore, the authors suggest work environment as a moderating variable in this study with the two aspects of work environment including physical and spiritual conditions.

The impact of work-from-home on work performance

Bloom et al (2015) investigated the effect of working from home on job performance using a randomized experiment on agents at a Chinese travel agency. Research results show that working from home leads to a 13% increase in job performance and after the test, more than half of the employees have switched to working from home. Similarly, the research by Allen, Golden, and Shockley (2015), Donny Susilo (2020), Jamel Choukir et al (2022), and several statistical reports by MSPB (2011) and GWA (2017) all show the same conclusion discussing a positive relationship between working from home and job performance. However, according to the studies of Bailey (2002), Barton (2017), working from home does not always bring positive results. Working from home is said to produce better outcomes in the short term, but in the long run, it cannot bring good performance, only downsides and a reduction in job performance. However, these studies are not real and highly credible because the individuals and study area are so limited.

2. Method

Research model and research hypothesis

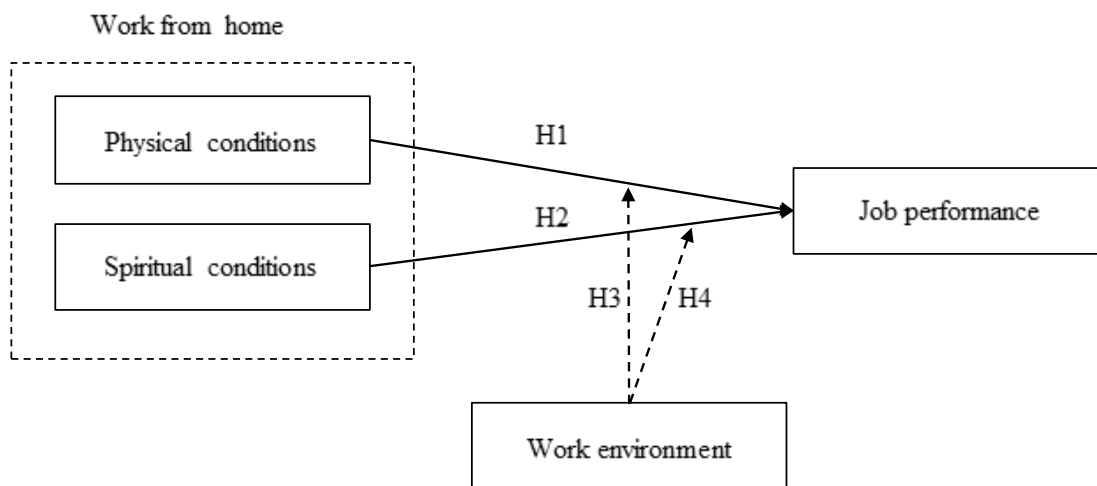


Figure 1. Proposed Research Model

The following research hypotheses are proposed:

Hypothesis 1 (H1): Physical conditions have a positive impact on job performance”.

Hypothesis 2 (H2): Spiritual conditions have a positive impact on job performance”.

Hypothesis 3 (H3): Work environment has a positive impact on the relationship between physical conditions and job performance.

Hypothesis 4 (H4): Work environment has a positive impact on the relationship between spiritual conditions and job performance.

Data source and samplekm

The study surveyed people who worked or are working from home in Vietnam. Regarding sample size, according to Tabachnick & Fidell (1996), the minimum sample size

needed to achieve the best results for linear regression analysis, where m is the number of observed variables and n is the size minimum sample. The research model presented in the topic includes 2 independent variables measured by 7 observed variables, 1 moderator variable with 4 observed variables, 1 dependent variable measured by 4 observed variables. Thus, there are all 15 observed variables and the research needs to use at least 170 questionnaires to be able to analyze the EFA discovery factor well. On that basis, the research team proposed 300 questionnaires to ensure the reliability of the research paper.

After the collection process, the author group obtained 312 valid questionnaires.

Data analysis method

Data after being returned is checked, cleaned, encrypted and entered. To analyze the model, the research team used the software SPSS 22 (Statistical Package for the Social Sciences) to analyze the data and test the hypothesis. Specifically: descriptive statistics analysis, reliability testing of the scale (Cronbach's Alpha), exploratory factor analysis (EFA), testing of the explanatory level and the model's fit, testing the system number of regressions, Levene and Anova tests.

3. Results

Reliability analysis results Cronbach's Alpha

Based on the research results, variable has a Cronbach's Alpha coefficient of $0.692 > 0.6$, and the total variable correlation coefficients are > 0.3 indicating that the scale is eligible. Alpha coefficient of $0.773 > 0.7$ and the correlation coefficients of all variables are > 0.3 , showing that the scale is well used. The variable "Work environment" has Cronbach's Alpha coefficient of $0.752 > 0.7$ and the total correlation coefficients are > 0.3 , showing that the scale is well used.

Table 1. Assessment of reliability Cronbach's Alpha

Factor	Cronbach's Alpha	Number of observed variables
Physical conditions (PC)	0.692	4
Spiritual conditions (SC)	0.773	3
Work environment (WM)	0.752	4
Job performance (JP)	0.795	4

Source: Results of the research team

The variable "Job performance" has Cronbach's Alpha coefficient of $0.795 > 0.7$ and the correlation coefficients of all variables are > 0.3 , showing that the scale is well used. . All variables are qualified for reliability to be used for the next step, which is exploratory factor analysis (EFA).

EFA exploratory factor analysis results

Table 2. Summary of EFA exploratory factor analysis results of independent variables

	Component	
	1	2
SC 3	.856	
SC 2	.808	
SC 1	.747	
PC 2		.779
PC 3		.716
PC 1		.619
PC 4		.601

Source: Results of the research team

Table 3. Summary of the results of exploratory factor analysis EFA of the regulatory variable

	Component
	1
WE 3	.816
WE 2	.800
WE 1	.784
WE 4	.625

Source: Results of the research team

Table 4. Summary of results of factor analysis to discover EFA of dependent variable

	Component
	1
JP 3	.824
JP 2	.801
JP 4	.766
JP 1	.760

Source: Results of the research team

After analyzing EFA, it shows that the independent variable is divided into 2 groups: “Physical conditions” and “Spiritual conditions”, turning the moderator "Work environment" into a group, turning the dependent "Job performance" into a group. All load multipliers of 15 observed variables are > 0.5 satisfactory.

The results of running independent variables give $KMO = 0.784$, Bartlett's test has Sig coefficient is $0.00 < 0.05$, demonstrating the agreement of the EFA analysis with the actual data.

The results of running the moderator show KMO = 0.743, Bartlett's test has Sig coefficient is $0.00 < 0.05$, demonstrating the agreement of the EFA analysis with the actual data.

The results of running the dependent variable give KMO = 0.782, Bartlett's test has Sig coefficient is $0.00 < 0.05$, demonstrating the agreement of the EFA analysis with the actual data.

Regression coefficient testing

Table 5. Regression coefficient testing

Relationship	Model 1	Model 2	Model 3	Model 4
(Constant)	3.626***	3.626***	3.642***	3.644***
H1: PC→JP	0.313***	0.186***	0.178***	0.172***
VIF	1.273	1.456	1.447	1.482
H2: SC→JP	0.382***	0.333***	0.327***	0.322***
VIF	1.273	1.311	1.324	1.329
Regulatory Impact				
WE→JP		0.351***	0.337***	0.344***
VIF		1.299	1.350	1.304
H3: PC*WE→JP			-0.082	
VIF			1.147	
H4: SC*WE→JP				-0.103**
VIF				1.087
R ² corrected	0.428	0.515	0.517	0.521

Source: Results of the research team

*Symbols *, ** and *** represent significance at 10%, 5% and 1% respectively.*

Based on the table of results Regression, it can be seen that the two factors “Physical conditions” and “Spiritual conditions” have a positive effect on “Job performance“ with the significance level of 1%, this shows that hypothesis H1 and H2 is supported. Regarding the impact of the moderator variable, "Work environment" does not have a moderating role in the relationship between “Physical conditions” and “Job performance”, but has a moderating role in the relationship between “Spiritual conditions” and “Job performance” at 5% significance level. However, “Work environment” has a negative effect that weakens the relationship between “Spiritual conditions” and “Job performance”. This shows that hypothesis H3 and H4 are not supported.

4. Discussion and Conclusion

Research results confirm that the physical and spiritual conditions of working from home have a positive impact on job performance. Physical conditions have a positive impact on job performance with Beta coefficient of 0.172, which means that when working from home, the more improved physical conditions are, the better the job performance is. Similarly, spiritual conditions have a positive impact on job performance with Beta

coefficient 0.322, which implies that employees' comfortable feeling to master their jobs and clear promotion path increases their job performance when working from home. On the basis of previous studies, the authors propose 2 main factors and regulatory factors affecting job performance in Vietnam with the research method. It is a quantitative study through survey questionnaires, the authors have assessed the factors and found that the organization's work environment factors have a positive impact on the relationship of spiritual conditions and job performance. It means that when there is a regulation of the organization's work environment, spiritual conditions have a positive impact on job performance. It also implies that the more concerns relating to physical and spiritual conditions when working from home there are, the better the job performance will also increase dramatically. Therefore, the authors propose groups of solutions to evaluate job performance in the context of working from home.

Recommendations on physical conditions

Firstly, the issues related to the information technology infrastructure at home should be improved as well as the employee's ability to apply information technology to be improved through the short training course.

Secondly, the administrator should distribute the workload evenly in the administrative time, creating conditions for employees to balance work and family life so that the job performance meets the expectations.

Thirdly, managers need to have a direction to evaluate job performance based on many aspects through responsibilities and work attitudes to replace the evaluation method based on working time criteria.

Recommendations on spiritual conditions

Firstly, for the welfare factor when working from home, the organization should improve the welfare policy to ensure the work of employees, specifically, ensuring income for employees on leave, birth time and flexible work schedules.

Secondly, the organization needs to complete a salary and bonus policy that ensures the following principles: "Employees are entitled to bonuses and allowances in addition to salary according to a system of public and reasonable performance evaluation criteria.

Thirdly, managers need to focus on assigning work, the assigned work must be clear, right with the position they are taking as well as with their authority as well as assigning challenging tasks with authority so that they can take responsibility for their work.

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FACTORS DETERMINING THE FAMILY CAREGIVER BURDEN IN VIETNAM

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Abstract

Vietnam is experiencing a period of rapid aging, the increasing proportion of elderly people (NCT) will put increasing pressure on the social security system, especially in regard to elderly care at family. Therefore, studying the factors affecting the caregiving burden will make practical contributions to solutions to reduce the caregiver burden at home. Quantitative research conducted in Hanoi and Thai Binh shows the relationship between age, education level, caregiver's income, length of care, the relationship between caregivers and the elderly with the level of caregiver burden. In addition, the health status of the older people is also a significant factor affecting the family caregiver burden in Vietnam. The results of research will assist policy makers to identify the caregivers who need the most support from the policies of the State in general and of non-governmental organizations in particular, thereby contributing to the improvement of the social security system in Vietnam.

Key words: *caregiver burden, family caregiving, older people*

1. Introduction

Vietnam's population is aging rapidly with the proportion of elderly people in Vietnam (those over 60 years old) increasing at a remarkable rate. Furthermore, the proportion of chronic diseases in total deaths increased from 41.6% in 1986 to 61.6% in 2006 and witnesses a substantial increase especially among the older people (Mwangi et al., 2015). This will become a huge burden on families, communities as well as the social security system. Therefore, the study of factors affecting the elderly caregiving burden will help policy makers better support family members. Family members are demonstrated to play an important role in elderly care in Vietnam as well as in some aging countries nowadays.

From a theoretical perspective, the factors affecting the caregiving burden for the elderly have been demonstrated in a number of studies. However, there are few studies in Vietnam focusing on the influence of caregiver characteristics and caregiving context on the burden of elderly care. The stress process theory of Pearlin et al. (1989) has shown the role that background factors related to caregivers and recipients will affect caregiving outcome which is considered as an stressful life event. Therefore, this study will clarify the theoretical gap, especially the factors affecting the level of caregiver burden in Vietnam. Specifically, the study focuses on clarifying the relationship of factors including stressors (related to the health status of caregivers), the caregiving context, and the

caregiver burden. Based on the assessment of the influencing factors, the research will provide proper solutions to support the family caregiver - the primary source of support for older adults with chronic illness and disability.

2. Literature Review

Older people

Older people is defined differently depending on the average life expectancy as well as the level of socio-economic development of each country. For international organizations, the United Nations or World Health Organization defines older people as people over 60 years old. According to the classification of World Health Organization, the ages 60-74 are classified as old, 75-89 as elderly, and 90 and over as senility (Tran Ngoc Tu, 2009). In Vietnam, Law on the Elderly defines elderly as Vietnam citizens over the age of 60 years. Therefore, in this study, elderly people are also considered as people over 60 years old.

Family caregiver

Informal family caregivers are people who often provide care without payment or without specialized training. Meanwhile, professional (formal) caregivers include nurses, home health aides, and other professional care workers. Informal carers are usually spouses or adult children, or sometimes other relatives or friends (UNFPA). In this study, the author will focus on the carers who are family members (including spouse, or children, other relatives) of the older people.

Caregiving Outcomes

Caregiving outcomes are studied from two perspectives: positive outcomes and negative outcomes of caregiving. Among these, a positive outcome for carers is the notion that caregiving can be a positive and beneficial experience for carers (Sherrell et al., 2001). Specifically, many theories have indicated some positive experiences towards caregivers such as the satisfaction and pride, the ability to control any situation and deliver good results, understanding the meaning of life, positive mental health, personal growth, and improved social relationships (Smale & Dupuis, 2004). The negative outcomes of caregiving are mainly related to mental and physical health, burnout and caregiving burden (Conde-Sala et al., 2010; Kim et al., 2012). This study focuses on the family caregiver burden when taking care of the older people at home in Vietnam.

Caregiver Burden

George and Gwyther (1986, p. 253) defined caregiver burden as “the physical, psychological or emotional, social, and financial problems that can be experienced by family members caring for impaired older adults.”. Caregiving burden will affect the quality of life of caregivers as mentioned by the study of Wijngaart et al (2007). In this study, caregiving burden is considered as a caregiving outcome that reflects the negative emotional or physical feeling of carers when they confront with both physical and mental difficulties in taking care of an elder person.

The relationship between caregiving context and caregiving outcome

According to the stress process theory of Pearlin et al. (1990), caregiving context are related to the factors such as caregiver demographics, caregiving history, availability of

caring programs. Caregiving history mentioned two aspects: the relationship care-recipients and caregivers and duration of caregiving. These factors have both a direct and indirect impact on caregiving outcomes.

In terms of social and economic characteristics of caregivers, most research studied some characteristics of caregivers such as age, gender, marital status along with educational, occupational, and economic attainments. However, the researches related to demographic characteristics of caregivers illustrated the inconsistent results of the relationship between caregivers' characteristics and caregiving outcomes. For example, the existence of a relationship between age and caregiver burden is still controversial (Sherwood et al., 2005).

In the study of Seeher et al. (2013), the authors suggested that caregiver's age is related to caregiving burden. Andrén & Elmståhl (2007) was proposed that young and old caregivers would be experiencing different level of burden when taking care of family members. Some studies have shown that young caregivers experienced a greater level of caregiving burden than older adults did, while others have shown adverse results. Both situations could be explained that older caregivers are often physically and psychologically unstable, while young caregivers often have little experience in caring or have limited social knowledge.

Another possible explanation for these controversial results in terms of caregiver age may not be linearly related to caregiver burden. Research results of Andrén & Elmståhl (2007) indicated different patterns throughout the caring process. For example, caregivers of children may have little experience in providing care and it will influence the caregiving burden. During the caring process, they can adjust to the situation and learn more caregiving skills. At this point, they may experience less of caregiving burden. However, as carers' age increase, carers will face more responsibilities and fulfill cumulative care requirements. As a result, caregivers may experience a growing sense of burden.

The following studies all come to the same conclusion that the number of women involved in caring responsibilities is more than men. Research by Pöysti et al (2012) has provided an explanation for the above conclusion that women often have more responsibility for maintaining happiness in the family, from giving birth to taking care of older family members. Women tend to solve difficulties emotionally. Cultural aspects are also considered as one of the factors affecting caring process. Women are expected to be more selfless, responsible, and self-sacrificing, so they are more suitable than men in caring. Sherwood et al. (2005) further found that there is no relationship between gender and caring pressure. In contrast, Kim et al. (2009) came to the adverse conclusion that caregiver's gender has a relationship with caregiving burden.

In terms of education level, many studies show that education level is inversely related to caregiver burden regardless of caregivers' age. In the study of Papastavrou et al. (2007), the authors found that caregivers with high or low educational attainment experience different level of caregiving burden. Educational attainment has a positive effect on the caregiver's burden because the caregivers will be able to attain knowledge and skills actively in caring activities to help relieve stress and anxiety as well as improve the carers' health status.

Marital status and caregiver burden have a two-way relationship: those who are married experience less burden than their counterparts who are single, divorce or widow because they possibly have more financial support from their spouses and more social support.

Bauer & Sousa-Poza (2015) also pointed out the relationship between employment status of carers and caregiving burden. Firstly, caring activities take a long time, so carers often have difficulty in balancing their caring responsibility and their jobs; They must reduce their working hours or even quit their jobs in order to adequately care for the recipient. Secondly, because people who are unemployed or working part-time have more time, they are more likely to become carers. In Zhan's (2006) study, caregiver's employment status was related to their stress level and especially unemployed people are reported to have higher stress levels.

The relationship between stressors and caregiving outcome

Stressors in the researches of caregiving outcomes were mainly the cognitive and behavior status of care-recipients or the dependencies on activities of daily living and instrumental activities of daily living. Research by Johns et al. (2011) showed adverse effects between care-recipient's health status and negative caregiving outcomes such as caregiver burden and stress level. Besides, according to the research by Kim et al (2012), factors related to the caregiver's medical condition are essential factors explaining the burden on caregiving tasks. The study was based on US national data on care at retirement age with any selection of 302 people from the database. Research results showed that disease status related to ensuring daily activities has a positive relationship with caregiver burden. Another study by Morley et al. (2012) also showed that the impact of factors related to the degree of disease status, cognitive intelligence of the patient also affects the quality of life of caregivers.

Thus, researches on elderly care in Vietnam are not currently based on proper theoretical framework. Moreover, the factors related to the caring context and the older people's health status have been mentioned in a number of international studies and were demonstrated to have a direct impact on caregiver burden but hardly mentioned in the studies in Vietnam. Therefore, studying the factors affecting the caregiving burden of older people in the context of rapid aging in Vietnam with the theoretical background of the stress process model will bring great theoretical contributions.

Theoretical Framework and Hypotheses

The study focused on testing the impact of two factors: the caring context and the health status of care recipients on the caregiver burden when taking care of the older people at home. The specific research model is shown in Figure 1. The following hypotheses are put forward:

Hypothesis 1: There are differences in caregiver burden by age, sex, educational attainment, income, marital status, living arrangement, relationship between caregiver and care recipient

Hypothesis 2: Duration of caregiving and caregiver burden have a positive relationship

Hypothesis 3: The greater the dependency level on activities of daily living and instrumental activities, the greater the caregiver burden.

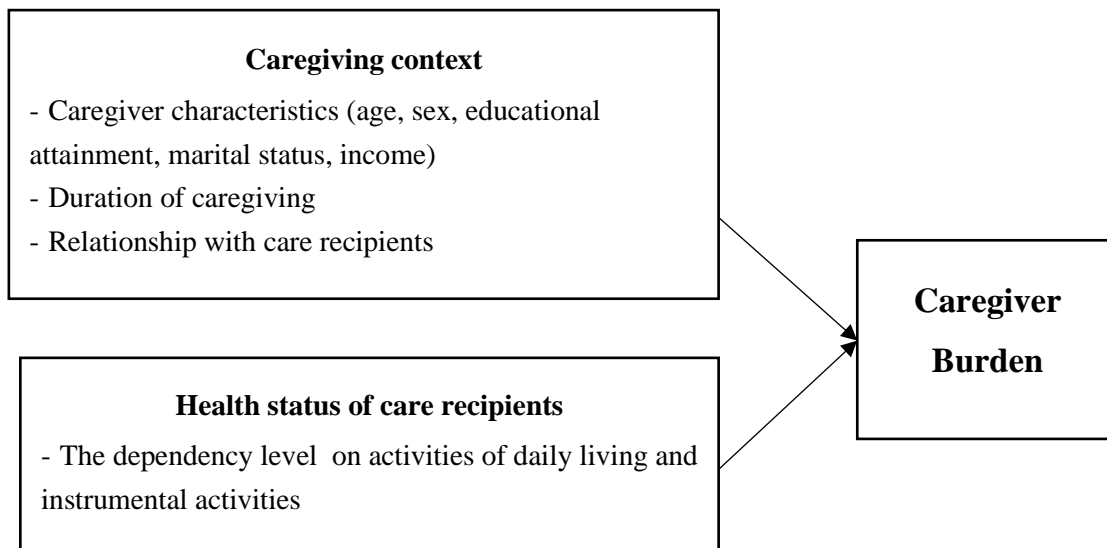


Figure 1. Theoretical framework addressing the factors affecting the burden of elderly family caregivers

3. Method

The study uses SPSS software to process data collected from 180 caregivers aged 30-60, currently caring for the older people at home in two provinces: Hanoi and Thai Binh - those with a high proportion of older people in Vietnam.

The data source is provided by the Elderly Association of wards and communes in Hanoi and Thai Binh. The Elderly Association is the main organization which obtain the information related to the health status, the caring situation for the older people at home. Therefore, using this data source will bring high reliability for the research. The survey will be conducted in three forms: handing out questionnaires, phone surveys, and online surveys. Out of 180 survey questionnaires collected, all 168 answers were valid and used to analyze the research model. Linear regression model, T-test and One-way Anova were used to evaluate the impact of independent variables on the dependent variable – caregiver burden. The health status of the older people are measured by the scale of Katz (1963) - the activities of daily living dependence (ADL) and instrumental activities dependence (IADL). However, the scale is adjusted to suit the research objectives. Daily living and instrumental activities are divided into 4 main groups: personal care, housework, transportation, medication management, and financial management.

For the Caregiver Burden variable, previous studies used a variety of scales, such as the Perceived Stress Scale (S. Cohen, Kamarck, & Mermelstein, 1983; 10 studies; 10 studies). Research), the Screen for Caregiver Burden (the Screen for Caregiver Burden) (Vitaliano, Russo, Young, Becker, & Maiuro, 1991; 8 studies). However, the level of caregiver burden is most measured by the Zarit burden scale (Gratão et al., 2019) with 58 different studies. Therefore, this study also uses the Zarit burden scale to assess the level of self-perceived burden from the caregiver's perspective. This scale is calculated on a total score from 0-48.

4. Results

Descriptive statistics of caregiver characteristics and the duration of caregiving

Indicators	Classifications	Number	Percentage (%)
Gender	Male	34	20,2%
	Female	134	79,8%
Age	30-below 40	69	41,07%
	40- below 50	49	29,2%
	50- below 60	50	29,8%
Educational Attainment	High school	24	14,2%
	College	20	11,9%
	Undergraduate	106	63,09%
	Postgraduate	18	10,7%
Marital status	Married	132	78,5%
	Single	21	12,5%
	Divorce	12	7,1%
	Widow	3	1,7%
Average Income Per Month	Below 5 milion	49	29,1%
	From 5,1 million to 10 million	86	51,1%
	From 10,1 to 20 million	29	17,2%
	Above 20 million	4	2,3%
Relationship with recipients	Spouse	11	6,5%
	Son/daughter	74	44%
	Son-in-law and daughter-in-law	53	31,5%
	Relatives	30	17,8%
Living arrangement	Yes	103	61,3%
	No	65	39,7%
Duration of caregiving	Below 6 months	40	23,8%
	6-12 months	12	7,1%
	Above 1 year	116	69%

Source: Data from research results

✚ Descriptive statistics of older people

<i>Indicators</i>	<i>Classification</i>	<i>Number</i>	<i>Percentage (%)</i>
Gender	Male	61	36,3%
	Female	107	63,7%
Age	50-below 60	16	9,5%
	60- below 70	41	24,4%
	70- below 80	63	37,5%
	Above 80	48	28,6%

Source: Data from research results

✚ Results of testing the level of caregiving burden related to caregiving context

In terms of the relationship with care recipients, including 3 groups: Spouses, Son - Daughter, Daughter-in-law - Son-in-law, Relatives, the results of One-way Anova test showed that there was a difference on the level of caregiving burden. Specifically, the level of caregiver burden towards spouses is higher than that of offspring.

By duration of caregiving including 3 groups: Less than 6 months; From 6 to 12 months and over 1 year, the results of One-way Anova analysis showed that there was a statistically significant difference in the level of caregiving burden. The caregiver who take care for the older person from 6-12 months experiences higher burden than those taking that responsibility over 1 year.

According to education level, including 4 groups: High school, College, Undergraduate, Post-graduate, One-way Anova test showed that there was a statistically significant difference report on the level of caregiving burden. Caregivers with a high school education or less have a higher perceived burden than the group with a higher education level.

According to caregiver's income, the results show that there is a statistically significant difference in the level of caregiving burden. Caregivers with the average income of less than 5 million perceived higher burden than those in higher income groups.

By age group, the test results showed that the mean value of burden level of the caregivers aged from 30 to under 40 compared to the other two groups of caregivers is positive, showing that the caregiving burden level of the caregiver group under 40 years old is higher than those of the groups over 40 years old. .

According to living arrangement, marital status and sex, the test results showed that there was no difference in the level of caregiving burden between these groups.

✚ Linear regression results

The study performed linear regression with the variable caregiver burden as the dependent variable. The regression results show the fit of the model, specifically, the independent variables in the model play an important role in explaining the variation of the caregiving burden with R2 reaching 39.5%. In the regression results, the author focuses on assessing the impact of quantitative variables that are the health status of the recipients. Regression results show that at the 5% significance level, health status of the recipients has a positive impact on the caregiver burden with a beta coefficient of $0.385 > 0$. Specifically,

the greater dependency on the daily and instrumental activities, the greater the burden that the caregivers perceived. The specific results are shown in Table 1 below.

Table 1. Linear regression results - Impact of factors on the caregiver burden for the older people

Model	Unstandardized Regression Coefficients		Dstandardized Regression Coefficients	t	Level of significance	Multicollinear Statistics	
	B	Standard error	B			Tolerance	VIF
1 (Constant)	16.701	4.170		3.501	.000		
Health status	.385	.145	.202	3.686	.000	.659	1.517
Son - Daughter	-7.678	2.395	-.276	-2.589	.012	.194	1.458
Daughter-in-law - Son-in-law	-4.150	2.487	-.150	-1.743	.079	.210	1.769
Relatives	-7.348	2.992	-.212	-2.245	.021	.236	1.244
Living arrangement_Yes	-.027	1.215	-.001	-.031	.984	.705	1.419
Duration of caregiving- below 6 months	-.156	1.044	-.005	-.081	.927	.727	1.376
Duration of caregiving- below 6 months – 6-12 months	1.318	2.111	.022	.567	.649	.858	1.166
Female	-.551	1.793	-.014	-.352	.733	.859	1.164
Age-from 30 to below 40	.543	2.265	.015	.262	.810	.403	1.479
Age – from 40 to below 50	-.036	2.282	-.002	-.035	.981	.503	1.989
College	2.561	2.452	.121	1.167	.254	.542	1.845
Undergraduate	2.460	2.433	.137	1.168	.163	.383	1.608
Postgraduate	5.742	3.117	.336	2.556	.009	.523	1.912
Income- from 5.1 to 10 million	-1.357	1.393	-.052	-.811	.407	.555	1.802
Income- from 10.1 to 20 million	-.046	2.487	-.002	-.034	.980	.548	1.825
Income- from 10.1 to 20 million- Above 20 million	2.516	5.375	.028	.568	.595	.831	1.203
Single	2.136	2.812	.055	.934	.345	.669	1.494
Divorce	-2.025	3.445	-.038	-.599	.504	.824	1.214
Widow	2.017	6.166	.013	.391	.739	.859	1.163

5. Discussion and Conclusion

In terms of caregiver characteristics, the research results show that characteristics such as age, education, and income are related to the caregiving burden for the older people at home. Specifically, young carers felt a greater degree of caregiving burden than older caregivers. This can be explained that young caregivers often have little experience in caring or have limited social knowledge. In addition, the age group 30-40 is the age group that focuses on career development so the exposure to caregiving stresses may be higher for this age group than for older age groups. This result is similar to the results of the study indicated Andren and Elmstahl (2017).

In terms of education level, the author's research results show that the higher the level of education, the lower the caregiving burden for the older people at home. It can be explained that the higher the level of education, the better the knowledge and skills the caregivers obtain. Those knowledge and skills will help them to relieve stress and anxiety as well as improve their health status. This fact has also been demonstrated in the study of Papastavrou et al (2007). In addition, average income of the caregiver is also a factor that positively affects the caregiving burden. Research results show that the higher the income, the lower the level of burden. Income will help carers reduce financial pressure, and access many good caregiving services, thereby reduce both physical and mental burdens for them.

In terms of the caregiving context including the caregiving duration and the relationship with the care recipients, both of these factors show a relationship with the caregiver burden. The study results showed that the shorter the caregiving duration, the higher the perceived burden, which is in contrast with the results of Bialon & Coke (2012) and Chang (2010). The adverse effect between the caregiving duration and caregiver burden can be explained that when taking care of the older people more than one year, the caregivers have accumulated more experience, knowledge and are gradually getting used to dealing with them so the caregiving burden is also less than those taking that responsibility for the short-term. In addition, the relationship with the recipients is also one of the factors affecting the caregiving burden. Research results show that when the caregiver is the spouse, the level of caregiving burden is higher than that of a caregiver who is a offspring or relative. This result has not been supported by many studies, but it may be explained that the frequency of facing the stress of caregiving activities by the husband and wife of the care recipients will lead to an increasing level of burden. Carers who are offspring not only spend time on caregiving work, but they also have time for other social relationships (such as working in office), thus their perceived burden is lower.

In terms of the older people's health status, the research results show that the higher the level of dependency on daily and instrumental activities, the greater the burden the caregivers perceived. Previous studies in other countries had also shown a link between the health status of care recipients and overall caregiving outcomes, such as the studies of Johns et al (2011), Kim et al (2012), Morley et al (2012). These studies all showed that the health status of care recipients are the factor in explaining the caregiving burden, and the more severe the illness is, the more likely negative caregiving outcomes the caregivers experience.

Thus, based on the research results, the author proposes some policies to reduce the caregiver burden at home as follows:

Supporting policies should focus on young caregivers who are at the stage of career development (under 40 years old) as the study has shown. In addition, social security policies also need to pay attention to the groups of low-income and less educated caregivers. Especially for low-income groups, it is necessary to have specific support from the State or Non-Government Organizations to reduce the financial burden when caring for the older people at home. Moreover, in terms of the households in which the main caregivers are husband and wife, more attention should be paid to family caregiving policies.

In addition, other solutions for taking care of the older people at home should also be considered in current social security policies. For instance, the current older people caring system is mainly conducted by volunteers of NGOs or some groups such as the Elderly Association located in provinces with a high proportion of elderly people. However, in order to ensure the caregiving quality as well as to cope with the increasing speed of urbanization, it is necessary to develop a team of paid care workers at home. Payroll costs can be contributed by households, NGOs and the State to reduce the caregiving burden. The caregiving workforce can vary from people around them such as friends, neighbors, and even professional care teams. Diversification of care workers will help households make choices that are appropriate to the family's circumstances as well as the health status of the elderly. If care work can be considered as a profession, it can become an additional income for not only professional caregivers but also close family members around the older people. This policy will contribute to the improvement of social security system and the development of home community-based care.

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FACTORS INFLUENCING GENERATION Z'S LANGUAGE LEARNING INTENTIONS AND BEHAVIORS WHEN USING SOCIAL NETWORKING SITES

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Abstract

Social networking sites are becoming more popular and have a great influence on the user segment, which leads to the concept of learning on social networks. In recent years, due to the effects of the COVID-19 pandemic, foreign language practice on social networking sites is becoming a trend. This study explores the relationships of factors that influence the intention and behavior of using social networking sites for generation Z language learning (from 11-year-old to 22-year-old). The survey is conducted with 249 participants on popular social networking platforms. From the results of the analysis, we have used the UTAUT model to understand the factors that influence generation Z's intention and behavior to use social media in Vietnam. The results show that effort expectancy is the most important factor affecting the student's intention to learn foreign languages on social networking platforms.

Keywords: *behavior, behavioral intention, learning foreign languages, social networking sites*

1. Introduction

Foreign languages are a very important bridge in multinational communication in the world. One of the most effective ways to learn a foreign language is by using it every day. In addition to being used as a means of communication, the use of a foreign language also helps learners create their own knowledge (Vygotsky, 1978).

Many studies have mentioned the use of social networking sites in learning foreign languages, and learners' opinions on them show that the results are mostly favorable. According to a study in major cities, 99% of students in Vietnam now use social media and spend an average of 3-5 hours (Nguyen Thai Ba, 2019). Social media has certain influences on the learning and working performance of users at the age of pupils due to the long length of use. There are studies that show Facebook's advantage in improving learners' language proficiency (Lockyer & Patterson, 2008; Nakatsukasa, 2009). Wang & Associates (2016)

found that, with the help of Facebook as a common learning tool, students perform better and show more engagement and satisfaction with their learning. Our team implemented the topic "Factors influencing generation Z's language learning intentions and behaviors when using social networking sites" to develop a set of recommendations for both social network providers and students. However, while attempting to deploy a mobile learning system, numerous factors should be considered, such as the quality of the wireless connection or the development of social media application software.

2. Literature Review

2.1. Unified Theory of Acceptance and Use of Technology (UTAUT Model)

Venkatesh et al. (2003) conducted in-depth research to develop a tool that explains the birth of new technology and uses new systems. They looked at 8 technology adoption models (with 32 research variables attached). 8 models included: the theory of reasoned action (TRA) from Davis et al. (1992), the technology acceptance model (TAM) from Davis (1989) and Davis et al. (1992), the motivational model (MM) from Davis et al. (1989), the theory of planned behavior (TPB) from Taylor and Todd (1995a, 1995b), a model combining the technology acceptance model and the theory of planned behavior (C-TAM-TPB) from Taylor and Todd (1995a, 1995b), the model of PC utilization (MPCU) from Thompson et al. (1991), the innovation diffusion theory (IDT) from Moore and Benbasat (1991), and the social cognitive theory (SCT) from Compeau et al. (1999). They found that each model had advantages and that each model had theoretical base strengths in different fields. Their analysis ends with a proposal for an integrated model, namely Unified Theory of Acceptance and Use of Technology (UTAUT Model) - figure 1.

2.2. Research model

According to the results of previous studies and theoretical models, we show two main relationships: the effort expectancy, the performance expectancy, the social influence that is directly related to the behavioral intention to use technology; The second is the behavioral intention to use technology and facilitating conditions have a positive impact on the behavior of using technology. Therefore, the basic theoretical model of the topic is expressed as follows:

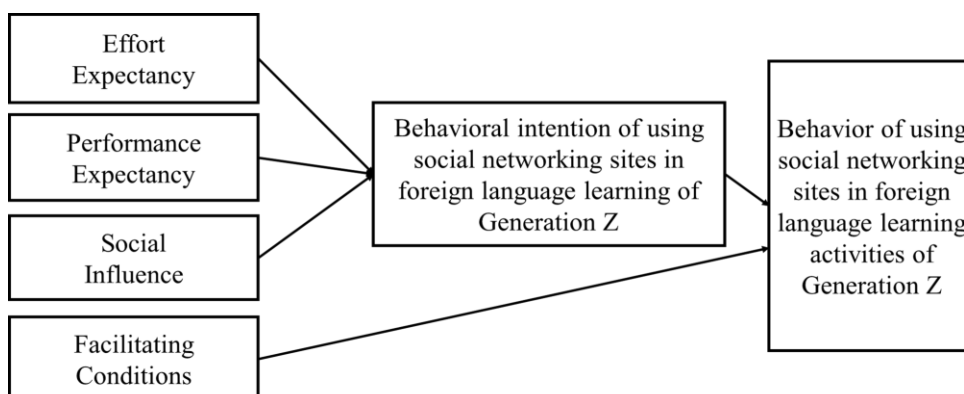


Figure 1. Research model

Source: Proposed research model of the authors (Based on Venkatesh & et al.'s original UTAUT model, 2003)

Effort expectancy (EE)

The effort expectancy is understood as the user's expectation of how easy it is to use a new technology (Venkatesh et al., 2003). Effort expectancy has proven to be an important factor that has a certain effect on the application of technology. The reason comes from the realization that the less effort there is, the higher the likelihood of accepting the use of the system (Ho & associates, 2010; Park & Ohm, 2014). This is also evident in the experimental work in Ismail's study (2010) which surveyed 24 international students to examine the application of social media. Ismail's research (2010) indicates that effort expectancy has a significant impact on the use of social media to support learning activities. Hence, it is expected that the effort expectancy will have an impact on the user's intention to use social media.

Performance expectancy (PE)

In previous studies, users' intentions to use the technology would be higher when they noticed that the system would improve their work performance (Venkatesh et al., 2003). Performance expectancy can be explained as "An individual is aware that the use of the system will enhance their productivity and lead to increased performance" (Brown et al., 2013). Previous scholars of mobile technology have demonstrated relationships between performance expectancy and behavioral intention. Since then users can join special groups chats created by administrators to enrich their existing learning experience from mobile advertising (Wong et al., 2015), e-wallet (Yu, 2012), and mobile learning (Yang, 2013). In addition, the application of social media in real life also offers the opportunity to share information with other users (Osatuyi, 2013). When interactions can lead to positive results (Lewis, 2010), more users are likely to use social media for the purpose of establishing more connections.

Social influence (SI)

According to Venkatesh et al. (2003), social influence is the extent to which an individual perceives external influences to have a certain impact on them. Acquaintances such as family and friends believe that the individual will use a new technology due to being influenced by external factors (Bhattacharjee, 2000; Sim & Associates, 2012). Social influence has also been shown to influence the user's technological behavior intent factor in various studies of mobile service adoption (Foley et al., 2007; Thorbjørnsen et al., 2007; Sim & Associates, 2014) and the facilitation of decision-making of the use of technology (Venkatesh et al., 2012). Social media is considered a highly communal platform, where students from many different regions connect and help each other to achieve a goal in learning (Nguyen Thi Bac, 2018). Therefore, the influence of society can create a positive motivation for students to use social media more to support their foreign language learning.

Facilitating conditions (FC)

Facilitating conditions are defined as the degree to which an individual believes an organization or technical infrastructure supports the use of the system (Venkatesh et al., 2003). Geddes (2004, 1) defined conditional mobile learning as "the acquisition of any knowledge and skills through the use of mobile technology, anytime, anywhere leading to behavioral changes. With the rapid development of mobile networks, this is also a favorable

condition for the use of social media in all circumstances. Because of its convenience and portability, technology has the potential to expand learning into a mobile environment, resulting in a positive impact in the use of social media to learn a foreign language (Ho & Associates, 2010).

Behavioral intention (BI) and Behavior (B)

Behavioral intention is defined by (Fishbein & Ajzen, 1975; Davis & Cosenza, 1993) as the extent to which the user intends to accept and use the system and this is the ultimate aspiration and goal. Besides, according to the theory of rational action (TRA), a person's behavioral intentions are determined by the person's attitudes about subjective behavior and norms. In addition, Venkatesh et al. (2003) assumed that behavioral intent would have a positive connotation that influenced behavior using technology. In this study, the behavioral intention was used as a predictive tool of an individual's perception of whether the indicated behavior was performed (Ajzen & Fishbein, 1980; Tan & associates, 2015). The application of the chosen intention to determine user beliefs and assessments in the use of social media to facilitate learning with the acceptance rate remains at the first stage level.

3. Method

3.1. Data collection method

The research paper was carried out with the goal of merging qualitative and quantitative research approaches. After collecting study data, our team designed the factor survey based on existing ideas linked to the topic. The poll employed a five-level Likert scale to capture the survey participants' responses, ranging from level 1 - absolutely disagree to level 5 - completely agreed. The targeted participants in the survey were generation Z students the age of 11-22 years old who used or did not use social media to learn foreign languages. Due to COVID-19 obstacles, the sample selection procedure is simple to use, and the survey is transmitted to surveyors through the internet. There are 249 valid responses in the findings.

3.2. Data analysis method

Our group used the descriptive statistical method to gather and objectively analyze the responses from the survey participants based on the preliminary data collected. The data is then loaded into SPSS software to ensure the scale's reliability before undertaking a value assessment of rotational factors and metrics to find the elements that influence the intent and behavior of utilizing social media in language learning. After all of the prerequisites have been met, the correlation test will proceed to conduct correlation testing and assess the two regression methods in order to determine the level of interpretation between the independent and dependent variables. The findings of the study will be used to guide the discussion and development of the appropriate solutions listed below.

4. Results

4.1. Survey sample characteristics

The total number of valid response tables of those surveyed was 249 responses with the characteristics shown below:

Table 1. Demographic structure of data

Character		Quantity (people)	Proportion (%)
Gender	Male	84	44,58%
	Female	165	55,42%
Age	11 - 15 years old	49	19,67%
	16 - 18 years old	56	22,49%
	19 - 22 years old	144	57,84%
Education level	Pupil	111	41,65%
	Student	138	58,35%
The use of social media in learning foreign languages	Use	222	89,16%
	Unused	27	10,84%
Social media is used to learn a foreign language	YouTube	137	61,7%
	Facebook	53	23,9%
	Tiktok	22	9,9%
	Twitter	3	1,4%
	Other	7	3,2%

Source: The team's investigation

According to the survey results, the proportion of social media users accounted for most of the observation variables with 89.16% (222 people) and the number of non-users was 10.84% (27 people). According to the results of the study, the number of people surveyed using Youtube accounted for 61.7% (137 people) and Facebook accounted for 23.9% (53 people) is the largest showing that the features of these two social media platforms are suitable for learning foreign languages for students.

Table 2. Time students use social media to learn foreign languages

Time to use social media (Experience)	Quantity	Proportion
Less than 6 months	31	12,44%
From 6 months to 1 year	54	21,68%
From 1 to 2 years	83	33,33%
From 2 to 3 years	31	12,44%
Over 3 years	50	20,11%

Source: The team's investigation

In terms of the time users adopt social media for language learning activities, users under 6 months accounted for 12.44% (31 people), equal to the user data from 2 to 3 years. Next, users over 3 years accounted for 20.11% (50 people) and users from 6 months to 1 year accounted for 21.68% (54 people). Most statistics fall into the group of users from 1 to 2 years accounting for 33.33% (83 people).

4.2. Results of examination of scales of impact factors

a. Reliability

Cronbach's Alpha coefficient is used in this study to determine the degree of correlation between factors in the questionnaire and to estimate the change in each variable as well as the correlation between variables (E. Hays, 1983). In each group, according to Jum Nunnally (1978), when Corrected Item - Total Correlation ≥ 0.3 , the measurement variable would be qualified and an Alpha coefficient greater than 0.6 would be accepted and included in next processing analysis steps.

Table 3. Reliability analysis of the scale

Reliability analysis of the independent variables	
Criteria	Cronbach's Alpha
Effort Expectancy (EE)	0.771
Performance Expectancy (PE)	0.738
Social Influence (SI)	0.783
Facilitating Conditions (FC)	0.733
Reliability analysis of the dependent variables	
Behavioral intention to use social media in learning a foreign language (BI)	0.785

Source: The team's investigation

The reliability of all constructs was greater than 0.6 and is reliable enough to conduct EFA factor analysis.

b. EFA - Exploratory Factor Analysis

EFA discovery factor analysis will maintain observational variables with a load factor larger than 0.5 and arrange them into key groups that impact the user's intention to utilize social networks for foreign language acquisition.

Table 4. Total variance extracted

Factor	Initial Eigenvalue coefficient			Index after extraction			Indicator after rotation		
	Total	Percentage of variances	Percentage of cumulative variances	Total	Percentage of variances	Percentage of cumulative variances	Total	Percentage of variances	Percentage of cumulative variances
1	5,590	34,937	34,937	5,590	34,937	34,937	2,582	16,138	16,138
2	1,990	12,437	47,374	1,990	12,437	47,374	2,568	16,051	32,189
3	1,144	7,149	54,523	1,144	7,149	54,523	2,400	14,999	47,188
4	1,011	6,316	60,839	1,011	6,316	60,839	2,184	13,651	60,839

Source: The team's investigation

Table 5. Rotational Matrix of Elements

	Ingredient			
	1	2	3	4
FC1	,772			
FC2	,743			
FC3	,610			
FC4	,518			
SI3		,932		
SI2		,921		
SI1		,602		
SI4		,532		
EE2			,811	
EE4			,766	
EE3			,616	
EE1			,554	
PE4				,721
PE3				,693
PE2				,588
PE1				,537
Extraction method: Analysis of the main component. Rotation method: Varimax with Kaiser Normalization.				
a. The rotation converges in 7 repetitions.				

Source: The team's investigation

Data processing results show that there are 4 groups of factors classified as Facilitating Conditions, Social Influence, Effort Expectancy, Performance Expectancy. In addition, the total variance table indicates that these 4 groups of factors explain 60.839% of the user's intention to use social media to learn a foreign language.

c. Analysis of factors influencing the behavioral intention and behavior of using social networking sites for generation Z's foreign language learning

Factors influencing generation Z's intention to use social networking sites for language learning

Based on the study overview and the research model already mentioned in the above sections, the team came up with the following model:

$$BI_i = \beta_0 + \beta_1 * EE_i + \beta_2 * PE_i + \beta_3 * SI_i + \varepsilon$$

BI: Behavioral Intention

SI: Social Influence

EE: Effort Expectancy

PE: Performance Expectancy

The *i* index corresponds to the first student

ε is the surplus.

The regression method used is the Enter method with a Sig. <0.05. From there, the regression results are as follows:

Table 6. Summary of the regression model

Model	R	R Square	AdjustedR Square	Std. Error of the Estimate	Durbin-Watson
1	0,521a	0,272	0,263	0,67450	2,015
Predictors: (Constant), PE, SI, EE					
Dependent variable: BI					

Source: The team's investigation

The corrected R Squared value indicates the suitability of the model. Based on the above table, the model has an Adjusted R Square of 0.263, which be 26.3% of the variation of the variable "Behavioral intention to use social media" explained by the three observation variables "Social Influence", "Effort Expectancy" and "Performance Expectancy", the other is due to the impact from factors other than the model. The correlation of the errors is measured by the Durbin-Watson quantity that value of 2.015, so the model has no similar phenomenon.

Table 7. Results of regression weightings

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1,201	,301		3,996	,000		
	SI	,142	,068	,126	2,106	,036	,831	1,204
	EE	,325	,076	,289	4,280	,000	,654	1,530
	PE	,270	,078	,229	3,468	,001	,680	1,470
<i>a. Dependent variable: BI</i>								

Source: The team's investigation

From the table above, the Sig. values of the SI, EE, and PE variables are all less than 0.05, so all three independent variables make sense in the regression model. The variance inflation factor (VIF) is less than 10, even less than 2, so there is no violation of the multilinear assumption between independent variables.

The results of the study show that the Effort Expectancy has the greatest influence on the intention to use social platforms in foreign language learning (B = 0.289), if Generation Z believes they can easily use social networks for language learning, they will intend to use social networking platforms to learn a foreign language. The second most powerful impact variable is the Performance Expectancy with B = 0.229, which implies that

if Generation Z expects learning a foreign language on social networking platforms to bring well results, they will increase their intention to use. The third factor influencing Generation Z's intention to learn a foreign language through social networking platforms is the influence of friends, relatives or teachers with $B = 0.126$, which shows that Generation Z also has observation and learning from relatives, however, they also have their own opinion in their intention to use social networks to learn foreign languages.

From intent to the behavior of using social platforms in generation Z's foreign language learning

In order to assess the effect on the behavior of using social media, our group implemented a binary regression method. The dependent variable is "Generation Z's use of social media for language learning" with two answers- use and unused answers encoded into two values 0 and 1. If a respondent has used a social networking site, use = 1, whereas never having used a social networking site, use = 0

Table 8. Regression Results

		B	Std. Error	Wald	df	Sig.	Exp(B)
Step ^{1a}	BI	3,097	,567	29,858	1	,000	22,131
	FC	1,043	,357	7,787	1	,005	2,839
	Constant	-12,113	2,310	27,504	1	,000	,000

Source: The team's investigation

From table 8, 2 independent variables in the regression model are correlated with dependent variables and the level of statistical significance has reliability, measuring the Sig has a value of < 0.05 . The mark of the regression coefficients is in line with expectations.

Table 9. Probability calculation results

No.	Var	B	Exp(B)	Probability	Speed increase (reduced)	Influence position
				Original Po = 10%		
1	BI	3,097	22,131	71,1%	61,1%	1
2	FC	1,043	2,839	24,0%	14,0%	2

Source: The team's investigation

The results of the study showed that the Behavioral intention to use social media had the greatest influence on the behavior of using social media in learning foreign languages ($B = 3,097$), if Generation Z had the belief and intended to use social media in learning foreign languages, they would increase the behavior of using social media platforms to learn a foreign language. The second impact factor is facilitating conditions with $B = 1,043$, which implies that if Generation Z had a full range of equipment to support learning on social media platforms, they will tend to use social media more in learning foreign languages.

Based on the above results, the team draws out the regression equation as follows:

$$\text{Ln (Odds)} = -12,113 + 3,097*BI + 1,043*FC$$

5. Discussion and Conclusion

5.1. Discussion

As a result, the model after the actual regression retains the same independent variables as the original model. The effect of social factors on the intention to use social networks in foreign language learning activities is unclear, according to the study. Because each country and region has its own cultural background, the fact that Social Influence has yet to impact user intention due to worries about information hazards. The results also revealed that the largest influence was exerted by the Effort Expectancy. When students expect to be able to acquire foreign languages quickly through social media, their desire to use it for non-language learning increases. Additionally, on social media sites, the Performance Expectancy influences the ambition to study a foreign language. Furthermore, the Behavior Intention as well as Social Influence are two essential aspects that have a direct impact on students' use of social media to learn foreign languages.

The following research implications for social media developers can be derived from the results. Firstly, with the social influence on intention, social media providers' marketing agencies should develop promotion strategies to boost foreign language study on social media to students. Secondly, advertising campaigns advertise many of the benefits derived through the usage of social media in foreign language learning with the Performance Expectancy. Finally, the authors discovered that the Effort Expectancy influenced the intention to utilize social media in foreign language learning activities significantly. As a result, social media app developers must dig deeper into the features that young people are interested in learning. In summary, social media providers must have solutions to improve the efficiency of usage features in order to clearly demonstrate the superiority in rapid learning and easy information discovery for generation Z engaged in learning. Finally, the team encourages social media providers to understand and well implement relevant legislation in order to protect the privacy of social media content.

5.2. Conclusion

The UTAUT model was utilized to better understand the dynamics impacting Generation Z's social media use in Vietnam, and to provide administrative implications to social media providers to better satisfy their demands. Reliability is ensured by the magnitude of both independent and dependent variables. According to factor analysis, the scales all have a factor load factor of relatively high variables, and they all attain the distinguishing value and convergence value. The study's findings revealed that the effort expectancy element had the greatest impact on students' intentions to learn a foreign language through social media platforms, followed by performance expectancy and social influence. The criteria listed above account for 26.3 percent of generation Z's decision to use social media to learn a foreign language. The researchers expect that the findings will provide precise information and serve as a foundation for future research in this area.

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SOCIAL MEDIA ACTIVITIES AND UNIVERSITY BRAND IDENTIFICATION

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Abstract

The main purpose of this study is to explore how engagement, value co-creation and self-brand connection factors affect university brand identification. This study proposes a structural model of the relationships among engagement in social media sites, value co-creation and university brand identification. Randomly selected respondents from the students from universities in Hanoi were selected to participate in the questionnaire study. Initially, an exploratory factor analysis (EFA) was performed to test the validity of the constructs, and the confirmatory factor analysis (CFA), using AMOS, was used to test the significance of the proposed hypothesis model. Results about the relationships among engagement, value co-creation and university brand identification were revealed.

Keywords: *Social media activities, University brand identification, Value co-creation, Engagement*

1. Introduction

In globalization trends, fundamental movements have seen increased challenges in higher education such as declining government funding support, financial autonomy, quality of methodology, prestige, and so on (Stephenson & Yerger, 2014) (Abdelmaaboud, Peña, & Mahrous, 2021). Consequently, this competition pressure has driven universities to adopt marketing activities, including branding strategies. A successful brand is proved by generating competence advantage effectively in the business domain, and brand management is a main organizational competence that organizations need to make sense (Harman, Hayden, & Pham, 2009). Thus, to maintain their competitiveness, a number of universities have chosen to innovate their management system in terms of both teaching quality and brand promotion which can help to identify them from others in the current dramatically challenging marketplace (Tran et al., 2016).

Kuenzel (2008) provided supportive empirical findings to explain why marketers might wish to strive hard to strengthen brand identification by enhancing the level of prestige associated with their brand and focusing on building customer engagement. Nevertheless, existing literature seems to be rather silent on what can strengthen brand identification, especially university identification in the educational context. Thus, this study answers one overarching research question of what can promote university identification. First, it investigates new antecedents of university identification, including students' engagement in university's social media sites, students' value co-creation activities on university's social media sites and students' self-brand connection. Second, by examining student-to-student value co-creation activities taking place in the university's social media sites among students (also known as consumers experiencing the university's educational services), this study aims at filling a gap in extant literature, which has always emphasized the effects of value co-creation activities between brands and consumers, thereby overlooking the importance of value co-creation activities developed among consumers themselves (Nicholls, 2010; Rihova et al., 2013). Therefore, this research extends the current knowledge on value co-creation activities by highlighting the key role of customers (students) in driving the value co-creation process and how they influence the brand (university) identification. Although data collected to test these relationships were related to social media activities of several universities in Hanoi, research results could be applied to many other educational institutions in similar contexts.

2. Literature review and Hypothesis development

2.1. Brand identification

According to marketing researchers, brand identification specifically refers to the “psychological state of perceiving, feeling, or valuing consumer's belongingness with a brand” and experiencing the brand's successes and failures as their own (Lam et al., 2010; Badrinarayanan and Laverie, 2011; Hughes and Ahearne, 2010). Consumers' identification occurs with a brand from two perspectives. Firstly, on a personal level, brands can help emphasize their personality as well as expressing their values and beliefs (Bhattacharya and Sen, 2003). Secondly, from a social perspective, brands can act as a means of communicating consumer aspirations and self-status (Tuškej et al., 2013). On social networks, consumers are identified by their profile and tend to present their actual self (Habibi et al., 2014).

2.2. University identification

Universities need identification with which students can be associated. University identification is a specific form of social identification characterized by students' attachment or belongingness with the university (Mael & Ashforth, 1992; Wilkins & Huisman, 2013). Drawn from social identity theory (Tajfel, 1978), university identification allows students to enhance their self-concept or self-image by representing and supporting their university. Students with strong university identification may act on behalf of the university, and the university supports their activities with recognition (Mael & Ashforth, 1992). Therefore, university identification engages the students in developing a long-lasting relationship with the university (Balaji, 2016).

In recent years, due to new policies employed by the government to control university activities, the widened influence on higher education work from “university autonomy” policy and various third parties, e.g. in the form of evaluations, Vietnamese universities need to reorganize and change their management strategies (Minh, 2018). These studies hinted that academic studies should focus more on brand identification in the concept of higher education in order to build a theoretical background for promoting university identification.

2.3. Consumer engagement and value co-creation activities in social media

Technological development and the advancement of social media supported a new conceptualisations of customer engagement with brands on social media (Li & Bernoff, 2011). To emphasize customers’ contributions, Sashi (2012) define the concept of customer engagement as a “process of value creation” that consists of personalised experiences with “informed, networked, empowered and active customers increasingly co-creating value with the organisation”. In social media, CE can be expressed by liking, sharing and commenting in brand/organization-related interactions, posting content or messages.

Engagement between brand/organisation and existing or potential consumers – and among consumers themselves – enables consumers to co-create value by “generating content, providing feedback, disseminating information and becoming advocates for the organisation among their peers” (Shawky et al., 2018). Co-creation as a phenomenon included in the social connection can then be studied by interpreting shared social structures and their interaction and reproduction by individuals (Edvardsson et al., 2011). Therefore, considering just the customer–brand interaction will not be enough. Hence, customer-to-customer (C2C) interactive experiences should be considered in the whole process of value co-creation. Urich (2014) classified the five practices involved in the C2C co-creation process as associating and dissociating, engaging and sharing, competing, intensifying and exchanging. In the concept of higher education, the existence of value co-creation activities enables students to interact with each other to improve their experience and performance (Dollinger, Lodge, & Coates, 2018).

2.4. Hypothesis development

Social media are motivating the process of business change fundamentally, where customers and firms are able to communicate with each other by means of two-way interaction. According to Boyd and Ellison (2007), customers who engage with a firm by actively participating in the firm’s social media sites share a level of connection with the firm. When customers are drawn to engage with a brand by liking, commenting, and/or sharing company or personal posts with other site members, they begin to identify with the collective group. Moreover, Balaji (2016) indicates that university identification is related to students’ advocacy behaviors which includes positively sharing about their university to external publics or their friends, for example on social media. In the same perspective, Fujita and associates (2017) also clarify students’ brand engagement via social media as part of their higher education’s acculturation and social identification. Therefore, we hypothesize that:

H1: *Engagement in university’s social media enhances university identification.*

At university, by allowing students and institutions to connect and collaborate, value co-creation bridges formerly isolated users' and producers' asymmetric knowledge and information (Von Hippel, 2009). Value co-creation helps build relationships between students and faculty members, it may also be able to benefit the institution through numerous factors including student loyalty, university image as perceived by students, and student-university identification (Schlesinger et al., 2015). In this study, value co-creation activities are not limited to the interaction between the university and students but also include interactions or behaviors toward co-creating value with other students on the university's social media sites. Researchers who explore C2C interactions in such contexts mostly adopt a subjectivist, experiential perspective in that they focus predominantly on the perceived positive, negative or neutral value outcomes of social atmospherics (Uhrich and Benkenstein, 2012), or the influence of other customers on service experiences (Huang and Hsu, 2010). While these studies highlight the fact that customers co-create value with each other, other customers are viewed merely to comprise a social element of the servicescape that may impinge on individuals' service experiences. Based on the above discussion, the following hypothesis is proposed:

H2: *Value co-creation on social media is positively related to university identification.*

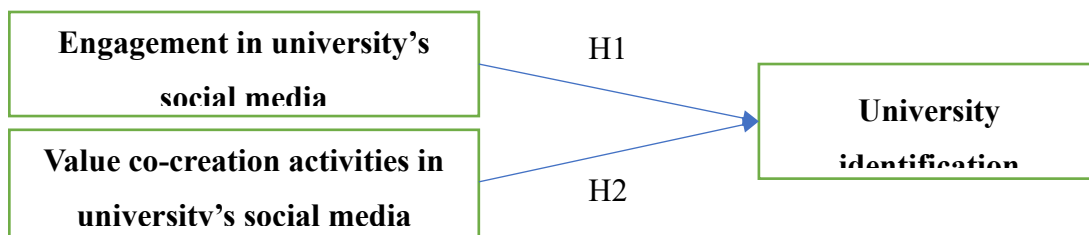


Figure 1. Theoretical framework of the research

3. Method

3.1. Research design

The study was conducted through a quantitative survey method in the context of higher education in Vietnam. Measurements scales were adapted from previous studies. All items in the measurement scale were measured with a 5-point Likert scale. The proposed conceptual framework consisted of three constructs, namely university identification, engagement in university's social media sites, and value co-creation activities on university's social media sites. The questionnaire contains a total of 18 items (presented in Table 2) with 6 items to measure value co-creation activities, 6 items for engagement activities and 6 items for university identification.

3.2. Sample and data collection

Data were collected among students at several universities in Hanoi, Vietnam in November 2021. Both undergraduate students, alumni and overseas students were invited to participate in the survey with convenient sampling and their participation was based on a voluntary basis. Questionnaires were circulated online to 330 and out of which 323 were returned, indicating a 98-per-cent rate of response.

4. Results

SPSS 22.0 and AMOS software were utilized to analyze the collected data. The measures were evaluated for reliability and validity before the hypotheses were tested. First of all, Cronbach's alphas are above the standard threshold of 0.70 for all variables at 0.857 (engagement in university's social media sites), 0.926 (value co-creation activities on social media sites), 0.887 (university identification). VCASM3 (item 3 for *value co-creation activities on social media*) and UI3 (item 3 for *university identification*) were eliminated because Cronbach's Alpha if Item Deleted is higher than Cronbach's Alpha.

Exploratory factor analysis (EFA) was then conducted using principal component analysis (PCA) extraction with varimax rotation to investigate the validity of measures. The resulting factors were as expected with acceptable loadings of items on their relevant factors, indicating convergent validities of the measures. After that, confirmatory factor analysis (CFA) was applied for further test of the measure validity. The results of CFA indicate acceptable fit: Chi-square = 3.969 ($p < 0.001$); GFI = 0.854; TLI = 0.896, CFI = 0.913 RMSEA = 0.096. The results exhibited that factor loadings of all items are higher than 0.5, while the average variances extracted (AVE) of all constructs are higher than 0.5 (See Table 2). Therefore, the measures can be considered to have adequate convergent validities (Hair et al., 2018).

Table 1. Reliability and convergent validity of measurement scale

Constructs	Items	EFA	CFA	AVE	CR
EUSM	I read posts on my university's social media sites.	0.771	0.794	0.512	0.861
	I am a member of my university's social media sites.	0.592	0.571		
	I often watch pictures/graphics on my university's social media sites.	0.799	0.818		
	I follow my university's social media sites.	0.752	0.744		
	I read users' comments on my university's social media sites.	0.647	0.678		
	I read users' reviews on my university's social media sites	0.630	0.658		
VCASM	I usually comment on videos/pictures/posts on my university's social media sites	0.745	0.739	0.715	0.925
	I usually share posts on my university's social media sites	0.707	0.710		
	I usually post on my university's social media sites.	0.922	0.931		
	I usually post videos/pictures on my university's social media sites.	0.919	0.933		
	I usually write reviews on my university's social media sites.	0.877	0.887		

Constructs	Items	EFA	CFA	AVE	CR
UI	When someone praises my university it feels like a personal compliment	0.844	0.834	0.621	0.891
	The university reflects my individual characteristics	0.669	0.674		
	I am very interested in what others think about my university.	0.782	0.774		
	I feel good when I see a positive report on social media about my university	0.865	0.864		
	I find it easy to identify with my university on social media	0.762	0.781		
Note: EUSM: Engagement in university's social media sites, VCASM: Value co-creation activities on social media site, UI: University identification					

Table 3 below shows that the AVEs are greater than the correlation squared between variables as estimated in the measurement model. Thus, the discriminant validity of the measures are adequate (Fornell & Larcker, 1981).

Table 2. Discriminant validity of measurement scale

Constructs	1	2	3	4
1. University Identification	0.621	0.40	0.04	0.58
2. Engagement in University's social media sites		0.512	0.11	0.46
3. Value co-creation activities on social media sites			0.715	0.14
Note(s): Numbers in the diagonal are the average variances extracted (AVEs). Other numbers are correlation squared between variables.				

To test the hypotheses in our research model, first the item scores for each factor were averaged to form the variable representing that factor. To test moderation effects, multiplication variables were created by multiplying the moderator and the independent variables. However, to remove the nonessential correlations between the multiplication variables and the independent variables that create them, we mean-centered the independent variable and the moderator variables before taking the multiplication (Cohen et al., 2014). Ordinary least squares (OLS) regressions were used to test the models.

Table 3. Regression results with university identification as dependent variable

Variable	Model 1					Model 2				
	B	Std. Error	β	t-value	p-value	B	Std. Error	β	t-value	p-value
(Constant)	3.700	0.172		21.523	0.000	1.226	0.222		5.694	0.000
Gender	0.341	0.102	0.184	3.346	0.001	1.186	0.081	0.100	2.281	0.023
Age	-0.110	0.136	-0.044	-0.809	0.419	0.068	0.107	0.027	0.632	0.528
EUSM						0.643	0.048	0.623	13.395	0.000
VCASM						-0.004	0.038	-0.005	-0.110	0.912
R ²	0.036					0.409				
Adjusted R ²	0.030					0.402				
Note: EUSM: Engagement in university's social media sites, VCASM: Value co-creation activities on social media site, UI: University identification										

Table 4 presents the regression results. R^2 for the full model M2 at 40.9% is greater than R^2 of M1 (3.6%) with only control variables. The highest variance inflation factor (VIF) is 1.964, indicating that multicollinearity would not be a problem (Cohen et al., 2014). The analysis result shows that engagement is positively related to university's social media (with $\beta = 0.623$, p value < 0.001). Therefore, H1 is supported. However, the negative beta ($\beta = -0.005$) indicates that this is a negative relationship, which is contrasting to what was proposed in H2.

5. Discussion and Conclusion

In conclusion, our analysis results have confirmed that students' engagement in their university's social media sites has a great impact on university identification. Drawing from the social identity theory (Tajfel, 1978), our research corroborates findings of previous studies by affirming that students' interaction with or engagement in their university's social media sites enables them to identify themselves with the values and prestige of the university they belong to (Fujita et al., 2017; Balaji, 2016). However, our research findings reveal that the activities of co-creating values among students and students on university's social media sites may not promote university identification as proposed. In contrast, it was found out that value co-creation activities between students and students on the university's social media sites are significantly negatively associated with university identification. This finding is opposite to the positive impacts of value co-creation on brand identification as found in most research in existing literature (Halbesleben & Wheeler, 2009); Schlesinger et al., 2015). This can be explained as followed. Sometimes, students may be exposed to negative word-of-mouth can be spread by other students in the university's social media sites. Interaction to these types of contents posted by other students in the university's social media sites may lead to negative emotions or remind students of bad experiences they may have with the university. However, as each individual student's identification of the university tends to be their individual self-concept, this kind of co-created value is likely to be ignored or sometimes protested against by others. Therefore, it can be argued that university identification in that sense can be negatively influenced by value co-creation activities between students and students on social media sites of the university.

Theoretically, this study has contributed to the literature of university identification. The proposed research model integrated the influence of students' engagement in the university's social media sites on university identification. However, it rejects the assumption that value co-creation between students and students on the university's social media sites can promote university identification. This is one of the very few studies exploring the role of value co-creation activities between customers and customers in consumer behavior research, proposing that value co-creation does not always positively influence brand identification as typically concluded in previous literature.

Practically, findings from the study will first help university leaders establish a clearer insight into how students' engagement in the university's social media sites can positively influence university identification, which will ultimately lead to many other favorable outcomes in terms of engaging in pro-brand activities, such as supporting the

university's goals, protecting its reputation and becoming loyal. Furthermore, universities should also set some restrictions to particular behaviors that students can interact with each other while performing value co-creation interactions in the university's social media sites in such a manner that will not negatively influence other students' university identification.

Limitations and Recommendations

This research is not without limitations. First of all, data were collected for this research in the convenience sampling method, which will mean that findings can be different between groups of students who usually engage with the university's social media sites and groups of students who do not do so frequently. It would be advisable that future research would compare the proposed relationships in the theoretical framework in different groups. Second, respondents who participated in the research survey were from different universities in different fields. Therefore, the generalization of the research findings may be restricted as students studying different fields may have different attitudes or behaviors towards engagement in social media sites or self-brand connection with their universities. Therefore, further research may focus on one type of universities or even compare findings from universities in different fields.

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FACTORS AFFECTING LABORS MOVEMENT IN VIETNAM'S SOUTHERN KEY ECONOMIC ZONE DURING COVID 19 PANDEMIC

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Abstract

Vietnam's Southern key economic zone is also known as the leading economic region in our country, which contributed to 42% GRDP and more than 43% of the country's total budget revenue in 2019. It not only is a big influential foundation force but also a locomotive in the promotion and economic development of the whole country. During the Covid 19 outbreak, workers massively moved from the industrial zone of the southern key economic region to the West and even to the North, away from their workplace and from the unstable life after losing jobs. The number of people moving from Ho Chi Minh City and the southern provinces to their hometown accounts for 60% in the total 1.3 million people moving of 63 provinces. The fact that thousands of workers went back to their hometowns will have a strong impact on the labor market. This research identifies the factors affecting laborers' movement during Covid 19 pandemic based on theory models, quantitative scales, statistical and control processing research data on hypothesis, thereby making necessary recommendations for regulators and businesses firm in Viet Nam.

Keywords: *labor polivy, labor movement, Covid-19 pandemic, key economic zone.*

1. Introduction

The Covid-19 pandemic has caused a lot of damage in all aspects to the economy of our country, most evident in the southern key economic region - which has the most vibrant economy in the country (includes 8 provinces and cities: Ho Chi Minh City, Dong Nai, Binh Duong, Ba Ria - Vung Tau, Binh Phuoc, Tay Ninh, Long An and Tien Giang). The areas that are particularly seriously affected are labor and employment.

In this study, we will focus on analyzing the factors affecting labor mobility in industrial zones in the southern key economic region and finding solutions to help restore the new normal state for workers and businesses.

The majority of workers in industrial zones in the southern key economic region are unskilled workers and are one of the places that attract the most labor in the country. Workers in the zone come from many different provinces in the world, including those from the provinces in the region, the provinces of the Mekong River Delta and the provinces in other regions such as the north, the central region, ... with provinces such as Thanh Hoa, Nghe An, Nam Dinh, Hai Phong, etc. When the pandemic took place, a large number of unskilled workers left the city, industrial zones, and export processing zones, leading to a shortage of labor resources in these areas. The impact of the epidemic along with the impact of the 4th Industrial Revolution requires a total solution to restore the labor market and improve the capacity of workers.

On the side of businesses, they not only face difficulties due to lack of workers but also financial difficulties due to long-term closure. Laborers who stay in the city also have difficulty in securing stable jobs due to the changing demand for jobs. As a result, they have to endure financial difficulties such as salary cuts and high prices of consumer goods. For example, some working families face difficulties in investing in learning equipment for their children such as laptops or phones. Many people are forced to withdraw their social insurance to get a few million dong - the last resort reflects the great difficulty that the workers are facing. Schools have not yet returned to operation, making it difficult for workers to both take care of their children and go to work.

For workers who move to their hometown, it is difficult to decide whether to return to the city or continue in the countryside - where they do not have a stable job but because of the risk of a re-epidemic outbreak due to disease transmission in the country. The locality also makes it impossible for workers to return to their old workplace.

Low-skilled workers are gradually being eliminated. In fact, the labor market in Vietnam is suffering from a double impact, which is a wave of workers moving to their hometown due to the impact of the epidemic and a part of manual workers who were simply eliminated during the Revolution. The 4th industrial network Certificates from elementary level and above account for only 24.6%.

2. Method

Research methods are based on available data analysis: through articles, magazines, reports on socio-economic situation, year-end economic summary reports of reputable source sites such as VTV, economic and development magazines. development, economic - labor and employment reports for quarters and year-ends of HCMC.

In-depth interview method: for business owners in industrial zones in the southern key economic region, experts in the field of labor management in the region.

Methods of survey questionnaires: building questionnaires and surveying employees, analyzing collected data using SPSS software to analyze Cronbach's Alpha reliability coefficient and exploratory factor analysis EFA to We can see the relationship of factors affecting labor mobility, from which we can see the causes of labor mobility and give necessary solutions and recommendations.

3. Results

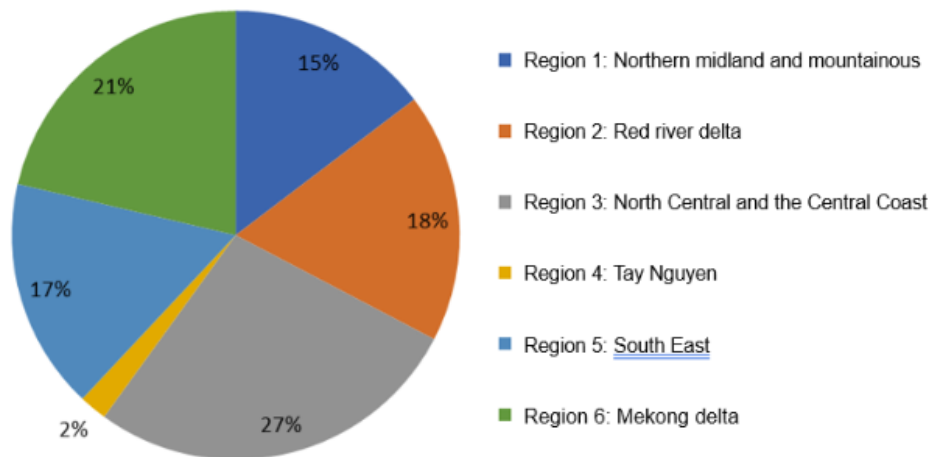


Figure 1. Sample structure chart by hometown

Source: Summary results of the research team, 2022

Regarding the structure by hometown of employees:

The majority of workers come from the North Central and Central Coast regions with the rate of 27%. The following regions are the Mekong River Delta with 21%, the Red River Delta with 18%, the Southeast with 15%, the Northern Midlands and Mountains with 17% and a small part accounting for 2% to from the Central Highlands. It can be seen that workers in the southern key industrial zone come from all over the country. Therefore, with the current situation, the homeland of the surveyed workers is tending to develop strong industrial zones, which has created a competitive attraction with the southern key economic region.

Comparing working status before and during the pandemic:

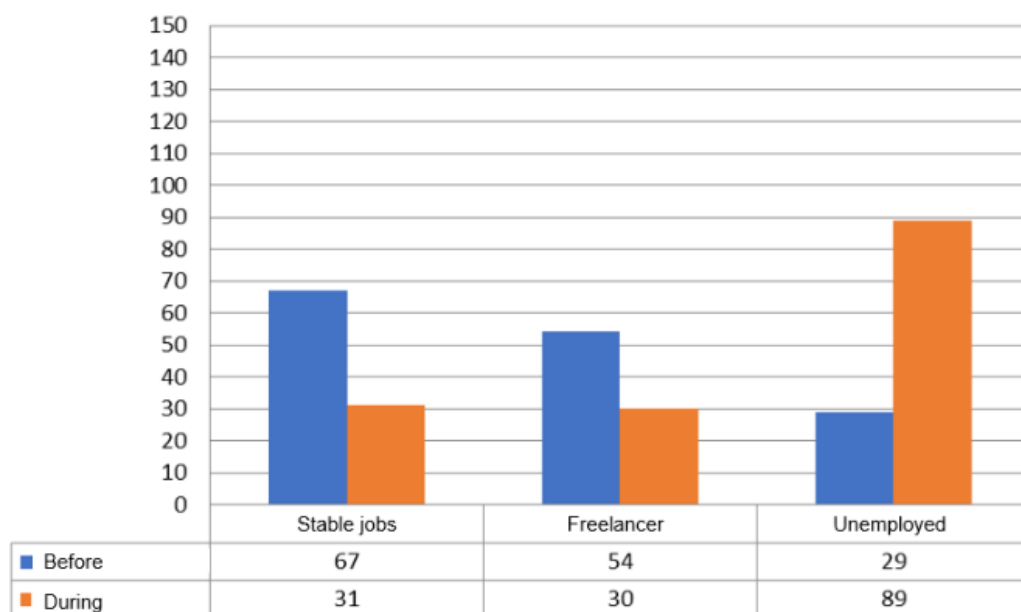


Figure 2. Sample structure chart by working status

Source: Summary of the results of the research team, 2022

According to the survey results, with a research sample of 150 observations, the post-pandemic unemployment rate skyrocketed compared to before the pandemic (from 29 people, accounting for 19.33% to 89 people, or 59.33%). However, in fact, the increased demand for labor here shows the inconsistency between workers and businesses in terms of wages and remuneration policies during the pandemic. Both of these subjects are affected by the negative effects of covid, businesses are stagnant or even have to stop completely due to covid while they still have to bear the fixed costs during the shutdown. a great burden on the finances of businesses, while workers face difficulties such as salary cuts, living costs and high prices of necessities and medical equipment.

Descriptive analysis of factors affecting the employees' decision to continue working in the industrial park

3.1. Employee's assessment of the Income Factor

Table 1. Descriptive Statistics Income Factor

Elements	Observed variables	Content	The average value	Std. deviation
Income	THUNHAP	Income		
	THUNHAP1	The pandemic has significantly lowered my income	3,67	0,746
	THUNHAP2	The level of income during the pandemic has greatly affected my daily life	3,72	0,743
	THUNHAP3	If my income increases to 1-2 million/month, I will continue to do my current job.	3,74	0,746
	THUNHAP4	Assuming my income decreases, I will move my hometown or to order regions to find a new job	3,73	0,757

Source: Survey data, 2022

According to the statistics table of the factor Income level, we see that in the 5 scales of the variable, the scale 'If the income level increases to 1-2 million/month, I will continue to do my current job' is agreed the most, with an average of 3.74/5. In addition, we can also see that the other questions are smaller in terms of agreement, but the difference between them is not much. In general, all 5 scales give results above the agreed level.

3.2. Employee's assessment of the Cost of Living Factor

Table 2. Descriptive Statistics Cost Factor

Elements	Observed variables	Content	The average value	Std. Deviation
Cost of living	CHIPHI	Rising cost of living		
	CHIPHI1	I had to spend more during the pandemic.	3,23	0,798
	CHIPHI2	I accept to pay more medical-related living expenses to ensure health.	3,23	0,752

Elements	Observed variables	Content	The average value	Std. Deviation
	CHIPHI3	The rising cost of living makes my life more difficult than before	3,12	0,759
	CHIPHI4	The high cost of living is the reason why I have to move to my hometown or to other places where the epidemic situation is more stable.	3,25	0,804

Source: Survey data, 2022

According to the statistical table describing the Cost Factors, in the five-variable scale, we can see that the variable CHIPHI4 - The high cost of living is the reason why I have to move to my hometown or to other places where the situation is different. More stable disease is the most agreed opinion, with the average value reaching 3.25/5, but the difference between the mean values of the variables is not high, especially there are 2 variables CHIPHI1. and CHIPHI2 have the same mean. CHIPHI4 is also the variable with the highest standard deviation, up to 0.804, however, like the mean, the standard deviation of all 5 variables also has a small difference and all five scales give the above results are agreed.

3.3. Workers' assessment of the Pandemic Fear Factor

Table 3. Descriptive Statistics the Fear Factor

Elements	Observed variables	Content	The average value	Std. Deviation
Fear of the pandemic	SUSOHAI	Fear of the pandemic		
	SUSOHAI1	I myself or a loved one have an underlying medical condition and my health will be affected if I get Covid-19	3,66	0,731
	SUSOHAI2	The number of deaths where I live is so high that worries me.	3,60	0,803
	SUSOHAI3	My current accrual and related benefits are not enough to cover my living if I become ill.	3,61	0,776
	SUSOHAI4	Fear of the pandemic was the main reason why I had to relocate for work.	3,71	0,789

Source: Survey data, 2022

For the descriptive statistics table Attraction factor, with the five-variable scale being conducted, it can be seen from the obtained results that the SUCHUT4 factor is the factor that achieves the greatest agreement, and similar to the other tables. Statistics describe the factors above, the difference between the mean and the standard deviation is different, but the difference is not too much. It can be seen that the opinion is similar, the factor has had a profound impact on the majority of survey participants and has shown that this is a factor that has a profound impact on employees.

3.4. Employee's assessment of the Allowance Factor

Table 4. Descriptive Statistics Subsidy Factor

Elements	Observed variables	Content	The average value	Std. deviation
Subsidize	TROCAP	Subsidize		
	TROCAP1	I will decide to stay at the place of work if I receive a salary subsidy, food, etc...	3,73	0,783
	TROCAP2	I feel satisfied because I have Covid test support, cost support for F0.	3,64	0,771
	TROCAP3	I look forward to receiving more attention and subsidies from the company.	3,55	0,824
	TROCAP4	I look forward to receiving more attention and subsidies from the locality.	3,62	0,808

Source: Survey data, 2022

According to the descriptive statistics table of Subsidies, similar to the above tables, statistics are conducted on a five-variable scale. It can be seen that the variable TROCAP1 - I will decide to stay at work if I receive salary, food, etc... is the opinion that has the most agreement with the average value of 3.73/5, however, the standard deviation from the rest of the variables is not too high, at 0.783. For the remaining variables, the agreement level is smaller, but the difference with TROCAP1 is not too much and the standard deviation of the variables does not have mutational differences. It shows that these factors are having a great impact on employees - who give opinions for the survey.

3.5. Employee's assessment of the Employment Attraction Factor in other regions

Table 5. Descriptive Statistics Attraction Factor

Elements	Observed variables	Content	The average value	Std. Deviation
Attraction, job opportunities in other areas:	SUCHUT	Attraction, job, opportunities in other areas:		
	SUCHUT1	Higher level of income	3,71	0,717
	SUCHUT2	Lower cost of living	3,65	0,794
	SUCHUT3	More suitable job	3,75	0,753
	SUCHUT4	Convenient for commuting because close to home, close to family	3,85	0,739

Source: Survey data, 2022

For the descriptive statistics table Attraction factor, with the five-variable scale being conducted, it can be seen from the obtained results that the SUCHUT4 factor is the factor that achieves the greatest agreement, and similar to the other tables. Statistics describe the factors above, the difference between the mean and the standard deviation is different, but

the difference is not too much. It can be seen that the opinion is similar, the factor has had a profound impact on the majority of survey participants and has shown that this is a factor that has a profound impact on employees.

3.6. Employee ratings of Trend Factor

Table 6. Descriptive Statistics Trend Factor

Elemen	Observed variables	Content	The average value	Std. Deviation
Trend	XUHUONG	Moving trend		
	XUHUONG1	I wouldn't move if a similar pandemic broke out because I've experienced and reduced anxiety.	3,49	0,775
	XUHUONG2	I will not move because I am very satisfied with my current job.	3,41	0,844
	XUHUONG3	I won't move when I'm firmly attached to the job.	3,40	0,760

Source: Survey data, 2022

From the results of the statistical table on the influence of the 'Trend' factor, we see that the scales have a consensus level ranging from 3.40 to 3.49. The lowest level of agreement belongs to the scale of “I will not move when I am firmly attached to the job.” (reaching 3.40/5). The highest level of agreement was with the observed variable “I would not move if there was a similar pandemic outbreak because I experienced and reduced anxiety.” (reaching 3.49/5). In addition, the standard deviation of the scales in the Trend is also relatively high, ranging from 0.775 to 0.884. This shows that the surveyed people have different thoughts about the trend of displacement in the context of the epidemic outbreak. This difference in action will be discussed more closely by the group in the following sections.

Table 7. Detailed table of statements in groups of factors

Identify	Variable	Load factor
Higher level of income	SUCHUT1	0,812
Lower cost of living	SUCHUT2	0,801
More suitable job	SUCHUT3	0,786
Convenient for commuting because close to home, close to family	SUCHUT4	0,785
The level of income during the pandemic has greatly affected my daily life	THUNHAP2	0,844
Assuming my income decreases, I will move to my hometown or to other regions to find a new job	THUNHAP4	0,843

Identify	Variable	Load factor
If my income increases to 1-2 million/month, I will continue to do my current job	THUNHAP3	0,816
The pandemic has significantly lowered my income	THUNHAP1	0,691
My current accumulation and related benefits are not enough to cover my life if I get sick	SUSOHAI3	0,795
Fear of the pandemic is the main reason why I have to relocate for work	SUSOHAI4	0,754
I myself or a loved one have an underlying medical condition and my health will be affected if I contract Covid-19	SUSOHAI1	0,751
The number of deaths where I live is so high that I worry	SUSOHAI2	0,695
The rising cost of living makes my life more difficult than before	CHIPHI3	0,816
The high cost of living is the reason why I have to move back to my hometown or to other places where the epidemic situation is more stable	CHIPHI4	0,792
I accept to pay more medical-related living expenses to ensure health.	CHIPHI2	0,763
I had to spend more during the pandemic.	CHIPHI1	0,642
I look forward to receiving more attention and subsidies from the company	TROCAP3	0,789
I look forward to receiving more attention and subsidies from the local community	TROCAP4	0,760
I feel satisfied because I have Covid test support, cost support for F0	TROCAP2	0,595
I will decide to stay at the place of work if I receive a salary subsidy, food, etc...	TROCAP1	0,543

In fact, workers have the highest intention to move when they are attracted to jobs in areas other than industrial zones in the southern key economic region. The main reasons for this attraction include attractive income and reasonable costs. The two factors THUNHAP and CHIPHI are reflected in the SUCHUT factor, so workers tend to move their jobs when there are attractive new job opportunities in other localities.

The TROCAP factor has the least impact on the intention to move workers. While the cost of living has increased, wages have been significantly cut, and subsidies from the Government or local authorities are still very limited, unable to compensate for the loss from the epidemic. So even if they receive a subsidy, workers will have little reaction to the decision to move or not.

Table 8. Regression coefficients of independent factors to Trend

Model	Unnormalized coefficients		Normalization coefficient	T	Sig,
	B	Standard error	Beta		
(CONSTANT)	-0,856	0,344		-2,492	0,014
THUNHAP	0,179	0,073	0,162	2,458	0,015
CHIPHI	0,142	0,071	0,123	2,005	0,047
SUSOHAI	0,326	0,075	0,293	4,319	0,000
TROCAP	0,171	0,079	0,146	2,172	0,031
SUCHUT	0,363	0,072	0,326	5,032	0,000

Source: Research team, 2022

Sig value, in the table is used to determine the significance level of the regression coefficients of the independent variables. The statistical hypothesis tests all apply significance level of 5% or Sig, must be less than 0.05 to be considered significant. Therefore, the independent variables Income, Cost, Pandemic Fear, Allowance, Attraction (sig < 0.05) are all significant in the proposed model.

Comment on the level of impact:

$$XUHUONG = -0,856 + 0,162*THUNHAP + 0,123*CHIPHI + 0,293* SUSOHAI + 0,146*TROCAP + 0,326*SUCHUT$$

The sign of the above regression function has shown the meaning:

Variables: Income, Cost, Pandemic fear, Allowance, Attraction all have a positive impact on the mobility trend of workers. All variables (Income, Cost, Pandemic Fear, Allowance, Attraction when changing one unit), the trend is in the same direction as: 0.162; 0.123; 0.293; 0.146, 0.326, respectively.

4. Discussion and Conclusion

In summary, it has systematized the main causes which affect the mobility of workers. In addition, this report has analyzed the data collected from the General Statistics Office of Vietnam, through independent surveys conducted with businesses and employees. From the factors proposed as well as some solutions that businesses, employees and we propose ourselves, which can be useful ideas and can be the basis for not only Vietnam but many other countries to consult when the events with great impact suddenly occur, like the Covid-19 pandemic that has impacted Vietnam. Here are some of the research's recommendations:

Firstly, improving the quality of labor and information on labor supply and demand needs to be more complete. The times after the crisis, the recovery period is always the period when the job demand is active again. However, in countries with developing economies such as Vietnam, the connection between employers and employees does not have a strong and durable connection. The information about labor is not common and the recruitment information is mostly aimed at local workers and is less likely to attract labor elsewhere (especially in the provinces and cities that are not the center of the country such as economic, financial or production), is the lower level. Along with that, another very important reason is the quality of

labor, for Vietnam, although the quality of labor is improving, in general it is still low and needs to be further improved in the future. Low-skilled workers during the recent Covid-19 pandemic, they are the ones most affected by the pandemic. Therefore, improving the skills of workers is also contributing to minimizing the consequences, impacts and risks of future crises.

Second, State policies need to be flexible and be expressed more quickly.

According to our research, allowance is one of the main factors for employees to decide to work in a certain locality, but it is also the main reason for employees to have to go to another area or leave their hometown when they can't wait for the subsidy packages. Meeting the procedures to receive subsidies from the government and businesses which takes too much time and has some disadvantages. In my opinion, this is a difficult problem. However, from the lessons learned by the recent Covid-19 pandemic, businesses and the state should make timely corrections and amendments so that employees can feel more secure at work and work.

Third, develop the economy more sustainably and evenly across regions. According to the information and data we have collected. It can be seen that the developed economic regions are the places where the most labor is concentrated. And in general, that has caused. The difference in labor, also as the labor shortage of many other localities. Therefore, it is necessary to develop a sustainable and multi-centre economy, Narrow the development gap between regions and provinces, so that workers can work in the locality Help thrive than the local economy About reducing the load. Labor demand Shortage in rural areas and surplus labor in large urban areas./.

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VIETNAMESE STUDENTS' GLOBAL CITIZENSHIP CAPACITY IN THE CONTEXT OF GLOBALIZATION

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Abstract

The COVID-19 pandemic has impacted all aspects of social life, including education. From the traditional form of learning, higher education institutions have to switch to online teaching. Not only that, the COVID-19 pandemic also shows the dependence between countries around the world in the race for a vaccine to prevent the spread of coronavirus. This study aims to examine the factors affecting students' global citizenship capacity in the context of globalization. The study uses Morais and Ogden's model to assess students' global citizenship capacity to provide an overview and direction to educate students in the context of globalization.

Keywords: *COVID-19, educational institution, global citizenship, global competence, globalization, higher education.*

1. Introduction

In recent years, the context of globalization has taken place strongly as well as had many obvious impacts on all aspects around the world. Thanks to the process of globalization, the distance between countries has decreased, giving the chance of accessing to information, human knowledge, and building good relationships among countries more easily. In addition, the outbreak of COVID-19 caused the dependence between countries and individuals around the world is even more evident when witnessing the race to change policies regulations and vaccines to prevent the spread of COVID-19. The issue of globalization has really affected all areas to control the epidemic in countries, it is both an opportunity and a challenge that countries face.

Similar to other countries, the COVID-19 pandemic requires Vietnam to both develop socio-economic and improve its ability to adapt to the change of new context. In

fact, the “new normal” is opening up many directions if there is a timely transformation, higher education can completely assert its position and rise to strong development. However, the concept of global citizenship is still quite new and university’s responsibility for global citizenship education has hardly been researched.

Along with that, the role of global citizenship education is of great significance to the influence of a citizen's culture and society on the country and the world. In the era of technology development, distance is no longer a barrier preventing students from comprehensive development and integration into the modern world. Global citizenship education towards tapping into human potential with lifelong learning capabilities, self-worth awareness, career orientation awareness, and a deep awareness of what one’s culture is the most important important when applying intercultural values that aspire to solve global problems. Global citizenship education has also become a target educational trend of countries when facing the global vision of the United Nations' 2030 SDGs Sustainable Development Goals. Accordingly, when referring to goal 4.7 on global citizenship, it is mentioned that “By 2030, ensure that all learners have the knowledge and skills necessary to promote sustainable development, including, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture’s contribution to sustainable development”. It can be seen that global citizenship education is an inevitable trend that requires the education system to build learners' values, soft skills, and attitudes in the face of the constant fluctuations of globalization.

2. Literature Review

2.1. Overview of research projects on Global citizenship

The concept of "global citizenship" is getting more attention worldwide in general and in Vietnam in particular. This concept was mentioned about thousands of years ago, from the time of ancient Greece related to the right to govern the subjects of the King in the cities of Rome, Greece,... In the context of deep and wide international integration with the international community in Vietnam, the concept of "Global Citizen" is increasingly focused and becomes more urgent.

According to Richardson (1997), a "global citizen" is someone who is aware of how the world works, and stands up against injustice. In addition, they must be willing and able to face global challenges as well as provide solutions to global problems.

Ikeda (2010) introduced the concept of global citizenship, he said that wisdom, courage, and compassion always interact and support each other and that is what nourishes and directs people to become global citizens. Social responsibility (awareness of social inequality, concern for others and the environment, and recognition of local and global interconnectedness) corresponds to compassion and wisdom as Ikeda (2010) defines. In 2015, UNESCO introduced the concept of global citizenship. Accordingly, Global Citizen is the awareness of a large community and common features of humanity, thereby showing the connection and mutual bond among the political system, the economy, humanity, and cultural traditions around the world.

Of all the studies on "Global Citizen", most of the studies have confirmed the essential points that make up a global citizen: respect for human values; say no to behaviors related to discrimination on the basis of race, age, sex, religion and political opinions; aware of its responsibilities in providing approaches to solving global problems; consciously protecting and valuing nature and the life of all things; resolutely oppose acts that manifest injustice or inequality in society in any form.

2.2. Overview of research projects on Global competence

An international education initiative, called global competence, was first recognized in 1988, in a report published by the Council for International Educational Exchange. Lambert (1996), considered by many to be the father of the Global competence initiative, defined a globally competent citizen as someone with knowledge (of current events), able to empathize with others. , show approval (remain positive), have a low level of foreign language ability and the ability to perform tasks is not up to standard.

Global citizenship competency is understood as an open mind, actively understanding the cultural norms and expectations of others and utilizing this knowledge to interact, communicate and work effectively with the external environment. (American Board of Education, 2008; Deardorff, 2006; Hunter et al., 2006; Peterson et al., 2007; Westheimer & Kahne, 2004). Globally competent students recognize their limitations and abilities in participating in cultural exchanges and demonstrate a range of cross-cultural communication skills.

The Organization for Economic Cooperation and Development (OECD) (2016) also introduced the concept of global citizenship competency through the PISA international student assessment program. Accordingly, global competence is the ability to think and analyze local, global and intercultural issues in order to understand and appreciate the perspectives and worldviews of others. From there, core criterias are developed in four areas: skills, knowledge and understanding, attitudes, and values.

(1) Analytical and critical thinking skills, the ability to interact respectfully, rationally and effectively

(2) Knowledge and understanding of global and intercultural issues

(3) An open attitude towards people from different cultures, respecting cultural differences, and aiming for global responsibility.

(4) Appreciate human dignity and cultural diversity.

3. Method

In line with the scope of research based on theory and practice to assess "global citizenship" in students in Vietnam, the research team has chosen the scale of Morais and Ogden (2011). edited as a theoretical framework. Because this is a relatively modified and perfected scale from many previous studies, it is used mostly in research papers when assessing global citizenship capacity in students. The research team will use the dependent variable which is the global citizenship capacity with the independent variables drawn from the research model: Self-Awareness, Intercultural Communication and Global Knowledge. In addition, the newly added independent variable is: Appreciate cultural values.

In order to better control the impact of variables in the model, the research team decided to use the following variables: gender, school year, major, career orientation, level of participation in activities at university, the level of interest in global issues, the degree of connection of students' relationships.

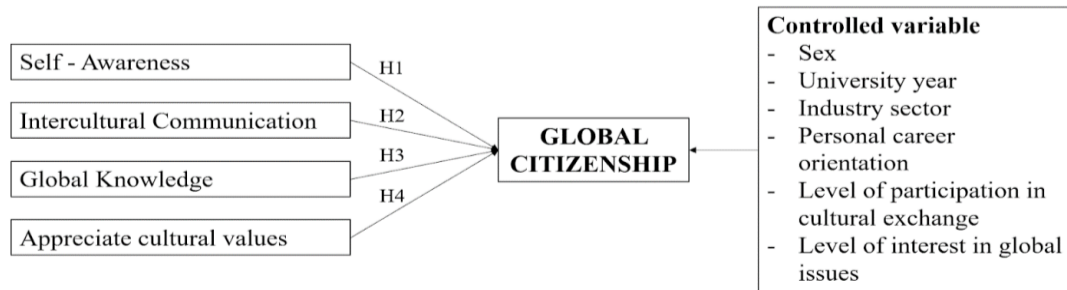


Figure 1. Research Model

Self-awareness is the ability to self-recognize, including thoughts, experiences, and abilities. From there, you have understanding and acceptance of inherent qualities to promote your strengths, limit your weaknesses in order to organize your life well and improve your relationships with people. In summary, self-awareness is an important skill in modern society.

Intercultural Communication capacity is the contact and exchange of information and emotions between people from many cultures and different cultural expressions in a particular region or the world in general. Through it, people can exchange information, emotions, perceptions, and interactions between cultures and cultural communities around the world.

Global Knowledge is essential for adapting to an international environment that includes social issues of global concern. This ability enables students to apply their global experience to work anywhere in the world, solving emerging problems locally and connecting with the world such as epidemic, environmental pollution, schools, terrorism, global trade...

Appreciate cultural values is a key competency for success in the context of globalization. It requires learners to have the ability to access information, research and evaluate social issues based on their own perspectives. Therefore, receiving a person's cultural values can build a cultural value system and a standard value system in morality, personality, creative capacity and civic duty in international integration.

4. Results

4.1. Respondent profile

The survey received 503 valid responses, including 191 votes (38%) from males, 312 votes (62%) from females. With 150 (29.8%), third-year students received the most votes, followed by sophomores with 148 (29.4%), freshmen with 145 (28.8%), fourth-year students with 60 (11.9%). It is acceptable to conclude that third-year students are more concerned about this topic. Furthermore, the survey respondents' educational backgrounds are at the university level, which has resulted in a strong personal opinion and life perspective that they need to conduct this survey.

Table 1 illustrates the number and percentage of students participating in the survey from the Northern schools in Vietnam, mainly the Hanoi University of Science and

Technology, National Economics University, VNU University of Social Sciences and Humanities, Academy of Journalism and Communication.

Table 1. Respondent of students from universities in Vietnam

Name of the university	Number of respondents	Percentage
National Economics University	111	21.1%
ThuongMai University	47	9.3%
Hanoi University of Science and Technology	131	26%
Posts and Telecommunications Institute of Technology	50	9.9%
VNU University of Social Sciences and Humanities	65	12.9%
Academy of Journalism and Communication	64	12.7%
Other universities	35	7%

Source: Author's survey results

Table 2 demonstrates the number of students in the different majors and the percentages in each category. As presented in the chart, the number of students in the economic sector accounted for the largest number, with 176 students (equivalent to 35%), followed by engineering students with 121 (24.1%), Journalism and Social students with 112 students (22.3%). Finally, there are students from other majors with 18.7%, equivalent to 94 people.

Table 2. Respondent of students from different majors in Vietnam universities

Name of the major	Number of respondents	Percentage
Economic	176	35%
Engineering	121	24.1%
Journalism and Social	112	22.3%
Other majors	94	18.7%

Source: Author's survey results

4.2. Descriptive statistics analysis

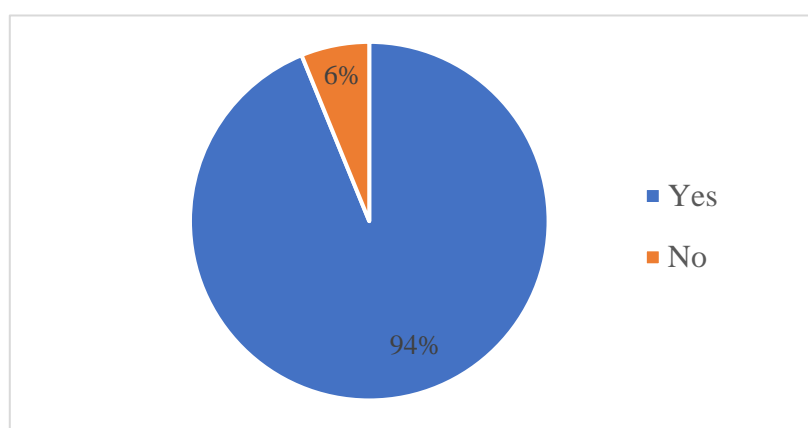


Figure 2. The necessity of becoming Global Citizen

Source: Author's survey results

With a very high level of awareness about the need of Global Competence, equivalent to 93.8%, we recognize that the needs and desires of students to become global citizens make up the very important role of Global Citizenship in the context of globalization. Most students themselves realize that the increasingly flat world is an opportunity as well as a challenge for the young generations in Vietnam-Southeast Asia in particular and the world in general in promoting their ability to become a global citizen.

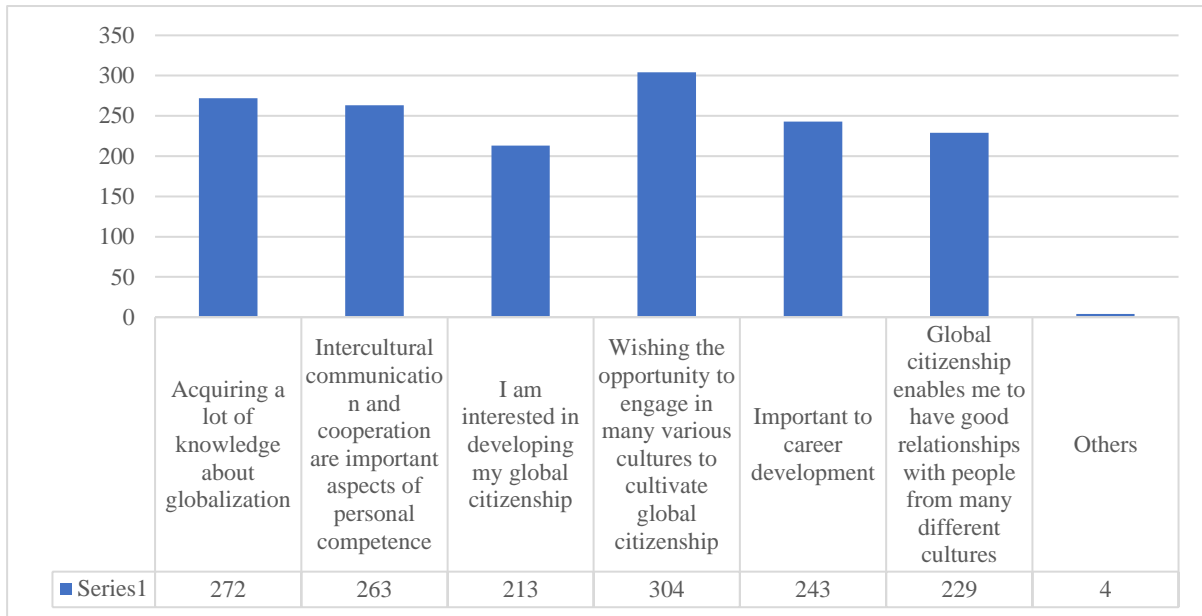


Figure 3. List of motivates to become a global citizen

Source: Author's survey results

The role of Global Competence appears in many aspects of student life as well as learning. Firstly, Global Competence plays a role in Personal Development, which is expressed in the aspect of “Wishing the opportunity to interact with many different cultures to cultivate global citizenship” which takes the highest rank with 304 votes out of 503, equivalent to 60.4%. Besides, other factors within the scope of self-development are "Acquiring a lot of knowledge about globalization" and " Intercultural communication and cooperation are important aspects of personal competence” also received high votes, 54.1% and 48.3% respectively.

The development and acquisition of knowledge is also an essential factor of a person receiving a higher education like the majority of respondents in this survey. This proves that the relationship of global competence and self-development capacity is complementary to each other, the development of intelligence is always accompanied by the global issues in social topics as well as learning platforms and tools. A person who wants to develop knowledge will be actively or passively led to the knowledge resources around the world and from there they will be partly influenced by ideologies and opinions beyond their geographic space from it. Therefore, global competence becomes an important key for students to expand their understanding as well as be more open in the process of accepting different cultures.

Global competence is also extremely important in developing students' careers in this era of globalization, expressed in the fact that the factor “Important to career development ranks 4th out of a total of 503 votes, accounting for 45.5%. Firstly, in order to have all the elements constituting a global competency, students themselves will have to learn and hone their knowledge and skills related to their field of study and at the same time develop themselves comprehensively at the university. Thereby, they gradually create the necessary knowledge for themselves in the development of their future careers. Secondly, when global competence has been formed in students themselves, they will have all the elements and skills to participate in the domestic and international labor market without encountering any (or less) language and cultural barriers, from which they can easily seize opportunities for development and promotion.

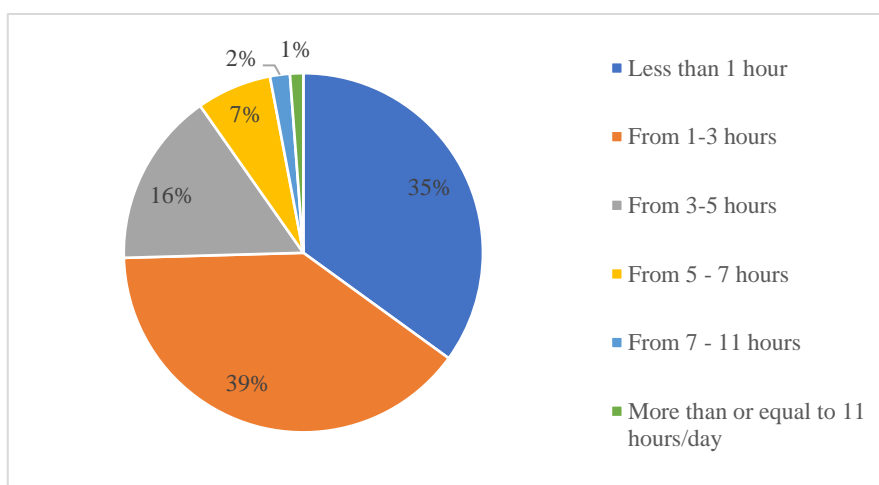


Figure 4. The level of interest in global issues (hours/day) through books, television, mobile devices

Source: Author's survey results

In a world where information technology has developed rapidly, it is not surprising that students' interest in global issues is quite high, with a total of 39.6% of students interested in 1-3 hours of studying global issues, and a total of 65% of students are interested in these issues more than 1 hour/day. The interest in global issues is a testament to the fact that students are closely connected to the development and operation of events which take place in different cultures and countries. They concern and set a special space in their mind to develop the ability to perceive this problem, and thereby transform that knowledge into their own perception. This demonstrates the role of global citizenship in building habits and further building students' inner consciousness in receiving and evaluating global issues.

5. Conclusions

This study proposes a methodology to assess students' global citizenship capacity in the context of globalization. In addition, the study also shows an overview of students' capabilities when the COVID-19 epidemic becomes widespread in Vietnam and Vietnam's gap with other countries in the world. The research model that the study propose can be expected as a basis for assessing student capacity at higher education institutions in Vietnam.

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FACTORS AFFECTING THE EMPLOYMENT OF PEOPLE WITH DISABILITIES IN VIETNAM

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Abstract

People with disabilities are one of the most vulnerable groups in society, they face various difficulties and barriers, especially in finding opportunities to participate in the labor market. This study explored factors affecting the employment of disabled people in Vietnam, thereby determining the correlation between the employment status of people with disabilities and the main independent variables including Family Support and Social Support. The results showed the differences in employment rates among different groups of people with disabilities. Especially, Family Support and Social Support had a positive impact on the employment status of the disabled. The authors also suggest some changes in policies to increase employment opportunities for people with disabilities in Vietnam.

Keywords: *disabled labor, employment, people with disabilities, policy.*

1. Introduction

In order to reduce poverty and achieve its sustainable development goals, Vietnam faces a multitude of challenges. To overcome those challenges and get the goals, the country needs to mobilize all human resources, including the vulnerable. People with disabilities are one of the typical vulnerable groups in society. In Vietnam, the estimated number of people with disabilities is 6.1 million, accounting for about 7.8% of the population. However, the unemployment rate for people with disabilities is 28%, and the more severe the disability, the higher the unemployment rate (74.7%). The unemployment rate in the urban areas is 13.9% - a relatively large number (United Nations Population Fund, 2009). In the coming time, the number of people with disabilities in Vietnam is expected to increase continuously because the country is still affected by agent orange dioxin during the war with the US and the impact of environmental pollution, traffic accidents, and the heavy impact from natural disasters. Therefore, finding the factors affecting employment thereby creating conditions for people with disabilities to integrate into the community is extremely necessary.

2. Literature review and research model

2.1. Literature review

Persons with disabilities include those who have long-term physical, mental, intellectual, or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others (United Nations, 2006). According to Chapter I, Law on Persons with Disabilities, persons with disabilities means a person who is impaired in one or more body parts or suffers functional decline manifested in the form of disability that causes difficulties with his/her work, daily life and study. National Assembly divides the classification of disability and the levels of disability including 6 main types of disability: physical disability; deaf and dumb disability; visual disability; mental and psychiatric disability; intellectual disability; other disabilities and 3 levels of disability are particularly exceptionally serious disabilities; serious disability; mild disabilities (National Assembly, 2010).

Studies in Vietnam show that people with disabilities face mental and physical barriers (Ngoc, 2016; Dai, 2017). Chi (2017) pointed out that a factor influencing strongly the employment of people with disabilities is the facilities and access conditions. People with disabilities tend to have a 50/50 mentality with their educational choice because of their incomplete and inaccurate view of the rights and benefits of an apprenticeship. In addition, the impact of family factors also greatly affects vocational training to encourage people with disabilities to participate in the labor market (Duong, 2019).

The World Health Organization (2001) issued the International Classification of Function, Disability, and Health (ICF) synthesized by the deficit model and social model. The model pointed to factors that directly affect people with disabilities in question such as products and technologies; connections and support from family, friends, authorities; age; gender; education; lifestyle, etc. In addition, a series of studies simultaneously point to factors that have a significant effect on the employment status of people with disabilities are the levels of disability, gender, age, and educational attainment (Grow, 2004; Shaw et al., 2007; Boman et al., 2015; Narahariseti & Castro, 2016). In addition, the living area is also a variable of interest in the studies of Shaw et al (2007), Narahariseti & Castro (2016), and Boman et al (2015). The type of disability is a factor given in the studies of Narahariseti & Castro (2016), Marigu (2012), Boman et al (2015) to assess the impact on employment of people with disabilities. Opoku et al (2016) pointed to family support and social support as factors that significantly influence the ability of people with disabilities to be employed, these factors along with the marital status of people with disabilities are also considered (Lee & Park, 2008).

Some research in Vietnam covered the issue of people with disabilities and jobs for people with disabilities and propose measures to support them. These include the study "Employment for people with disabilities under current Vietnamese law" (Ngoc, 2016), the study "Social work in supporting livelihoods for people with disabilities in Bac Ninh city" (Chi, 2017), "Expanding employment opportunities for people with disabilities in Vietnam" (UNDP, 2020), etc. However, most studies used qualitative methods to approach. This study is based on the theory of studies in the world to understand the factors affecting the

employment of people with disabilities in Vietnam by using quantitative data to take a complete and more comprehensive approach to the factors affecting the participation in the labor market of people with disabilities in Vietnam.

2.2. Research model

The research model is built on 3 characteristics: Sociodemographic characteristics including the variables "Age", "Gender", "Education level", "Marital status"; Disability-related characteristics including the variables "Types of Disability", "Level of disability" and social environment characteristics with the variables "Living area", "Family Support", "Social Support".

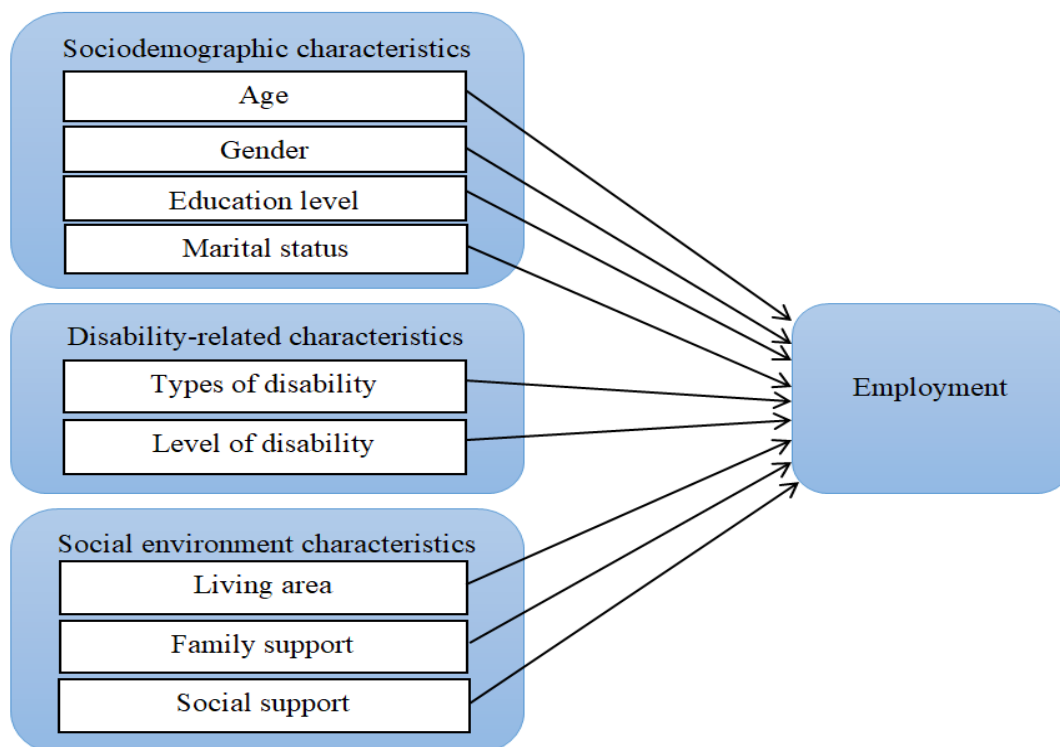


Figure 1. Research model

Employment (E)

In study of Naraharisetti & Castro (2016) the dependent variable is the employment variable and whereby respondents are categorized in two forms employed or unemployed. This study inherits the approach of Naraharisetti & Castro (2016).

Gender (G)

Gender is considered as a factor that has a significant effect on the employment status of people with disabilities when male disabled workers have more job opportunities than female disabled workers (Grow, 2004; Shaw et al., 2007; Lee & Park, 2008; Marigu, 2012; Boman et al., 2015).

Age (A)

Results on employment status by age are different in studies, with young age groups having higher employment rates (Grow, 2004; Marigu, 2012), in contrast to the study of

Shaw et al (2007), found that people in the old age group were more employed. However, Lee & Park (2008) found no significant association between age and employment.

Education level (EL)

Studies show that education levels have a major impact on their ability to participate in the job market, while the higher the education, the higher the employment rate (Shaw et al., 2007; Lee & Park, 2008; Opoku et al., 2016). This result differs from the study of Grow (2004), people with visual disabilities with an education at the middle school level had a higher employment rate than those with a college degree, and much higher than those without an education.

Marital Status (MS)

Lee & Park (2008) indicate that the employment prospects of people currently living with their partners are about 2.7 times higher than that of those who are single.

Types of disability (TOD)

Workers with physical disabilities are supposed to have higher job opportunities than other types of disability (Marigu, 2012), while Naraharisetti & Castro (2016) points out that people with physical disabilities or visual disabilities are all potentially highly employed. According to Boman et al (2015), the group of people with disabilities with mental and psychiatric disabilities is the least likely group to be employed.

Level of disability (LOD)

The level of mild disability is thought to give people with disabilities a higher chance of participating in the labor market (Grow, 2004; Shaw et al., 2007; Lee & Park, 2008).

Living area (LA)

According to Lee & Park (2008), people living in metropolitan areas are more likely to work than those living in small cities or rural areas. Naraharisetti & Castro (2016) points out that people with types of mental disabilities are less likely to be employed in rural areas.

Family support (FS)

Opoku et al (2016) believes that being abandoned, lack of care and teaching from their families not only affects people with disabilities mentally, but they also lack the skills to help them be hired or have any support so that they can run their own business.

Social support (SS)

Lee & Park (2008) believes that the higher the practical support from family and community members is, the lower the employment rate of people with disabilities is. These results are in contrast to the study of Opoku et al (2016), people with disabilities are discriminated against by those around them, and it is the prejudices of society that affect their ability to be employed.

3. Method

The authors proceeded to collect preliminary information using the survey method through questionnaires. The questionnaire was tested in a pilot with 5 people with disabilities, after ensuring the consistency, clarity, and understandability for the newly surveyed respondents sent to the respondents in the form of printed tables for a direct

response from 27/11/2021 to 15/12/2021. The result was 214 responses, of which 186 were valid. The data is processed on SPSS software version 26 to test the reliability of the quantitative independent variable scale before conducting a rotating factor and matrix analysis to identify groups of factors affecting the employment of people with disabilities. The groups of factors are included in binary regression analysis to determine the explanatory levels of independent variables to dependent variables.

4. Results

The results of the study showed that the employment rate among male (64.2%) was about 1.6 times higher than the percentage of employment in female (39.6%). In terms of the age of people with disabilities, the age group that participates in the labor market the most is the age group 25-39 years old, and the most unemployed age group is from 50 to 54 years old. This result is the same as the model of Shaw et al (2007) and Lee & Park (2008) on the effect of education level on employment of people with disabilities, most people with disabilities in intermediate or college, or university degrees or higher are significantly more likely to engage in the labor market than those with disabilities with low levels of education. In terms of the marital status of the survey participants, most of the married people answered that they had a job. In addition, the number of people with employment rate is also higher for people with physical disabilities (67.4%) or visual disabilities (76.2%), while the number of people with disabilities with mental and psychiatric disabilities (16.7%) has very few opportunities to participate in the labor market. It is not too surprising to look at employment outcomes at significantly higher levels of mild disabilities than those with particularly exceptionally serious disabilities, serious disabilities. Finally, people with disabilities living in cities were more likely to be employed than people with disabilities living in rural areas.

For quantitatively independent variables, the team chose to use a 4-point Multi-Dimensional Support (MDSS) scale. The surveyor was asked to respond by selecting the most appropriate level on a scale of 1 to 4 as follows: (1) Never; (2) Sometimes; (3) Often; (4) Always (Winefield et al., 1992). Table 1 shows specific results.

Table 1. Descriptive statistics of quantitative independent variables

Factor	Observable variable	Mean	Standard deviation
Family support	FS1	2.70	1.000
	FS2	2.82	0.967
	FS3	2.95	1.007
	FS4	2.85	1.016
	FS5	2.88	1.012
	FS6	2.61	0.937
Social support	SS1	2.66	1.013
	SS2	2.74	1.014
	SS3	2.63	1.012
	SS4	2.85	0.995
	SS5	2.68	1.035

The result of testing the reliability of the variables in each group are based on Corrected Item Total Correlation greater than 0.3 and Cronbach's Alpha greater than 0.6 before processing the next analytical steps and is shown in table 2.

Table 2. Results of reliability statistics

Criteria	Corrected item - total Correlation	Cronbach's Alpha if Item Deleted
<i>Family support (FS)</i>	<i>Cronbach's Alpha = 0.905</i>	
<i>FS1</i>	<i>0.763</i>	<i>0.885</i>
<i>FS2</i>	<i>0.814</i>	<i>0.878</i>
<i>FS3</i>	<i>0.786</i>	<i>0.881</i>
<i>FS4</i>	<i>0.651</i>	<i>0.902</i>
<i>FS5</i>	<i>0.764</i>	<i>0.885</i>
<i>FS6</i>	<i>0.661</i>	<i>0.899</i>
<i>Social support (SS)</i>	<i>Cronbach's Alpha = 0.879</i>	
<i>SS1</i>	<i>0.781</i>	<i>0.836</i>
<i>SS2</i>	<i>0.766</i>	<i>0.840</i>
<i>SS3</i>	<i>0.528</i>	<i>0.895</i>
<i>SS4</i>	<i>0.735</i>	<i>0.848</i>
<i>SS5</i>	<i>0.756</i>	<i>0.842</i>

The results indicated that the "Family support (FS)", "Social support (SS)" having Cronbach's Alpha coefficient > 0.6 indicated a good scale and all of the variables in the group had a Corrected Item-Total Correlation greater than 0.3 ensuring conditions (Trong & Ngoc, 2008). Therefore, the observed variables are accepted and retained.

The "Social Support (SS)" group has a Cronbach's alpha coefficient = $0.879 > 0.6$ showing that the scale uses good measurement. Although the SS3 variable has a coefficient of Cronbach's Alpha if Item Deleted is greater than Cronbach's Alpha, the difference is not much due to Corrected Item-Total Correlation of the SS3 variable = $0.528 > 0.3$, so the team retained and considered the convergence of the variable at the exploratory factor analysis step to evaluate the quality of the variable and then make a decision whether to remove the variable or retain it.

Factor analysis will consider the possibility of reducing a set of interdependent measures into a smaller set of variables (called a factor) but still including the information of the original set of observable variables. To reflect specifically the impact of independent variables on the specific variables (Trong & Ngoc, 2008). The research team tested once more time whether the rating coefficients of the observable variables in each factor really achieved reliability and cohesion as shown in the Cronbach's Alpha coefficient test or not.

The scale of factors affecting the employment of people with disabilities has 10 components including 9 independent variables (age, gender, education level, marital status, level of disability, types of disability, living area, family support, social support) and 1 dependent

variable- employment. In the 10 variables of the model, there are 2 quantitative variables measured by 11 observable variables that will be analyzed EFA discovery factors as follows:

Table 3. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.893
Bartlett's Test of Sphericity	Approx. Chi-Square	1345.225
	Df	55
	Sig.	0.000

KMO test results reaching 0.893 greater than 0.5 and Sig. of Bartlett's test reaching 0.000 is less than 0.05 indicating that these observable variables are correlated with each other and are fully consistent with factor analysis.

Table 4. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.086	55.324	55.324	6.086	55.324	55.324	4.008	36.438	36.438
2	1.428	12.981	68.306	1.428	12.981	68.306	3.505	31.867	68.306

The data processing results show that there are two groups of factors cited based on the Eigenvalue criterion greater than 1, so these two groups summarize the information of the 11 observable variables in the best way for inclusion in EFA. The total variance cited by these two groups of factors was 68.306% >50%, which represents two factors that explain 68.306% of the data variability of the 11 observable variables involved in the EFA.

Table. Rotated Component Matrix

	Component	
	1	2
FS2	0.841	
FS3	0.805	
FS1	0.796	
FS5	0.796	
FS4	0.745	
FS6	0.671	
SS1		0.862
SS2		0.848
SS4		0.779
SS5		0.771
SS3		0.606
Extraction Method: Principal Component Analysis.		
Rotation Method: Varimax with Kaiser Normalization. ^a		
a. Rotation converged in 3 iterations.		

The above data table shows that 11 observable variables are divided into two groups of factors: Family Support and Social Support. All of the observable variables have a factor loading greater than 0.5 and no bad variables.

After testing reliability and analyzing exploratory factors for quantitative independent variables that achieve the standard of test coefficients, the team put all the variables into the model to run Binary Logistic. In order to include the properties of qualitative variables in the quantitative regression model, the team carries out quantification of the properties using dummy variables. The model is as follows:

$$\text{Log}_e \left[\frac{P_i}{1-P_i} \right] = B_0 + B_1A_1 + B_2A_2 + B_3A_3 + B_4A_4 + B_5A_5 + B_6A_6 + B_7A_7 + B_8A_8 + B_9A_9 + B_{10}G + B_{11}MS + B_{12}EL_1 + B_{13}EL_2 + B_{14}EL_3 + B_{15}EL_4 + B_{16}EL_5 + B_{17}TOD_1 + B_{18}TOD_2 + B_{19}TOD_3 + B_{20}TOD_4 + B_{21}TOD_5 + B_{22}LOD_1 + B_{23}LOD_2 + B_{23}LA + B_{24}FS + B_{25}SS$$

P_i : Probability of have a job

$1 - P_i$: Probability of no job

$A_1; A_2; A_3; A_4; A_5; A_6; A_7; A_8; A_9$: Dummy variables of age variables

G: Gender

MS: Marital status

$EL_1; EL_2; EL_3; EL_4; EL_5$: Dummy variables of education level

$TOD_1; TOD_2; TOD_3; TOD_4; TOD_5$: Dummy variables of types of disability

$LOD_1; LOD_2$: Dummy variables of the level of disability

LA: Living area

FS: Family support

SS: Social support

B_0 : Regression coefficient

$B_1; B_2; B_3; \dots; B_{23}; B_{24}; B_{25}$: Regression coefficients corresponding to variables

The Enter method is the regression method used by the team, selected through the criteria of selecting factors with a meaningful level of Sig. < 0.05. Regression results:

Table 6. Omnibus Test of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	175.603	26	0.000
	Block	175.603	26	0.000
	Model	175.603	26	0.000

The result shows that the Sig. tested Chi-squared value corresponding to the Model row of $0.000 < 0.05$ shows that the regression model is perfectly appropriate.

Table 7. Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	81.904 ^a	0.611	0.815

a. Estimation terminated at iteration number 9 because parameter estimates changed by less than .001.

Table 7 shows the model's relevance results. The value of -2 Log likelihood with the blank model is 257.507, while -2 Log likelihood in the last proposed model is 81.904, indicating that when introducing independent variables into the model has significantly reduced -2 Log likelihood in the blank model, demonstrating the suitability of the regression model.

The Nagelkerke R square value showed the model fit. The model has a Nagelkerke R square value of 0.815 which is relatively high. In other words, 81.5% of the variation of the "Employment" variable is explained by the nine independent variables of the proposed model, the rest is due to the influence of factors that are not in the model. Thus, the regression model achieves high relevance.

Table 8. Classification table

Observed			Predicted		
			Employment		Percentage Correct
			Unemployed	Employed	
Step 1	Employment	Unemployed	79	10	88.8
		Employed	9	88	90.7
	Overall Percentage				89.8

a. The cut value is .500

Table 8 shows the results of classification of practical and predictive cases.

In 88 cases of observed practically not having jobs, the predicted 79 cases of joblessness were predicted, the correct prediction rate was $\frac{79}{88} \cdot 100\% = 88,8\%$.

In 98 cases of actual observations having jobs, the predicted 88 cases of employment were predicted, the correct prediction rate was $\frac{88}{98} \cdot 100\% = 90,7\%$.

Thus, the average correct project rate of the whole model is 89.8%.

Table 9. Variables in the equations

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	FS	1.508	0.644	5.478	1	0.019	4.517
	SS	1.079	0.549	3.864	1	0.049	2.941
	A1	0.483	11.525	0.002	1	0.967	1.622
	A2	-0.182	3.840	0.002	1	0.962	0.834
	A3	0.571	1.934	0.087	1	0.768	1.770
	A4	0.436	1.179	0.137	1	0.711	1.547
	A5	0.258	0.820	0.099	1	0.753	1.294
	A6	-0.030	0.666	0.002	1	0.965	0.971
	A7	0.569	0.572	0.992	1	0.319	1.767
	A8	-0.543	0.858	0.400	1	0.527	0.581

	B	S.E.	Wald	df	Sig.	Exp(B)
A9	0.149	2.653	0.003	1	0.955	1.160
EL1	-2.201	1.727	1.624	1	0.202	0.111
EL2	-1.160	0.658	3.110	1	0.078	0.313
EL3	-0.632	0.268	5.557	1	0.018	0.532
EL4	-0.036	0.269	0.018	1	0.894	0.965
EL5	0.317	0.348	0.830	1	0.362	1.373
TOD1	2.891	0.874	10.949	1	0.001	18.008
TOD2	-0.732	0.553	1.753	1	0.185	0.481
TOD3	1.998	0.637	9.838	1	0.002	7.372
TOD4	0.075	0.448	0.028	1	0.867	1.078
TOD5	-0.308	0.283	1.183	1	0.277	0.735
LOD1	-2.133	1.074	3.946	1	0.047	0.119
LOD2	-1.314	0.409	10.328	1	0.001	0.269
G	1.926	0.757	6.477	1	0.011	6.863
MS	-2.864	1.252	5.232	1	0.022	0.057
LA	1.929	0.789	5.982	1	0.014	6.883
Constant	-10.918	23.175	0.222	1	0.638	0.000

Table 9 shows that all 9 dummy variables of the Age variable have a Sig. value greater than 0.05, thus the Age variable does not impact on the Employment variable at a meaningful 5%.

Gender variable, Marital Status variable, Area of Living variable, Family Support variable, and Social Support variable all have Sig. of a Wald test less than 0.05, proving that these variables all make sense in the regression model.

For each Education Level variable, Types of Disability variable, and Level of Disability variable, there is at least one dummy variable with a Sig. value of less than 0.05. It can be concluded that these variables all have an impact on the Employment dependent variable.

5. Discussion and Conclusion

Thus, compared to the 9 independent variables in the originally proposed model, there is only 8 independent variables in the model after regression analysis. Although statistics describing the "Age" variable show that people with disabilities in the 25-39 years old group had significantly higher employment rates than other age groups, when participating in this variable regression model was excluded from the model due to the Sig. value. of Wald test. Similar to the results of the study of Lee & Park (2008), the effect of the age factor on the employment of people with disabilities is unclear.

The results indicated that the proportion of men who are involved in the job market is significantly higher than that of female disabled workers. The cause of this difference may

be due to psychological barriers, perceptions, gender biased views in employment, and learning from people with disabilities themselves and their families. Meanwhile, organizations, businesses, and employers do not really have a clear awareness of the working capacity of female disabilities when always assuming that the productivity and labor efficiency of female disabilities are always lower than those of male disabilities.

The unemployment rate for married people is much lower than for those who do not have a partner (Lee & Park, 2008). It can be indicated that, when having a partner, people with disabilities will be motivated to try harder for the future for their own families. Therefore, they will always be looking forward to finding a stable job.

The results also showed that people with disabilities in urban areas had a higher employment rate than those in rural areas. It can be easily understood that when the conditions of facilities in training and vocational training places in rural areas are not as adequate as in the rural areas and most of the work is more distributed in urban areas, the disabled in rural areas have less opportunities to access to advanced science and technology.

Like the results of the study by Shaw et al (2007); Grow (2004); Lee & Park (2008), the higher the level of education is, the greater the employment rate is, especially when people with disabilities have intermediate degrees or universities or higher because when they have expertise and education, they will easily access to the labor market and be employed.

The types of disability also indicated the impact of this variable on employment when people with physical disabilities or visual disabilities have more chance to engage in the labor market than those with others and mental and psychiatric disabilities. This result is in line with study of Narahariseti & Castro (2016); Boman et al (2015) and only a little different from research of Marigu (2012).

People with mild disabilities are more likely to get a job because their level of disability does not affect their ability to participate in daily life activities.

Both family support and social support have a positive impact on the employment of people with disabilities. When they are supported mentally, physically or with the necessary information, their guilt will be less so that they can be motivated to try to get on well with the community. This result is similar to the study of Opoku et al (2016), but in contrast to the study of Lee & Park (2008).

From the above results, the authors have some of the following proposals to increase employment opportunities for people with disabilities in Vietnam:

It is necessary to eliminate employment between different genders with propaganda and dissemination measures to raise gender awareness, pay more attention to the problems of people with disabilities.

Supporting people with disabilities to seek happiness and move towards marriage through organizing reality shows about pairing for people with disabilities, along with building communities for them so that they could socialize, learn and get out of their own shells.

Building more vocational training institutions in the locality, regularly organize propaganda programs on employment for the disabled to improve their understanding.

Improving the educational attainment of persons with disabilities by considering adjusting, expanding, and developing flexibly other types of education such as distance education, informal education or community education classes that facilitate different types and levels of disability.

For social support, organizations, ward management boards, union agencies manage loans, legally facilitate administrative procedures for people with disabilities to easily access capital sources, develop open production facilities in the locality.

Families support people with disabilities by taking care of their needs, regularly encouraging and raising awareness of them so that they understand the importance of employment, help the disabled in practical ways.

However, there is also a limitation of this study. The researchers surveyed only 4 centers for people with disabilities in the North, while different habitats and regions can also affect the perception as well as employment of people with disabilities. Therefore, expanding the scope and scale of research for people with disabilities across the country to examine the research model is a potential future research direction.

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FACTORS AFFECTING HIRING DECISION OF INTERNS SPECIALIZATION IN ECONOMICS: THE CASE STUDY IN THE NORTHERN OF VIETNAM

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Abstract

Young human resources, such as interns are always considered as one of the important resources of the organization. With the aim of improving the quality of interns in particular and human resources in general, the goal of this study is to evaluate the factors influencing the recruitment decision of interns specialization in economics of enterprises in the Northern region of Vietnam. Some recommendations are also given to improve the employability of young human resources. In this study, SPSS software are used to conduct statistics and analyze data obtained from a survey. The analysis results shows that the groups of factors that positively affect the recruitment decisions of enterprises include: Students' equipped knowledge, Soft skills and Demographic factors. In addition, the process and the ability to handle the situation also have a low influence on the recruitment decision of enterprises.

Keywords: *Businesses, Decisions, Specialization in Economics, Interns, Recruitment.*

1. Introduction

The objective of the study is to provide theoretical and practical knowledge based on the factors affecting the selection of economic internship students of small and medium enterprises in the northern region of Vietnam. Solutions to improve the quality and efficiency of recruitment of small and medium-sized enterprises for students intern in the economic sector are proposed.

1.1. Internships of Economics Students

As Rothman (2007) explains that “Internships are an essential part of recruitment success for many companies where a particular department often manages internships with educational institutions”. According to Calloway & Beckstead (1995) “Practice is about exposing students

to practical skills, improving their social relationships, motivating their future learning, and enhancing their social character. ". Through the definition given by the author above, it can be said that an internship is a period of time that employers provide students / new graduates to familiarize themselves with the office environment and learn new skills. work skill.

In short, the research group that "Economy Intern" is people trained in social sciences, specializing in research on production, distribution, consumption of goods and activities. service from the overall point of view.

1.2. Recruitment Process

According to Edwin B. Flippo (1984), recruitment is "the process of finding potential candidates and encouraging them to apply for jobs in an organization". According to the Human Resource Management textbook (Vu Thi Thuy Duong, Hoang Van Hai, 2005), the human resource selection process is defined as: " is the process of evaluating candidates in many different aspects based on the following criteria. requirements of the job, to find 9 people who match the requirements set out among those attracted in the recruitment process. The basis of selection is the requirements of the job that have been set out according to the job description and the requirements for the person performing the work.

From the above definitions, the research team believes that: each organization, each manager has different recruitment standards, but in general, recruitment is the process of gathering potential candidates and from there. Employers will bring out their full potential to help the organization operate effectively.

1.3. Enterprise Business

According to Colin Gray (1998), "enterprise from its original origins was a French word as a noun to describe commercial undertakings between people, it has since expanded to become a synonym for a business or company". In general, according to author Mai Thanh Loan (2015), "an enterprise is an organization operating with a strategy and plan for the purpose of producing, trading, and distributing products, services, or whole products. products and services to customers and/or consumers." According to the encyclopedia, "Enterprise is a business unit established for the principal purpose of carrying out the business activities of the owners (public, collective, private) of one or more many industries". This definition is accepted by the majority of society, which holds that an enterprise is a certain unit and is owned by certain objects. In Vietnam, according to the 2005 Enterprise Law: "An enterprise is an economic organization with its own name, assets, stable transaction office, and business registration in accordance with the law for the purpose of conducting business. business activities".

Thus, the research team understands that the definition of "enterprise" is developed from time to time and is increasingly perfected. In general, an enterprise is a business unit established to carry out business activities.

1.4. Decision Making Theory

Decision making theory was developed by Herbert A.Simon in 1977. This theory is classified by Simon into two types, including (i) programmed decisions and (ii) secondary

decisions. two non-programmable. Pre-programmed decisions are repetitive decisions. These decisions are usually handled according to a predetermined and routine process. A pre-programmed decision is like a computer program that has been designed, built and operated according to a pre-existing scenario. Non-programmable decisions are novel, unstructured, often unexpected and have a direct impact on the performance of organizations. For example, a business enterprise's decision to diversify its business and diversify products into a new market.

In summary, the study of decision-making in business can be grouped around a wide variety of issues. In it, the first problem to be faced is that the decision-making activity is choice or principles.

1.5. Theory of Choice

Choice theory emphasizes the control of individuals over their own emotions and actions and teaches the concept that all behaviors are subject to choice, created by Dr. William Glasser. The theory that all human behavior is driven by a desire to satisfy five basic human needs: the need to be loved and accepted, the need for power, the need to be free. , the need to have fun and the need to exist. Another branch of choice theory, Rational Choice Theory states that people make decisions based on analyzing the pros and cons of a situation. This means that people weigh the costs and benefits of potential options before deciding to act. Originally conceived as an economic theory, it is a way to understand how people make decisions to maximize their money. Under this assumption, all human behavior can be seen as a way to satisfy individual needs.

The decision-making to recruit interns is said to be based on LTheory of Rational Selection through the analysis of the student's characteristics, thereby assessing the suitability with the company recruiting the intern.

1.6. Theory of planned behavior

The theory of planned behavior or the theory of planned behavior was initiated by Icek Ajzen in 1991. *The theory of planned behavior* is a theory that demonstrates the relationship between a person's beliefs and behavior beliefs are divided into three categories: behavioral beliefs, normative beliefs, and self-control beliefs. This theory proved to be a powerful approach to explaining human behavior. According to *the Theory of Reasoned Action*, if a person has a positive attitude towards the behavior and their significant others also expect them to perform the behavior, the result is that they have a higher level of behavioral intention. and are more likely to act (implement intent). Theory of Planned Behavior expands on Theory of Rational Action with the addition of a new section called Perceived Control. The addition of new components not only overcomes the limitations of the previous theory, but also proves the value and effectiveness of a series of research papers on psychology related to human behavior.

Regarding the enterprise's decision to recruit interns, if the candidate has a behavior that meets the employer's expectations, the result is that the employer intends to make the decision to recruit that employee and is likely to take action.

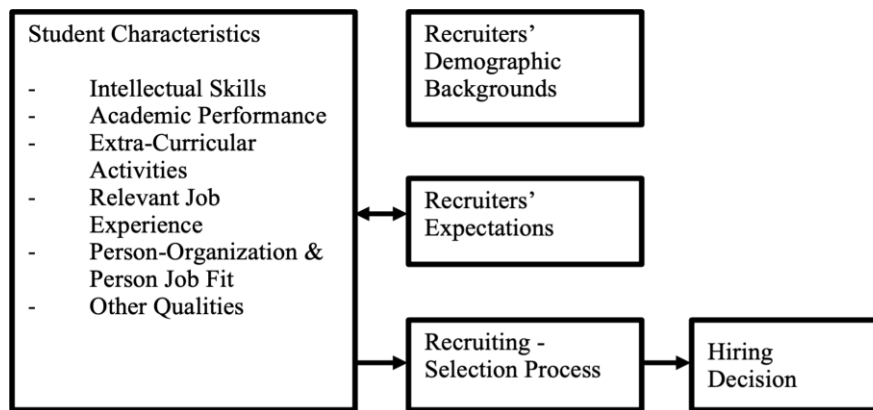


Figure 1. Research proposal model

Based on the research paper on 'Factors affecting the recruitment process of the hotel industry' by Work et al, the team proposes a research model 'Factors affecting the decision to recruiting students to practice economics in enterprises in the Northern region

1.7. Student Characteristic

According to Theo Bradberry (2007), student characteristics distinguish this individual from other individuals and have a great influence on his thinking behavior, thereby affecting the blood pressure and social relationships. That same personality trait is related to the ability to work in groups is proved by Costa & McCrae (1992). Group members who score high on the Conscientious, Agreeable, and Extroverted scales are effective at working. In leadership selection, those with high scores on the Extravert, Open, and Responsive measures were also more likely to be selected.

The recruitment process of final year hotel management graduates in the study of Kwok, L., Adams (2011) considers many factors including: Student characteristics. These characteristics include students' intellectual skills, academic performance, extracurricular activities, students' experience with relevant jobs, and people-to-organization and people-to-people fit. Work. Other factors are also taken into account in the model as it is possible that the researchers may not be able to identify all the qualities that hospitality employers look for in fresh graduates.

Based on the theory of student characteristics, the research team builds questions related to 2 main topics: students' equipped knowledge (work-related experience, job suitability, career readiness, interview behavior) and soft skills (professional level, extracurricular activities, language ability, leadership ability)

1.8. Demographic factors

An employer's demographic background can also play an important role in the hiring decision process. Several studies have shown that interviewers rate employees more favorably if they have the same schedule, regime, and personality as the interviewer (Anderson & Shackleton, 1990). Anderson (1992) also identified four different numbers that influence employer decisions during a retrospective meta-assessment of Development Research from 1910 to 1990. These variables include (a) experience and training interviewers on the job, (b) tasks from the interviewer's physical behavior, (c) the interviewer's cognitive behavior and (d) microprocessor panament interviewer manager.

Because of these, the demographic background of the employer can be very important in helping the researchers interpret the Study results.

Based on the above theory, the research team built questions related to demographic factors as follows: gender, age, influence from candidate's physical capacity, cognitive behavior

Recruitment expectations

There have been many studies on the basic requirements of employers for university graduates, but often these are single studies such as: research on some soft skills of students (Andrews & Higson, 2008; Graham et al., 2010; Lievens & Sackett, 2012; Nickson et al., 2012); on problem-solving skills (Wellman, 2010; Reid & Anderson, 2012); on professional knowledge (Huang & Lin, 2011; Laker & Powell, 2011); and on the reputation of the university students attend (Chevalier & Conlon, 2003; Pampaloni, 2010). Until the study of Finch et al (2012, 2013), conducted research simultaneously on the basic requirements that are interested by employers when recruiting new university graduates, that is: soft skills, problem-solving skills, professional knowledge, prior experience and university reputation. According to Hurley- Hanson & Giannantonio (2006), students who meet the minimum requirements set forth by employers for the field of interest will create their basic expectations that lead to a hiring decision. If a candidate does not meet the organization's expectations, the employer may judge them unsuitable for the position.

Based on the theory of recruiters' expectations, the survey's questions are based on the main ideas: interoperability (work motivation, communication and teamwork skills), computer skills, and problem-solving abilities. (carefulness, problem-solving ability, organizational ability, analytical ability)

Employers use these activities to interact with students, get to know candidates, and gauge their potential for success in the organization. These activities have proven effective in attracting student candidates in a number of studies (Powell & Goulet, 1996; Rynes, Bretz, & Gerhart, 1991; Turban, 2001). Ryan and Ployhart (2000), who reviewed the literature from 1985 to 1999, found that candidates' responses to employers during the selection-recruitment process were important predictors. on recruitment results. Chapman et al. (2005) confirmed in their meta-analytical review of recruitment that the selection-recruitment process is a variable that affects recruitment outcomes. They concluded that researchers had previously questioned the recruitment process from potential clients of candidates, testing their perceptions of how they received interpersonal treatment. . relevant and timely information, as well as whether the selection instruments are valid and fair, and more research is needed on the entire selection process.

Overall, the FIHRHD Model developed by researchers outlines the possible qualities employers look for in final year graduates. Employers select qualified graduates through a selection process. This conceptual model guided the qualitative investigation of this study

Based on the above theory, the research team built questions related to Recruitment Process Employers as follows: feedback provided by students, questions related to the interview

Hiring decisions

The most important step in the hiring process is making the decision to hire or remove candidates. Once the necessary information has been collected about the candidate through

the steps in the recruitment process and it is deemed that they have fully met the organization's selection requirements, the selection committee will make a selection decision. This is supposed to be one of the closing steps of the interview process. Thereby, the organization was able to identify and select a carefully selected list consisting of a small number of candidates who meet the requirements of the enterprise in many aspects (such as the ability of the enterprise to meet the needs of candidate's career goals as well as the development of business trends...)

According to Pham Ba Thang (2017), “After going through the probationary period, the enterprise will make the final recruitment decision to select the most suitable candidates for the job, and at the same time eliminate the candidates who are not suitable for the job. suitable for the job. does not meet the requirements of the job”.

Based on the above theory, the research team built the following questions related to hiring decisions: introduction, personal profile, performance in the interview

2. Method

Quantitative research method requires the researcher to make a survey (questionnaire) based on the research variable scale for each factor that has been mentioned in the model. Collected data will be through the use of digital software for scientific research. The team used SPSS 26.0 software for the purpose of excluding observed variables whose total correlation index was less than 0.3. The reliability test of the scale is verified from the results of Cronbach's Alpha analysis. A scale with a Cronbach's Alpha coefficient between 0.8 and 1.0 is considered a good scale, greater than 0.6 and up to 0.8 is a scale that may be useful. Scales with Cronbach's Alpha analysis results less than 0.6 are considered unusable.

For the purpose of conducting quantitative research, the research team conducted the following steps in turn:

- Step 1: Based on an overview of previous national and international studies on *Factors affecting actual recruitment decisions.interns* give theoretical concepts of variables
- Step 2: Build the Vietnamese version of the questionnaire from the original English version of the research variable scales that have been studied before.
- Step 3: Re-check the transparency, clarity and accuracy of the Vietnamese version, discuss in groups, then edit it accordingly and add observed variables.

The research team based on information gathered from documents including documents, policies, laws, projects, research reports related to the recruitment process of interns in the period from from 2009 to 2021. The collected data will be processed in a way that categorizes, synthesizes and selects appropriate information to form a theoretical basis, and make assessments and comments on the current situation. of Vietnam, thereby proposing appropriate solutions.

Primary data was collected by survey method by online questionnaire. The questions included in the survey are based on the following main factors: students' equipped knowledge, soft skills, demographic factors, interoperability, IT skills, ability to handle situations, interview process, student profile and performance in the interview. From the main observed variables, the authors themselves synthesize questions and form a questionnaire to send to businesses

The questionnaire is designed with clear, easy-to-understand questions so that participants can answer according to their thoughts and ensure acceptable reliability and will be sent online via Google Form to large, medium and small enterprises from November 15, 2020 to December 31, 2020. The research team conducted a preliminary quantitative study with 102 survey samples to test the model and standardize the questionnaires. asked, the number of valid votes obtained was 97/102. Collected data will be processed by SPSS software with high accuracy.

3. Results

Evaluation of independent variables affecting the business intern recruitment decision in the Northern region.

To determine the factors affecting the decision to recruit economic interns of enterprises in the Northern region, the authors in turn evaluate the independent variables with the criteria of quality of the observed variables. , reliability of the scale, convergence and discriminant through the estimation model.

Quality of observed variables: As a result of assessing the quality of observed variables, the authors obtained observed variables and the degree of association between observed variables and variables of the general scale in the Table.

Scale reliability: The results of the scale reliability assessment show that the Cronbach's Alpha coefficient of the variables is greater than 0.8 and the composite reliability coefficient (CR) is greater than 0.8.

Convergence of the indexes: The average extracted variance (AVE) indexes are all greater than 0.6, so the scales are all convergent. The results of the convergence of all variables meet the standard, showing that the average latent parent variable will explain at least 60% of the variation of each sub-surveyed variable.

Discrimination; Discriminant value shows the difference of a structure when compared with other structures in the model. Discrimination is guaranteed because all values below the diagonal are less than values above the diagonal from KN to HS.

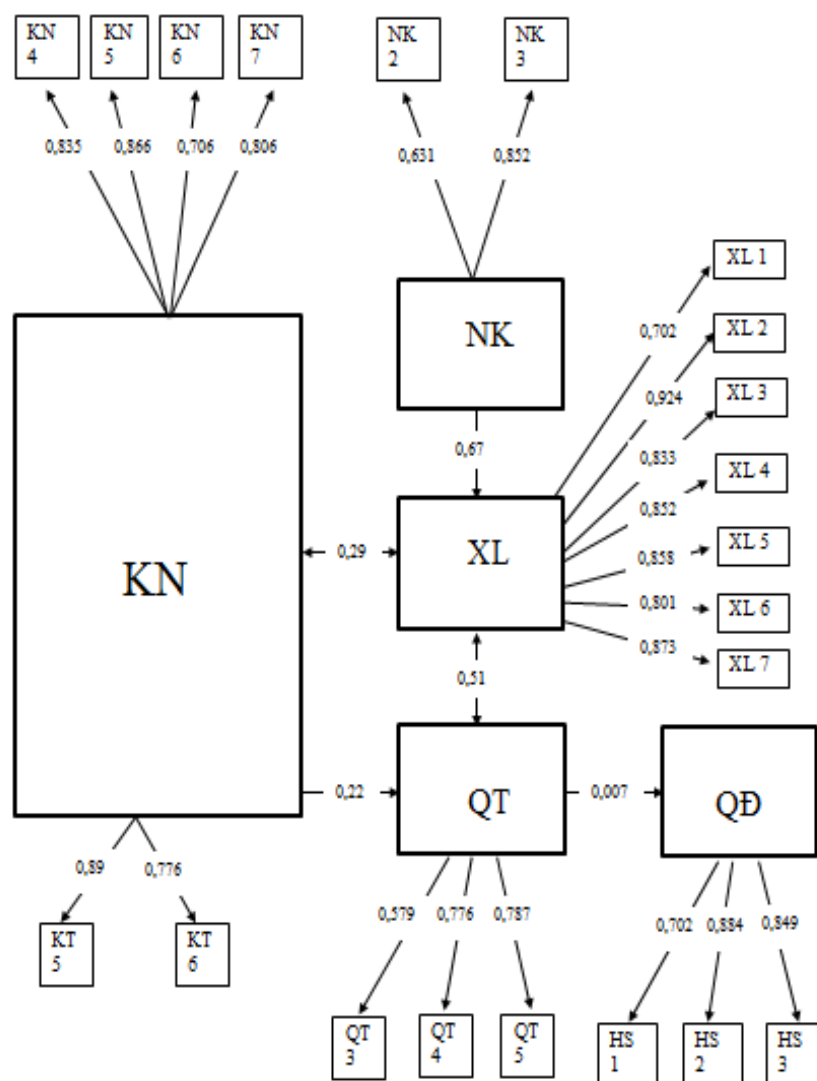
	XL	KN	QT	KT	NK	HS
XL2	0.924					
XL7	0.873					
XL5	0.858					
XL4	0.852					
XL3	0.833					
XL6	0.801					
XL1	0.702					
KN5		0.866				
KN4		0.835				
KN9		0.806				
KN6		0.706				
QT5			0.787			
QT4			0.776			
QT3			0.579			
KT5				0.890		
KT6				0.776		
NK3					0.852	
NK2					0.631	
HS2						0.884
HS3						0.849
HS1						0.702

The research results show that the independent variables affecting the decision to recruit economic interns of enterprises in the Northern region correspond to the observed variables as Table.

After evaluating the observed variables that all meet the standards, the authors continue to evaluate the influence of the independent variables on the dependent variable through the model. SmartPLS - SEM linear structure as shown in Figure 2.

Evaluation of the impact of factors on the recruitment decision: According to Figure 2, KN (Ability of students), NK (Demographic factors), XL (students' problem-solving ability) and QT (Recruitment process) have a direct impact on the decision (Recruitment decision) on students' ability (KN) and demographic factors (NK).) because $P - \text{value} < 0.05$, the recruitment process (QT) and students' ability to handle situations (XL) have $P - \text{value} = 0.065 > 0.05$, so there is no statistical significance.

Research results show that the ability of students has the strongest impact and demographic factors have the weakest impact on the recruitment decisions of enterprises in the North.



4. Discussion and Conclusion

In the context of regionalization, globalization, and inclusive and sustainable development, countries are increasingly paying attention to personnel issues, especially interns, in order to improve the quality of human resources. labor volume. The research team has synthesized the opinions affecting the recruitment decision of companies in the economic sector and concluded that: The factors *Ability* or *equipped knowledge of students* have a positive impact. to the selection of interns of enterprises. In addition, *knowledge* or *soft skills* and *demographic factors* also have a positive impact on the selection of interns of enterprises. However, based on the results of the research team, there are two factors that are Interview process and the ability to handle situations that are said to have no positive impact on the intern recruitment process of enterprises.

The research model proposes 5 factors affecting the decision to choose an intern in the economic sector of enterprises in the northern region, including: Student characteristics, demographic factors, and employer expectations. recruitment, recruitment process and hiring decisions of enterprises with all 52 observed variables. However, there are 3 factors affecting the decision to recruit interns in the North region, including KHANANG, KIENTHUC, NHANKHAU and have a decreasing influence as follows: KHANANG (standardized Beta coefficient is 0.434), KIENTHUC (Normalized Beta coefficient is 0.339), NHANKHAU (normalized Beta coefficient is 0.174). This result is also considered to be consistent with current reality in the Northern region.

The objective of the study is to find out the factors affecting the decision to recruit economic interns of enterprises in the North, how those factors affect them and why they are important. . Research results have practical application for both students and businesses in the economic sector. To improve the quality of recruitment and selection, businesses can consider the following suggestions: Given challenging questions during the interview process, these challenging questions must be highly applicable, making students staff clearly reveal their personality and ability, Consider the relationship between students' soft skills and GPA at school; using assessment tools such as presentations, case studies, attitude during interviews, Cooperation with universities and educational institutions to facilitate students' easy access to recruitment information, Encourage students to participate in academic competitions related to economics; Providing advice and guidance for students to have a better overview of the career they are pursuing, the Enterprise informs candidates of their expectations about the position.

This study adds valuable empirical findings to current views on enterprises' recruitment of economic interns. Current research provides students who have been and are in the process of preparing for an internship, helping interns to be more proactive in approaching the probationary process and bringing the most benefit to both. both themselves and the employer because businesses will be more cautious with recruitment decisions and the probationary process will be more thorough. Using the foundation laid out in our research, future studies can further extend the theoretical understanding and research scope to all professions trained.

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THE IMPACT OF WORK FROM HOME ON WORK PERFORMANCE OF LECTURERS IN VIETNAM

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Abstract

The Covid-19 pandemic has hit all aspects of life, especially the field of education. Although it is now considered as a temporary measure to address the problem of social distancing on lecturers, Work from home (WFH) is believed to become the norm for lecturers in the future. This paper aims to investigate the impact of Work from home on Work performance of lecturers in the context of Covid-19 pandemic. Survey data collected from a sample of 320 lecturers working for public universities in Vietnam are analyzed by Structural equation modeling method (SEM). Results show that Work from home indirectly impacts Work performance, with the mediating role of Work motivation, Work stress, and Work-life balance. At the same time, another significant finding is explored, revealing that while Work stress is negatively related to Work performance, other factors including Work motivation, Work-life balance, and Work from home are all positively related to Work performance. On this basis, the paper suggests a set of recommendations related to improving work performance of lecturers.

Keywords: *Covid-19, Work from home, Work performance, Work-life balance, Work stress, Work motivation*

1. Introduction

In 2019, the outbreak and global spreading of COVID-19 caused a severe medical crisis. In this situation, Work from home was considered one of the alternatives allowing socio-economic activities to take place despite the lockdown announcement of governments

all over the world. According to Owl labs' reports, in COVID-19 pandemic, approximately 70% workers worked full time at home. Besides, many conducted surveys showed that the majority of employees would prefer to Work from home in the future.

Many concerns have arisen from this, one of which is that how Work from home affects different aspects of employees' work and life results. However, the previous research focusing on the effect of Work from home on employees still produced mixed results (Allen, Golden & Shockley, 2015). In Vietnam, due to the movement restrictions, many university lecturers are required to Work from home, and the classroom is changed to online platforms. This made a great impact as teaching productivity plays a very important role in society, especially in a developing country like Vietnam, where education is the top national policy, as well as the key to future advancements and developments.

In this paper, we choose the topic "The Impact of Work from home on Work performance of Lecturers in Vietnam " to explore the effects of Work from home on Work performance of lecturers in Vietnam, and the mediating role of Work stress, Work-life balance and Work motivation. Based on the research results, we produce a set of recommendations on improving Work from home productivity of lecturers, along with developing related policies in case Work from home becomes one of the main work models in the future.

Work from home theoretical framework

The authors base the research on the Work from home analytical framework by Vyas & Butakhieo (2020). In this framework, Vyas & Butakhieo suggested that two factors - organizational and individual-family - were linked to Work from home. Besides, their proposed framework puts work outcome domain and family outcome in consideration.

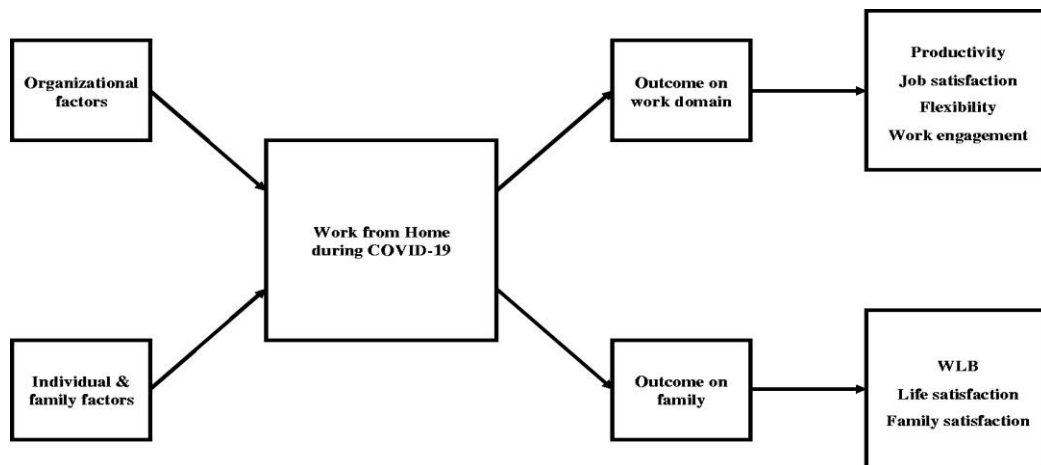


Figure 1. Analytic framework of Work from home

Source: Vyas and Butakhieo (2020)

“Organizational factors” include employees' benefits, trusts from managers, training in the use of technology, as well as organizational communication. On the other hand, individual factors are concerned with self-discipline, self-motivation, ability to work independently, tenacity, self-organization, self-confidence, time management skills, computer literacy knowledge. Regarding family factors, household characteristics such as

size of the living area, number of family members sharing the same accommodation and the number and age of children in the household are considered as family factors influencing Work from home.

Vyas & Butakhieo (2020) also stated that Work from home resulted positively in Work performance and work satisfaction. Besides, Work from home allowed employees to work flexibly, therefore, promoting organizational commitments. However, Work from home might lower the motivation of the work (Purwanto et al., 2020). Turning to life factors, empirical studies produced mixed results. Work from home has a negative relationship with Work-life balance (Grant et al., 2019) but Work from home is positively related to work-life satisfaction (Eddleston và Mulki 2017; Virick, DaSilva and Arrington 2010).

The relationship between Work from home and Work performance

WFH increases the level of flexibility (Cascio, 1989), therefore, employees can optimize their working time, as well as improve their level of concentration. Hence, WFH significantly enhances workers' productivity. (Mark et al, 1993). Besides, proper working environment that makes employees feel comfortable while WFH will also positively affect their moods and improve both their work quantity and quality (Susilo, 2020).

Hypothesis 1: Work from home (WFH) is positively related to lecturers' work performance (WP)

The relationship between Work from home and Work-life balance

Performing assigned tasks at home offers workers more sense of control, which is, in this case, time and place (Sardeshmukh et al., 2012). Thanks to this, employers can now balance their work and life activities. For instance, they can equally distribute their physical and mental side to both life and work aspects. This positive relationship between WFH and WLB is supported by many previous researchers, such as Fisher et al. (2009), Ellis and Webster (1998), Fedáková and Ištoňová (2017). The proposed hypothesis is:

Hypothesis 2: Work from home (WFH) is positively related to lecturers' Work-life balance (WLB)

The relationship between Work-life balance and Work performance

According to Jackson and Fransman (2018), Work-life balance positively affects Work performance. Byrne (2005) affirms that employers can take advantage of this attribute as it boosts workers' motivation and productivity, and reduces stress level.

Hypothesis 3: Work-life balance (WLB) is positively related to lecturers' work performance (WP)

The relationship between Work from home and Work motivation

Compared with traditional working modes, WFH is considered to result in positive motivation, making employees more eager for work (Sok và Blomme, 2014). Timsal and Awais (2016) claims that WFH is associated with advanced technology, which gives workers the right to manage their workflow and make them feel more motivated.

Hypothesis 4: Work from home (WFH) is positively related to lecturers' Work motivation (WK)

The relationship between Work motivation and Work performance

Motivation is one of the core attributes that every organization needs to boost workers' outcomes (Bessell et al., 2002). Being internally motivated by positive feelings, workers can handle their work more efficiently and produce better output (Camilleri and Falzon, 2021).

Hypothesis 5: Work motivation (WM) is positively related to lecturers' work performance (WP)

The relationship between Work from home and Work stress

While workers may feel anxious being accustomed to a new working environment, the closeness from family members can help reduce their anxiety. (Hilbrecht et al., 2008; Irwanto et al., 2021). Besides, WFH allows employees more autonomy, which helps them feel less stressful and depressed when working (Gajendran and Harrison, 2007; Baruch, 2000; Sardeshmukh et al., 2012). Work flexibility while WFH results in employees' well-managed time and energy, reduced work-life conflict and less anxiety (Kim et al., 2020).

Hypothesis 6: Work from home (WFH) is positively related to lecturers' Work stress (WS)

The relationship between Work stress and Work performance

Work stress has a negative relationship with workers' productivity (Ganster and Schaubroeck, 1991). This claim is also supported by Jex (1998), who finds out that factors that contribute to Work stress can indirectly affect Work performance.

Hypothesis 7: Work stress (WS) is positively related to lecturers' work performance (WP)

Based on aforementioned hypothesis, we propose the model as can be seen in Figure 2:

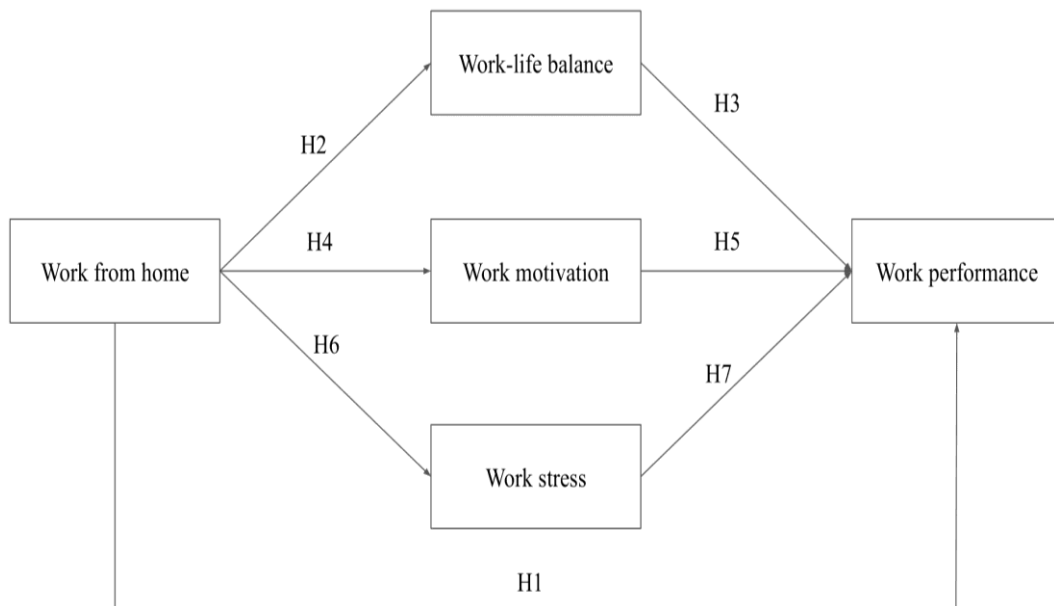


Figure 2. Hypothesized model

Source: Authors' Hypothesized model

2. Method

Data collection

The research is based on both primary and secondary data. Secondary data is gathered from other researches, dissertations, theses and reliable articles domestically and internationally. From this source, we propose a model including 5 latent variables (Work from home_WFH; Work Performance_WP, Work Life Balance_WLB, Work Motivation_WM, Work Stress_WS) and 27 observed variables (Table 1).

Table 1. Measurement scales

Construct	Code	Measurement items	Source
Work from home (WFH)	WFH1	I perform most of my office work at home.	<i>Susilo (2020), Amanda Putri, Ali Amran (2020)</i>
	WFH2	The duration I work at home is the same as the duration I work in the office	
	WFH3	I use information and communication technology in doing my work at home	
	WFH4	I do not meet my colleagues and students in person while working at home	
	WFH5	I can easily discuss work/lectures with my colleagues/students while working from home.	
	WFH6	The company can monitor the results of my work easily when I work from home	
Work Performance (WP)	WP1	When working from home, I adequately complete my assigned tasks	<i>Staples, Hulland & Higgin (1999); Bouckennooghe et al.(2013)</i>
	WP2	When working from home, I fulfill my job responsibilities	
	WP3	When working from home, I perform my duties beyond expectations from my superiors	
	WP4	When working from home, I am content with my work quality	
	WP5	When working from home, my colleagues always consider me as an effective lecturer	
Work Life Balance (WLB)	WLB1	I have a good balance between my work and life aspects	<i>Amanda Putri, (2021); Bui Nhat Vuong (2021)</i>
	WLB2	My involvement in family activities and work activities is done in a balanced way	
	WLB3	My colleagues and family members say that I meet their expectations	

Construct	Code	Measurement items	Source
	WLB4	I feel satisfied with a balanced life between work activities and activities outside of work	
Work Motivation (WM)	WM1	I feel stimulated by my teaching duties when I work from home	<i>Amanda Putri, (2021); Bui Nhat Vuong (2021)</i>
	WM2	I often feel a strong will to work from home	
	WM3	I would spend more time working from home if possible	
	WM4	My university allows me to work independently without supervision	
	WM5	My university gives me the opportunity to be promoted while staying safe from COVID-19	
	WM6	My job gives me the chance to develop myself so that I am not bored during the COVID-19 crisis	
Work Stress (WS)	WS1	I find it boring to perform my teaching tasks	<i>Lait and Wallace (2002)</i>
	WS2	I feel many things are beyond my control and ability while working from home	
	WS3	I feel overwhelmed by completing work during working from home	
	WS4	I feel more pressured when working from home	
	WS5	I feel like giving up on my job	
	WS6	I feel frustrated with my work from home job	

Source: Summarized by Authors

Primary data are collected from 350 lecturers working in public universities in Hanoi and Ho Chi Minh City. After eliminating 30 unvalid data sets, the final data compose of 320 datasets, which is used for descriptive statistics and regression analysis.

Data processing

The authors use SPSS 20.0 and AMOS 24.0 to analyze primary data as followed: (1) Cronbach's alpha test to measure scale reliability, (2) Exploratory factor analysis test to measure convergent validity and discriminant validity, (3) Confirmatory factors analysis to test the model structure, (4) Structural equation modeling (SEM) to test structural relationship among variables, (5) Bootstrap test in case of larger size sample. Besides, Independent Samples T-Test and Anova are used to explore gender, education, experience and income differences in lecturers' Work performance.

3. Results

Descriptive statistics result

Table 2. Descriptive statistics result

Characteristics		Sample	
		Number (of lecturers)	Percentage (%)
Gender	Female	185	57,8
	Male	135	42,2
Age	Under 25	14	4,4
	From 26 to 35	89	27,8
	From 36 to 45	138	43,1
	Over 45	79	24,7
Region	South	168	52,5
	North	152	47,5
Experience	Less than 5 years	88	27,5
	From 5 to 10 years	101	31,6
	More than 10 years	131	40,9

Source: Authors' calculation from survey data

It can be seen that the research is equally surveyed between female and male lecturers, with 57,8% and 42,2% respectively. In regards to age, the group of lecturers from 36 to 45 years old accounts for the largest portion (43,1%), secondly comes the group of 26-to-35-year-olds (27,8%), thirdly ranked is the group of over-45-year-old lectures (24,7%), and the smallest fraction belongs to the under-25 group (4,4%). The sample is distributed evenly between the Southern and Northern part of Vietnam, with 47,5% và 52,5% respectively. The majority of lecturers surveyed had been teaching for more than 10 years (40,9%), 5-to-10-working-year group holds a slightly smaller part of 31,6%, and lastly ranked is the group of less-than-5-working-year lecturers (27,5%).

Cronbach's alpha, Exploratory factor analysis, Confirmatory factor analysis, and Structural equation modeling results

After Cronbach's alpha test is performed, $KMO = 0,917 > 0,5$ indicates Exploratory factor analysis is suitable. Bartlett's test result is statistically significant ($sig = 0,000 < 0,05$), which means that observed variables have a correlation with each other in the population.

The Eigenvalue (Initial Eigenvalues) of the first 5 factors in the table are greater than 1, which shows that 5 factors remain in the analysis model. Extraction Sums of Squared Loadings for the first 5 factors is 61,190% $> 50\%$, which reveals that the EFA results are valid and 61,190% data are divided into 5 groups of variables as our initial proposed model.

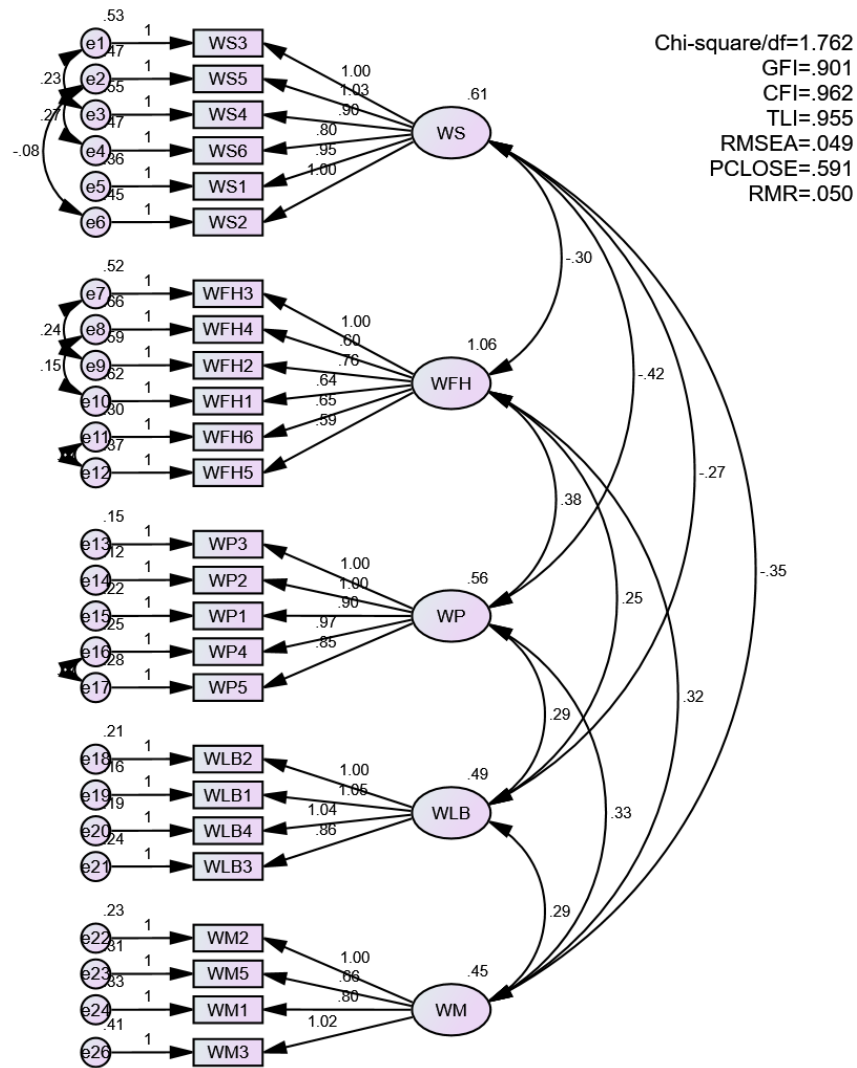


Figure 3. Confirmatory factor analysis result

Source: Authors' result from SEM

The CFA result shows that all model fit values are satisfied. To be specify, CMIN/df = 1,762 < 3, CFI = 0,962 > 0,95, SRMR = 0,05 < 0,08, coefficient RMSEA = 0,049 < 0,08, Pclose = 0,591 > 0,05, (Hu và Bantler, 1999).

The P-value of all observed variables are noted as *** (which equals to 0,000), therefore, all variables are confirmed to be well represented in the CFA model.

Table 3. Reliability, discriminant validity and convergent validity test

Variable	Code	CR	AVE	MSV	MaxR(H)
Work from home	WFH	0,861	0,510	0,244	0,873
Work motivation	WM	0,808	0,514	0,447	0,822
Work-life balance	WLB	0,903	0,700	0,393	0,908
Work stress	WS	0,874	0,537	0,505	0,877
Work performance	WP	0,925	0,713	0,505	0,933

Composite Reliability: CR values of all factors are greater than 0,8, which indicates that all observer variables are internally consistent and represent one particular latent variable.

Convergent Validity: After eliminating 1 observed variable (WM6), AVE values are all greater than 0,5. This index fluctuates around 0,510 to 0,713, which means 50% of the latent variables are explained by the observed variables. All observed variables are highly convergent.

Discriminant Validity: regarding 5 factors above, MSV value is less than AVE value, which shows that all observed variables are discriminant. (See figure 4)

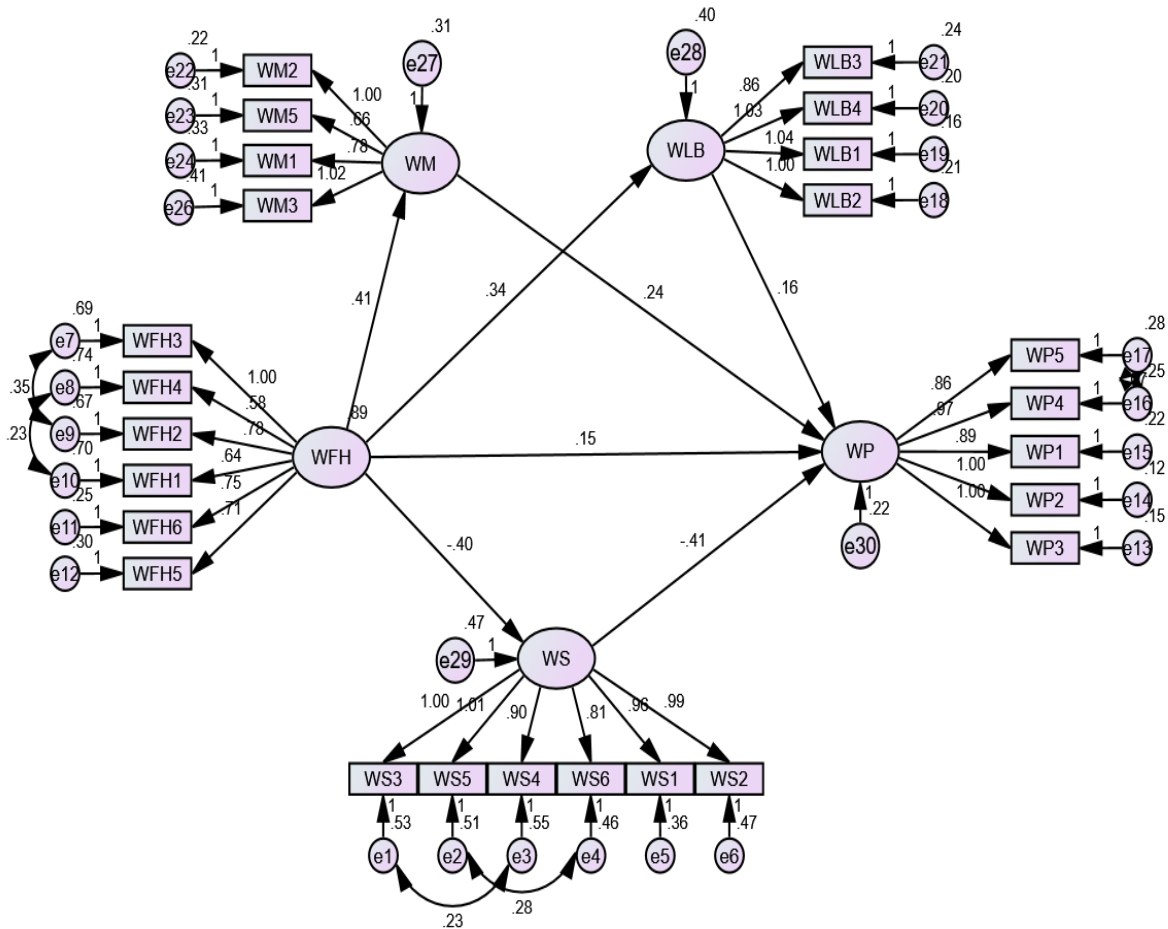


Figure 4: Structural equation modeling result

Source: Authors' result from SEM

After the reliabilities and validities of the measures used were assessed, we conducted a structural equation modeling to test the proposed research hypotheses. The overall fit measures of the structural model indicate the adequate fit (Chi-square/DF = 2,365 ≤ 3; CFI = 0,930 > 0,9; 0,065 < 0,08) (Hu and Bantler, 1999).

The P-value of all five hypotheses are less than 0,05 (Confidence interval 95%), which means all the hypotheses are supported. In other words, five variables including WFH, WS, WM, WLB, WP are statistically significant, which means that there is cause-effect relationship among dependent variables (WS, WM, WLB, WP) or 7 hypotheses are accepted (H1, H2, H3, H4 H5, H6, H7).

Table 4. Structural equation modeling result

Relationship			Hypothesis	S.E.	C.R.	P	Standardized Estimate	Decision
WP	□	WFH	H1	0,056	2,584	0,010	0,191	supported
WLB	□	WFH	H2	0,048	7,033	***	0,453	supported
WP	□	WLB	H3	0,052	3,059	0,002	0,157	supported
WM	□	WFH	H4	0,049	8321	***	0,571	supported
WP	□	WM	H5	0,065	3,645	***	0,224	supported
WS	□	WFH	H6	0,057	-6,955	***	- 0,483	supported
WP	□	WS	H7	0,056	-7,400	***	-0,451	supported

Source: Authors' compilation

Based on the standardized regression weights, the impacts of independent variable Work from home (WFH) on mediating variables are in descending order as follows: WM, WLB, WS ($0,571 > 0,453 > -0,483$). The coefficients of WM and WLB are positive, so we can conclude that Work from home (WFH) has a positive effect on Work motivation (WM) and Work-life balance (WLB). Meanwhile, the coefficient of Work stress is negative, which means that Work from home (WFH) inversely impacts Work stress (WS).

Similarly, the statistical impacts on Work performance (WP) are noted in descending sequence as follows: WM, WFH, WLB, WS ($0,224 > 0,191 > 0,157 > -0,451$). The coefficients of WM, WFH, WLB are positive, indicating that these factors are positively correlated with Work performance (WP). On the other hand, the negative coefficient of Work stress (WS) shows that it is inversely correlated with Work performance (WP).

In addition, it can be seen that Work from home not only directly affects Work performance, but it also indirectly affects Work performance with the mediating role of Work motivation, Work stress, and Work-life balance.

Table 5. Statistical difference test

	Control variable	Levene test	T-Test/ ANOVA/Welch test	MEAN
Work performance	Gender	0,628	0,001	
	Female			4,06
	Male			3,79
	Experience	0,857	0,000	
	Less than 5 years			3,67
	From 5 to 10 years			3,87
	More than 10 years			4,23
	Income	0,049	0,029	

	Control variable	Levene test	T-Test/ ANOVA/Welch test	MEAN
Work motivation	Less than 5 million (VND)			3,68
	From 5 to 10 million (VND)			3,66
	From 10 to 15 million (VND)			3,70
	More than 15 million (VND)			3,65
Work stress	Experience	0,684	0,000	
	Less than 5 years			3,69
	From 5 to 10 years			2,54
	More than 10 years			2,17
Work-life balance	Age	0,458	0,004	
	Under 25			2,82
	From 26 to 35			2,45
	From 36 to 45			3,62
	Over 45			3,78
	Experience	0,922	0,000	
	Less than 5 years			2,66
	From 5 to 10 years			3,43
	More than 10 years			2,17

Source: Authors' Independent T-Test and One-way ANOVA result

After Independent T-Test and One-way ANOVA are conducted, the results reveal the differences in habits and behaviors of lecturers while WFH.

Regarding Work Performance, female lectures (MEAN = 4,06) have a higher level of Work Performance compared with male counterparts (3,79). Besides, differences in experience are shown to result in the difference in Work Performance. To be specific, the groups of less-than-5-working-year and from-5-to-10-working-year lecturers are both indicated as having lower Work Performance than fellows who have expertise level of more than 10 years.

Also, differences in Work motivation, Work stress and Work-life balance are explored. Concerning Work motivation, the group of lecturers who earn less than 5 million VND a month is shown to have the lowest level of Work motivation. Similar results are noted in regards to experience, with the lowest level Work stress coming down to lecturers who have been working for more than 10 years. Different age groups and experience also result in different Work-life balance. Specifically, lecturers aged under 36 or working less than 10 years encounter more difficulties in balancing between work and life.

4. Discussion and Conclusion

Assuming from the results of this research, we have drawn out these discussions:

Hypothesis H1 is accepted, showing that in Covid-19 pandemic, Work from home is positively related to Work Performance, which is also supported by other contemporary researches. Therefore, policymakers in universities should consider measures to improve lecturers' abilities, focusing on research and development of applying advanced technology into teaching methods, maintaining the flexible and sustainable university – research – corporation ecology. Subsequently, universities should establish short-term courses to provide lecturers with the knowledge of innovative assistant softwares such as "virtual teacher", Internet of Things (IoT), Learning machine, Deep learning, et cetera. Additionally, colleges and universities should digitalize and simplify complicated administrative formalities, and offer internet-access assistance.

Hypotheses H2 and H3 are accepted, indicating that Work from home positively affects Work-life balance, and Work-life balance positively results in Work Performance. This is also claimed by previous researches and the results are suitable in the context of Covid-19 pandemic. This research conveys an important message, saying that universities should pay attention to the balance between work and life aspects of lectures to improve the quality of human resources. For example, meetings should not be set to close to family-gathering time, and class timetables should be better modified for those who have children under 6 years old.

Hypotheses H4 and H5 are accepted, revealing that Work from home is positively related to Work motivation, and Work motivation is positively related to Work Performance, which is also claimed by Susilo (2020). Work from home is associated with novel and updated technology, which helps lecturers perform tasks more straightforward, therefore increasing the level of eagerness for work. Taking Covid-19 pandemic into consideration, institutions and universities should implement policies regarding lecturers' health, job security so that they will feel cared for and develop stronger motivation. Besides, policy makers in universities should pay attention to the needs of lecturers, making sure that they deserve a suitable salary and benefits for their duties, expertise, education and position. That will lengthen their engagement with the organization.

Hypotheses H6 and H7 are accepted, Work from home is negatively correlated with Work stress, and Work stress is negatively correlated with Work Performance. To improve Performance of lecturers, universities should implement actions such as supervising online classes and collecting feedback from online learners. To reduce stress level, universities should: define a particular size for each class, notify lecturers about the class schedule in advance, and reduce to a minimum number of unexpected meetings or class schedules. An allowance should be given to all the lecturers participating in online teaching, so that they can have a well-equipped, not just "temporary", working space at home.

Statistical difference test results show that senior lecturers achieve a higher level of work Performance. Experienced lecturers are able to be accustomed to new working conditions; therefore, they can work productively under any circumstances. Thus,

universities should encourage lecturers to participate in activities related to their major fields. In addition, talk shows and forums about innovative teaching methods should be held in order that lecturers could sharpen their knowledge and enhance their pedagogical skills. Besides, universities could make use of incentives such as raising salary or awarding bonuses to lecturers who have earned accomplishments, which indirectly inspires those who do not have much achievement.

In summary, a concise policy framework, which regards Work from home rights and duties of lecturers, and most importantly, a specific measure to evaluate teaching outcomes, is a must for the purpose of increasing work Performance of lecturers. This is the key point that policymakers in the field of education management should pay attention to when planning a policy concerning improved teaching quality in the context of Covid-19 pandemic.

This paper has made contributions to previous researches by exploring typical mediating factors that affect the relationship between Work from home and Work Performance of university lecturers. They are the elements that are often be underestimated while evaluating teaching outcomes of WFH lecturers. Among these 4 factors that influence Work Performance, Work motivation exerts the most significant impact. This makes Work motivation is the key to higher work Performance and organizational commitment. In other words, if universities want to effectively establish the online learning platform, even in normal conditions without pandemics, they should give more thoughts to Work motivation, Work-life balance, and Work stress while designing an optimized work-from-home infrastructure.

This paper still contains these limits: (1) not conducting mediating factor analysis in different levels of education (undergraduate and postgraduate), (2) not taking the differences between public and private universities into consideration. On the basis of this paper, future research could extend to further contexts such as: war, disaster... and more online teaching modes: e-learning, cross-border study...

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DETERMINANTS OF STUDENT INTENTION TO WORK IN HOMETOWN

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Abstract

This paper investigated the relationship between personal factors and perceived environmental conditions on students' intention to return to their hometown to work using the theory of planned behavior (TPB). The study was conducted by a cross-sectional survey and included 479 final-year students at 7 universities in the north of Vietnam. A structured questionnaire was used to collect the data. The results confirm that family supports, job, hometown attachment, social relations, and perceived hometown living conditions, are significantly related to entrepreneurial intention, the attitude towards becoming an entrepreneur and perceived behavioral control. TPB is a valuable model for understanding the relationship between students' intention to return hometown for working and exogenous factors in Vietnam – a developing country context. This study contributes to the body of knowledge and recommend several solutions for policy makers in the provinces to attract more high-quality human resources for economic development

Keywords: *Return hometown intention, graduate student (s), quality of living conditions, return migration*

1. Introduction

Researchers have focused on various aspects of the migration process, including areas from migration decision, settlement and return back to origin communities. While migration from rural to urban areas or international migrations are received widely interests, return migration has received less attention although return migration has important implications for communities (Bjarnasona & Thorlindssonb, 2006). Several scholars criticized that the theoretical and empirical literature on return migration is too narrow and limited (Constant & Massey, 2002; Dustmann, 2003). Theories on return migration, research on the impacts and determinants of return migration mainly focuses on international return

migrants who go abroad and then when return home, they bring back knowledge, money and skills to their home countries and set up new venture. Less attention is paid to internal return migrants although recent studies suggested that internal return migrants may have even stronger positive impacts on their home regions development (Yue et al., 2010). The important reason for this neglect is that internal return migrants comprise a relatively small number of people in the total domestic migration in developed areas (Lee, 1966).

In addition, a special research area of internal return migration – education-based migration is also limited. Young adults who want to get higher education is temporary migrate from their birthplace to the university city since higher education institutions are located mostly in urban places. These young graduate decision in the transition from universities, colleges to the labor market, the geographies patterns of graduates' moves have been considered in a wide range of contexts. The fact that graduates tend to not return to small city and rural regions, have been demonstrated in all the research results (Constant and Massey, 2002; Huang and Zhang, 2013). However, almost studies of return migration are interested in economic perspective, which explained the return decision by income differences in regions (Rérat, 2014). Recently, research has paid more attention to the significance of non-economic factors motivating return migration such as environment (Dustmann - 2003), family (Nguyen, 2015), social issues (Jorgensen & Stedman, 2001; Janta et al., 2019).

The objective of this research is to identify and test a theoretical model and hypothesis of determinants of students' intention to return to their hometown applying the platform of the theory of reason behavior (Ajzen, 1991). This research will help policy makers and enterprises in Vietnam to better understand and develop appropriate solutions to attract a quality labor force for the economic development of the provinces.

2. Literature review and hypotheses

Return migration is “a concept capturing a widely witnessed phenomenon of migrant flows from intended destinations back to places of origin” (Janta et al., 2019). Students after graduating from universities may come back to their hometown for work and with a devotion to the development of the place where they were born (Huynh and La, 2010).

Lee's “A Theory of Migration” (1966) categorizes reasons for migration into 2 group of factors which are associated with the area of origin and those associated with the area of destination. These factors can either be push factor or attracting - pull factor for a certain individual. Push factors include the state of unemployment, poverty as well as concerns about high crime rates, perceived deficiencies of service, safety and security issues in a city. These factors might depend on personal perception as well as an individual previous experiences of a city or even a country or even a personal situation in a city. If a person suffers from these factors, they migrate from that place. Pull factors like conditions one hopes or thinks to find in the area of destination, the attractiveness of the place, vary from potential for employment and high service provision to low crime rates. Pull factors also include a higher quality of life, place attachment, place facilities such as increasing number of free online facilities to keep in touch with family and friends... could facilitate the decision to migrate. These factors can be influenced by local authorities by different means

and therefore if a city want to attract more labors, policy makers should take care in order to increase its attractiveness. The importance of each of the factors mentioned above is probably depending on the given location and circumstances.

Based on a literature review, the push and pull factors, the theoretical model and hypothesis for students' hometown return intention is developed for this research:

The theory of planned behavior (TPB)

According to the TPB, entrepreneurial intentions can be predicted from the attitude towards the behavior, perceived behavioral control and social norm (Ajzen, 1991). The attitude towards the behavior refers to how positively or negatively an individual evaluates a particular behavior. Perceived behavioral control is an individual's perceived sense of self-efficacy or ability to perform a particular behavior. The direct effects of the attitude towards the behavior and perceived behavioral control on entrepreneurial intention were supported in most studies (Janta et al., 2019; Jorgensen & Stedman, 2001). Since results for the effect of subjective norms on entrepreneurial intention appeared to be mixed (Soon, 2010), we do not include the subjective norms variable in the current study

Hypothesis 1: Attitude is positively related to students' intention to work in their hometown

Hypothesis 2: Perceived behavioral control is positively related to students' intention to work in their hometown

Family support

Family support is a students' perception of family members' attitudes, encouragement toward their return intention and also the family's preparation of facilities for students to settle in their hometown if they come back home to work (Yue et al., 2010). The family is considered a central place in socialist society of Vietnam (Nguyen, 2015), any Vietnamese individuals can be able to require some form of family supports but at the same time be subject to moral obligations towards his family. Rérat (2014) has mentioned in his research the role of family and extended family members' support relating to the return migration. Morathop et. al. (2010) have indicated that greater family encouragement to students to settle in big city results in a greater tendency to indicate non return intentions.

Hypothesis 3: Family support is positively related to students' intention to work in their hometown

Job availability

Previous research of Huang and Zang (2013), Soon (2006), and Rérat (2004) pointed out that students who have good perceptions of the working environment at home are more likely to return. The returnees do not have obligation to return home but choose to do so since they see increasing opportunities for them in their home communities or feel that they can faster move up with the career development in their home communities. Good perceptions of job finding opportunities in hometown, also have large and significant impact on a student return intention (Huynh and La, 2011; Soon, 2010; Ezmale, 2012; Rérat, 2004).

Hypothesis 4: Job availability is positively related to students' intention to work in their hometown

Quality of living environment

The living environment of a place refers to the set of characteristics that define a place, making it attractive and livable. A set of desirable amenities include parks, bike trails, cultural amenities, such as museums and art galleries, a rich variety of cafe and restaurants, a vibrant nightlife, and a diverse and tolerant population (Gungo and Tansel, 2006)

The quality of a living environment, the “livability” of a region, is commonly expressed as an index that includes such factors as the standard and variety of amenities, education and community facilities, climate, environmental quality, housing affordability, crime level, and transportation access (D'agostini & Luiz, 2008).

The “quality of living environment” may assume a very different meaning for each individual. Traditionally, research has shown that factors related to the living environment dominate in the relocation of households between central areas and suburbs. The importance of quality of life and residential amenities in migration has been highlighted in the case of some rural areas by research on amenity-led or lifestyle migration (Ezmaie, 2012). The quality of a living environment is increasingly reflected in the location intention of workers and firms (Soon, 2010). Students who have good perceptions of the living environment at home are more likely to return (Bjarnasona and Thorlindssonb, 2006).

Hypothesis 5: Quality of living environment is positively related to students' intention to work in their hometown

Hometown attachment

Place attachment is “a positive affective bond or association between individuals and their residential environment” (Bollman et al., 2001). Place attachment can be expressed by personal sentiments express by having deep affection for and being proud of the place of origin, by their desire to contribute and devote for a place. (Ezmaie, 2012).

Philip Kotler (1993) mentioned in his research that provinces can take advantages over big cities in attracting labor by the proud, the love of their citizens on the city. Our physical surrounding play important role in our lives. Individuals usually develop very strong sentimental and emotional attachments to the places in which they live, that create feelings of comfort and security (Williams & Vaske, 2003). Lalli (1992) has noted that it is important to take the strong emotional attachments between people and place into account when attempting to understand variety of human experiences. Place attachment makes people become dependent upon regions or on a certain kind of environment. An individual with a strong hometown attachment can be only satisfied with another different location as long as those places have the similar right characteristics. Feeling of place attachment makes people homesick in involuntary relocation (as in case of going to city for higher education) and grows the desire to restore the past experiences of being at home or return to the original place (Bollman et al, 2001),

Hypothesis 6: Hometown attachment is positively related to students' intention to work in their hometown

Social relations

Researchers indicate that people access more resources and support for living from their close ties (Junge et al., 2015). Individuals' beliefs that they can rely on their social ties

for resources and support when starting a new life in big city (Yue et al., 2010). Based on the foregoing discussion, it can therefore be argued that individuals who have social ties at big city have a negative effect on the formation of return migration intentions

Hypothesis 7: Social capital is positively related to students' intention to work in their hometown

Role model

Role model includes family members, friends, or neighbor, who returned hometown and successfully setting up their professional career and lives, would affect individuals' perceptions of returning. Role models provide an observational learning experience for the individuals. Literature noted that individuals may subconsciously develop their mentality, imitate the role model (Perrone & Kristin, 2002) and strive to become the role model. Role models have a profound impact on individual's career choices.

Hypothesis 8: Role model is positively related to students' intention to work in their hometown

Mediating Effects

In the TPB model (Ajzen, 1991), attitudes to behavior, and perceived behavioral control are substantive determinants of intention, while other exogenous factors indirectly impact entrepreneurial intention through these components.

Hypothesis 9a. Attitudes toward behavior mediate the relations between exogenous factors and students' intention to work in their hometown

Hypothesis 9b. Perceived behavioral control mediate the relations between exogenous factors and students' intention to work in their hometown

3. Method

To examine the hypotheses, data was gathered from a self-administered questionnaire conducted among university students in Hanoi, Vietnam. The participation in this study was final year students studying business and economics at 7 public and private universities. Questionnaires were randomly distributed by sending soft electronic copies of the survey questionnaire online via Google docs to target respondents with control of sex, major and universities.

The research questionnaire was designed by using measures from the previous research of with adaptation for the Vietnamese context. Five-point Likert scale questions are used ranging from 1 "Strongly disagree" to 5 "Strongly agree". Measurements are coded as: intention to work in hometown - YD, family support - GD, hometown attachment - GB, job availability - VL, quality of living environment - CL. Control variables are coded with dummy variables (0 and 1).

After collecting the questionnaires, we checked the data to ensure that the sample consisted of the research designed subjects. Responses were eliminated due to the fact they had been answered by second or third year students - inappropriate survey subjects, or they were missing essential information, or they had inconsistent or biased answers. The final sample size of 479 responses. The author analyzed data via SPSS software version 20 to examine the validity and reliability of measures, and AMOS 23 to test the research model and hypotheses.

4. Results

4.1. Sample statistics description.

Total responses consisted of 479 questionnaires. In which, 41,5% are men, 58,5% are women. 8.1% of sample respondents were born in Hanoi, 39% are from other cities in Vietnam and 52,8% from rural areas.

4.2. Measures assessment

All the measures in this research have been assessed for validity and reliability by using Cronbach's Alpha analysis and EFA analysis.

EFA analysis was used at the same time for 9 variables with 42 items, and promax rotation loaded in 9 factors with an Eigenvalue > 1; KMO and Berlett test is 0.936. All items are loaded in their original factors with the lowest factor loading being 0.540 and the highest 0.889

Cronbach's Alpha analysis for this research independent and dependent variables shows that all variables' Cronbach's Alpha are bigger than 0.7 (Table 1). All the research variables having "Cronbach's Alpha if item deleted" are lower than its Cronbach's Alpha; and all the values of "Corrected item total correlation" are bigger than 0.3. Therefore, all research variables' measurements are reliable.

Table 1. Measures

No	Variable name	Items	Cronbach's Alpha	Sources
1	Quality of living environment	9	0.853	Ezmale, 2012)
2	Social capital	3	0.771	Epstein & Gang (2006)
3	Job availability	4	0.851	Mushtaq et.al. (2014), Soon (2010)
4	Hometown attachment	8	0.902	Jorgensen & Stedman (2001) Scannell and Gifford (2010)
5	Family supports	5	0.859	Güngör & Tansel (2006).
6	Role model	3	0.823	Linan and chen (2009)
7	Attitude	4	0.861	Scannell and Gifford (2010)
8	Perceived behavioural control	3	0.796	Linan and Chen (2009)
9	Intention to work in hometown	3	0.758	Güngör & Tansel (2006)

Source: Author survey.

Confirmatory factor analysis was used to find the relationship between items and latent variables. In the measurement model, an adequate model fit was found, with the following indices: $\chi^2 = 1496.324$, $\chi^2/df = 1.911$, TLI = .920, GFI = .862, IFI = 0.920, CFI = 0.927, RMSEA = 0.044. The construct reliability was assessed using composite reliability (CR) above 0.7 and was considered to be adequate. AVE values were well above the cut-off of 0.5, and discriminant validity $MSV < AVE$ ensured the convergent validity of all the scales (Hu and Bentler, 1999) (Table 2).

Table 2. Scales' reliability and validity

	CR	AVE	MSV	MaxR(H)	GB	CL	GD	VL	TD	RM	QH	KS	YD
GB	0.904	0.541	0.324	0.910	0.736								
CL	0.834	0.587	0.318	0.836	0.435***	0.622							
GD	0.851	0.534	0.495	0.857	0.562***	0.462***	0.731						
VL	0.853	0.594	0.496	0.861	0.514***	0.472***	0.704***	0.771					
TD	0.862	0.610	0.426	0.865	0.569***	0.498***	0.596***	0.614***	0.781				
RM	0.824	0.610	0.435	0.832	0.478***	0.334***	0.621***	0.565***	0.551***	0.781			
QH	0.772	0.531	0.160	0.779	-0.280***	-0.223***	-0.204***	-0.313***	-0.400***	-0.335***	0.729		
KS	0.800	0.571	0.458	0.804	0.446***	0.495***	0.604***	0.626***	0.528***	0.579***	-0.396***	0.756	
YD	0.754	0.507	0.496	0.765	0.540***	0.564***	0.695***	0.704***	0.652***	0.659***	-0.376***	0.677***	0.712

Source: Author survey

4.3. Hypotheses testing

To test our hypotheses, we applied SEM and then with a bootstrapping method following Preacher and Hayes (2004) to assess the mediation effect. Figure 1 shows the SEM results with an adequate model fit index.

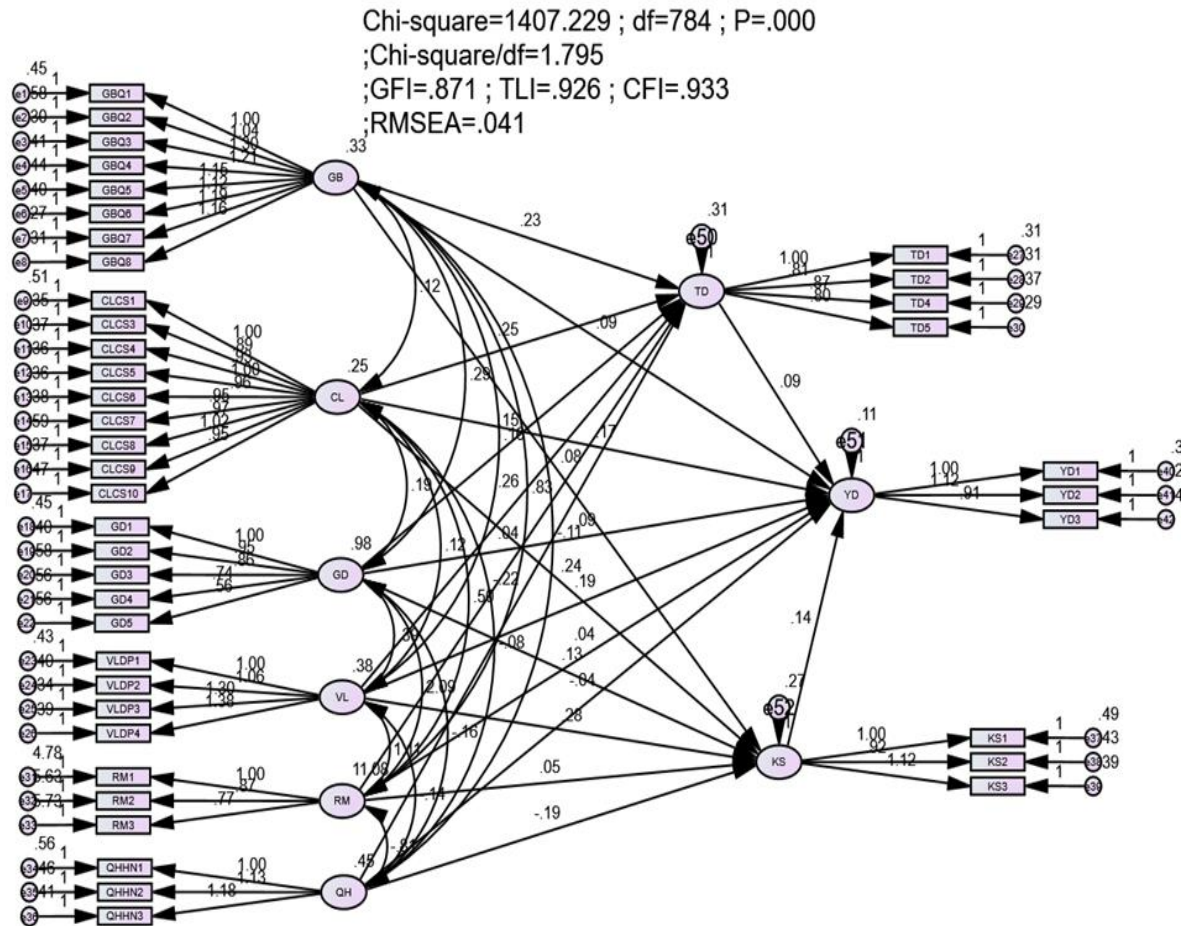


Figure 1. SEM model

The results of the study indicate that family support also strongly and positively affect the graduate decision of returning to their hometown to work. This result is consistent with the migration theory of Lee (1996). In general, a person has supports from his parents, relatives, society, and the area where he or she used to live. If the graduate family support is strong, it is possible that returning to their hometown to work will be strong as well, which is consistent with the finding of Mixon (1992), Nguyen (2015). The results seem consistent with those found by Soon (2010) where they conclude that return intention is strongly related to family and lifestyle factors, rather than to the income factor. The research result also confirmed the fact that in Vietnamese social context, students' choice of future career is strongly influenced by their family. Family support, not surprisingly, has considerable weight in the mobility decisions of the survey participants, indicating that choosing a place to work is not simply a matter of earning a higher salary or enjoying better work conditions. Good perceptions of lifestyle and family ties at home also have a large and significant impact on a student's return intention. Greater family support for returning results in greater probability of having return intentions.

Job availability offered in one' hometown positively affect the returning intention and is the second-best factor influencing return migration decision. This is consistent with Rérat (2004) and Mushtaq et.al. (2014) research. Graduates are also more attracted to places offering higher living conditions like better public services, good educational facilities, shopping services and better quality of infrastructure. Job availability is the most important factor to pull graduates to come back hometown to work.

Table 3. Hypotheses testing

	β	S,E	C,R	P-value	Note
TD <--- GB	.230	.073	3.164	.002	Support
TD <--- CL	.252	.080	3.139	.002	Support
TD <--- GD	.148	.056	2.646	.008	Support
TD <--- VL	.256	.083	3.088	.002	Support
TD <--- RM	.037	.015	2.419	.016	Support
TD <--- QH	-.223	.060	-3.699	***	Support
KS <--- QH	-.192	.059	-3.232	.001	Support
KS <--- RM	.047	.015	3.115	.002	Support
KS <--- VL	.283	.083	3.418	***	Support
KS <--- GD	.134	.055	2.412	.016	Support
KS <--- CL	.236	.079	2.976	.003	Support
KS <--- GB	.076	.071	1.078	.281	Not support
YD <--- GB	.091	.054	1.698	.090	Not support
YD <--- CL	.172	.062	2.773	.006	Support
YD <--- GD	.086	.042	2.046	.041	Support
YD <--- VL	.189	.065	2.923	.003	Support
YD <--- RM	.036	.012	3.028	.002	Support
YD <--- QH	-.045	.046	-.962	.336	Not support
YD <--- KS	.140	.055	2.555	.011	Support
YD <--- TD	.094	.047	1.977	.048	Support

Residential living conditions is important for choosing workplace. This confirms the arguments that amenities are relevant when some other factors (job, partner's aspirations) are fulfilled (Niedomysl and Hansen, 2011). The impact of family support is important but not dominant. They influence graduates' migration decisions in combination.

The results of this study indicate that role model also and positively affect the returning intention to work in one's hometown as the other research indicated (D'agostini & Luiz R, 2008).

The finding is inconsistent with studies of Nguyen (2015), Junge et.al (2015), who insisted that place attachment can stimulate inter-provincial migrants in- migration and

discourage out-migration decision. Hometown attachment does not significantly relate to intention to return hometown for working.

Social relations in urban and big city is negatively but not significantly affect the returning intention to work in one's hometown as the other researches indicated (Yue, 2010).

Hypothesis H1, H2, H3, H4, H5, H8 are supported by the research data. H6, H7 is not supported by the research data (table 3).

The relationship between five exogenous factors and entrepreneurial intention in the TBP model are confirmed to be mediated by the attitude toward behavior and behavioral control. The perceived behavioral control, attitude fully mediate the impact of social relation on intention, and partly mediate the impact of four other exogenous factors on intention. Thus, hypotheses H9a, H9b are supported by the research data.

5. Discussion and Conclusion

This research provides empirical evidence about the impact of family support, perceived city environmental conditions, role model, job and hometown attachment to student' intention to work in their hometown after graduation.

From the research findings, some recommendations have been suggested for policy makers in order to attract high quality labor resources for the economic development of cities and rural areas.

First, cities and rural areas should strengthen the relationship between students with their hometown to preserve and warm up their hometown sentiments. Provincial Governments should pay more attention to introducing lessons learnt by successful students who have come back and settled in their hometowns.

Secondly, efforts to improve city quality of life and environmental conditions should be made by provincial governments. City and rural governments should invest more in social services and facilities such as education for children, the healthcare system, entertainment infrastructure, and trading centers to improve city living standards to attract high quality workers.

Thirdly, since the perception of skill use opportunities and job opportunities is one of the factors having a positive impact on return intention, home governments should ensure enough opportunities for returning students to apply their newly acquired skills. There should be creation of jobs commensurate with the tertiary-level qualification of returning students. Governments should provide favorable policies for highly qualified labor resources to return to their hometowns. The government and others concerned should help to provide career opportunities for them. If these young emigrants could gain satisfaction in jobs in their areas of origin, they would not abandon their hometown.

Finally, provinces should encourage their city residents to support and pull their family members back to settle in the region. Provincial governments can promote and market new and favorable city policies and environmental conditions for their residents in order to change their perception of the goodness of hometown life, so that they can help to pull their family "sons" or "daughters" to return back to their hometown to work.

This study had some limitations. It relied on the self-reported intentions of final-year students at National Economics University. The email survey method resulting in a limited number of responses may lead to an unrepresentative sample. In addition, the cross-sectional study design was limited to determining causal associations between the study factors, intention and decision to return to work. A further longitudinal study is needed to ensure the factors affecting intention actually affect the practice and the duration for which graduates were willing to work in hometown. More variables should be included in the study, such as motivation, which will influence the decision of graduates to return.

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THE USES OF YOUTUBEVIDEOS IN ENGLISH LANGUAGE LEARNING: A LITERATURE REVIEW

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Abstract

YouTube.com (or other online streaming video websites) is a free online video repository where nearly any digital video file can be stored and displayed. YouTube's diverse content and organic community interaction make it an invaluable resource for a wide range of educational endeavors. YouTube videos can be a valuable tool for teaching multiple languages. Furthermore, they can be used to make students aware of the various dialects of English spoken around the world, as well as to provide them with authentic materials for developing their English language skills. This paper seeks to give a list of considerations for teachers while integrating YouTube videos inside and outside of the classroom to fully capitalize on the strengths of YouTube videos in English language learning and teaching.

First, a brief review of various research methods used to investigate the use of YouTube videos in English classrooms through studies to improve learners' English language competencies has been presented, followed by a summary of the main findings of the uses of YouTube in teaching and learning English has been discovered. One of the remarkable findings that have been highlighted when applying YouTube in teaching English is that teachers must consider choosing videos that are appropriate to the objectives and other requirements of courses and to the level of learners, as well as keep track of the proportion of the class design to get the optimal learning outcome.

Keywords: *YouTubeVideos, Use, English Language Learning*

1. Introduction

Language acquisition is the cornerstone of human existence. Learning a new language can help us communicate our thoughts, feelings, hopes, and even dreams more effectively (Tavil, 2009). We all believe that English will be the international language most people learn as a second language. Therefore, it is the most widely spoken language in the world. One in five people can use or understand English. Nowadays, people spend more and more time learning English as a second language. Furthermore, English is a required subject in most schools, and children are learning English at an ever-younger age. English is the language of commerce, science, and technology. Learning English, in addition, will improve our chances of getting a job, participating in discussions, and networking. English allows us to broaden our educational options. Similarly, English is the language of technology, particularly in high-tech fields such as computer science, genetics, and medicine. If we read documents in those fields, we will have to read them in English. In other words, English is a necessary tool for broadening and illuminating our worldview. Moreover, once you have

mastered English, you will have more opportunities to learn about other cultures through literature, as most popular foreign books are written in English rather than in other languages. The majority of information on the Internet is also in English. Diana-Petruța Mahu (2012) claims that learning English allows us to widen our understanding. We can discover entertainment and help develop life skills thanks to English. When we emigrate or study abroad in countries that officially use English, we have more opportunities to communicate and integrate with the local community. Geoffrey Broughton, et al. (1978) stated that English is by far the most commonly spoken of the 4,000-5,000 living languages. There are 300 million native English speakers on every continent and over 250 million people who speak English as a second language. Finally, we cover one-sixth of the world's population if we include those locations where life and welfare decisions are decided and proclaimed in English.

YouTube Website is among the websites that consider a great resource for English language learners. It contains resources of data for learning, allowing teachers and students to share information, increasing their time for independent tasks, and solving problems on their own if teaching and learning seem difficult to them. Founded in 2005 by PayPal and owned by Google since late 2006, YouTube (<http://en.wikipedia.org/wiki/YouTube>) is a video-sharing, uploading, and viewing platform. Users on YouTube can make their videos, tag a video's content, write a title and description for those videos, leave their comments or comment on other users' videos, search for videos that interest them, etc. According to Jones and Cuthrell (2011), YouTube is a Web 2.0 site where users can collect information, share their work, and participate in peer feedback through asynchronous interaction with other users. Having approximately 7 billion videos (according to Brand Vietnam statistics in February 2019), YouTube is the world's most popular video-sharing website. Numerous YouTube videos are employed to learn English thanks to their outstanding features such as the "Closed Caption" button, Open transcript, and Playback speed, which allow learners to watch their favorite English videos on YouTube but struggle with English. According to Shell et al. (2010), incorporating YouTube videos can transform our classroom into a more participatory learning environment and create a place where students will want to be. It reaches more students by incorporating different learning styles and allowing students to design their self-paced study plans. Besides, students "use YouTube videos as supplementary resources for textbook materials in language learning." Students create and distribute their videos" (p. 468). Furthermore, Raniah Kabooha et al. (2015) discovered both students and teachers believe that YouTube technology is an effective tool for helping students better understand and comprehend the English language or, in this case, the target English vocabulary. The majority of students found YouTube to be beneficial in improving their understanding of English vocabulary. Meanwhile, Mohammad Jalaluddin (2016) acknowledged using YouTube videos to educate students about the various dialects of English spoken and provide them with authentic materials to improve their speaking skills. Even Jon Watkins et al. (2011) claimed that using YouTube inside and outside the classroom can improve conversation, listening, and pronunciation skills. In light of these findings, the author wishes to learn more about the *methodology that the prior researchers have used to*

study the uses of YouTube videos in learning English to improve the English proficiency of learners. This study aims to identify potential caveats that researchers have encountered and then suggestions for how to overcome them.

Research Question

*How have YouTube videos been used in English language learning both inside and outside of the classroom to enhance the **English competencies of learners** and which common warnings have raised in their studies?*

Research Objective

To make recommendations to overcome the cautions that researchers have mentioned earlier in their studies while employing YouTube videos as learning tool to develop foreign language ability for learners in general and English language skills in particular.

2. Method

This paper is based on library research. Official websites, conference proceedings, conference papers, thesis, and journal articles were used to collect relevant information and data. The researchers' methodology and core findings on the use of YouTube videos in English language teaching and learning were then compiled. Following that, the outstanding warnings would be thoroughly identified, and solutions would be proposed.

3. Results

Many previous researchers conducted studies on YouTube as an educational tool to improve students' language skills. Ahmad NurSyafiq et al., (2021) conducted action research at Universitas Muhammadiyah Kudus in the academic year of 2019-2020, including 205 first grade students of a non-English program during online learning in the pandemic of COVID-19. Eighty-five students were the total samples only due to the researchers' access to teaching those samples. The study started with discussing the barriers to learning English speaking during COVID-19, then offered YouTube videos as one of the alternative solutions in English class, which obtained the result on the students' speaking skills in terms of fluency, vocabulary, pronunciation, grammar, and content were significantly improved. Observing how YouTube videos are combined while the teaching and learning English speaking occurred. On the other hand, comparative methods and descriptive statistics were instruments to collect data.

Nguyen Minh Trang (2022) carried out qualitative research to determine whether or not YouTube videos can help university students develop their learning autonomy when used as a medium for writing activities. The researcher employed questionnaires, semi-structured interviews, and diaries of teachers and students as survey tools to identify the students' perceptions of the uses of YouTube videos in the classroom. They were required to perform two basic writing activities: (1) writing about the content of videos and (2) commenting on it. Every video was around 15-20 minutes long to ensure that students were keen on watching it. The researcher asserted that YouTube videos could be a tool that students can use to learn English at their own pace, and teachers can exploit them as educational resources to help them in their teaching careers. However, the researcher has stressed that short, authentic, and captivating YouTube videos are the best choices for writing activities.

Meanwhile, Qomariyah et al., (2021) conducted a quasi-experimental with non-equivalent control group design including two groups; experimental and control. Both had pre-test and post-test designs. The experimental group was exposed to YouTube videos, whereas the control group was exposed to audio recordings. A listening test with 35 multiple-choice questions was designed to collect data for the study. The collected data was then analyzed using SPSS 19 and the t-test to compute the data derived from two samples. The researchers compared the results of the t-test with the t-table to determine whether or not using YouTube videos had a significant effect on students' listening comprehension performance. The study's findings were also similar to those of Ayu's (2016) study, "YouTube Videos in Teaching Listening." The researchers also cautioned watching relevant videos on YouTube has become one of the alternatives sources for learning to improve English learners' listening comprehension performance.

Similar to Qomariyah et al., (2021)'s study, Chia-chi Chien et al.,(2020), used YouTube as supplementary material with EFL college students at Chung Shan Medical University in Taiwan to see if there was any improvement in the students' listening comprehension after the 5-week treatments. The subjects are 38 Taiwanese students in the same class, aged 18 to 20, who were required to take the pre-test and post-test. A questionnaire was distributed to ascertain the students' perceptions and reflections while incorporating YouTube into the course. The paired T-Test was used to examine what happened before and after the treatments. The result found that students' listening skills improved significantly when combined with computer-assisted learning technology—YouTube—and traditional pedagogy. They did emphasize, however, that teachers must continue to keep an eye on video selection and control the proportion of class design to ensure the best learning outcome.

Raniah Kabooaha et al., (2018) also published a study on The Effects of YouTube in Multimedia Instruction for Vocabulary Learning, which used a research method quite similar to that of Chia-chi Chien et al. (2020)'s research. Pre-tests and post-tests with two questionnaires were used to answer the research questions. Integrate videos in reading classes to examine the improvement and the retention of students' English vocabulary at King Abdul Aziz University. Students were divided into two groups; an experimental group who watched YouTube during the reading activities and a control group who was not shown the videos. The findings showed that the current lesson plan in students was able to recognize and comprehend the target vocabulary. Teachers should be encouraged to use YouTube in their classrooms. However, to achieve maximum effectiveness of YouTube, the teachers must pay close attention to the videos they are attempting to choose (Fisher & Frey, 2011). Natalia Anggrarini et al., (2021) performed qualitative research with a case study design to explore the students' perception of using YouTube in English class. Questionnaires and interviews were the instruments and implemented in six undergraduate students of the 3rd semester who voluntarily participated in the research. The result highlighted that YouTube videos make learning English enjoyable; it helps them comprehend the material presented in the YouTube video that could improve their listening, writing, reading, speaking skills, pronunciation, and vocabulary enrichment. The researchers also discovered the

strengths and weaknesses of YouTube; YouTube keeps the students from feeling bored; they can study anytime and anywhere; and also re-watch the video at will. However, if the videos are unreliable and lengthy, they can be a complete failure in the learning medium. Without Wi-Fi access, YouTube is considered expensive. Signal interference is the final possibility. Students will struggle if they do not have Wi-Fi, have limited educational funds, or live in areas with limited internet access.

Another study led by Md. Mahadhi Hasan et al. (2018) discovered that students considered YouTube a motivating and engaging learning tool. The students' English language such as speech delivery, pronunciation, intonation, grammatical skills, and listening skills has been improved. The study employed qualitative research, with 30 tertiary students from eight universities in Bangladesh divided into six focus group discussions. They all agreed to participate fully in the information-gathering interview. For analysis, the data were coded, and the emerging broad themes were presented under key headings. However, the study found that language learning videos on YouTube sometimes contain material that is not culturally appropriate. The speaker's attire and demeanor may cause cultural shock among the students. The researchers recommended that learners and teachers choose culturally appropriate language learning videos for active and fruitful learning.

Inda Nofrika (2019) found three categories of YouTube videos often watched by students such as art and humanities, vlogs, and social sciences. Art and humanities videos consist of music videos or lyric videos, films, talks, sitcoms, and talk shows. Vlogs include food vlogs, review videos, beauty vlogs, haul vlogs, and DIY videos. Social sciences contain simulations and educational videos. Inda Nofrika applied a descriptive qualitative research design and interview that were the gathering method to collect the data. Four seniors of an English Language Education Department in a private Islamic university in Yogyakarta were employed to conduct the study. The result of the research was that students watched YouTube based on their preferences. English skills of the students in speaking, listening, pronunciation, vocabulary list, and grammar improved significantly after watching YouTube videos.

4. Discussion and Conclusion

4.1. Discussion

To answer the research question I stated earlier, the latest research papers from various authors were selected for review what they had investigated the application of YouTube videos in learning and teaching English. Quantitative and qualitative approaches (questionnaires and interviews) have been employed in most studies. In addition, a rather coincidental result of the investigation also shows that the researchers admit YouTube videos are an effective learning channel for both teachers and learners who can exploit real-life resources through millions of English videos uploaded to Youtube.com every minute. This finding is consistent with the study conducted by Watkins and Wilkins (2011), who claim that using YouTube in and out of the classroom can help students improve their conversation, listening, and pronunciation skills. YouTube videos can also be used as realia in cultural lessons to increase exposure to world Englishes and promote authentic vocabulary development. Reading and writing assignments can also be based on YouTube videos. It is

also in line with the findings of Abdul Khaliq R. Nasution's (2019) study, which emphasized that YouTube videos can be great mediums for teaching language, such as motivating learners, referring to learning something new, and many other things. It was such an intriguing discovery when six out of eight studies, which I already presented above, shared a common point. It means that six out of eight researchers confirmed that if YouTube is intended to be used as an alternative material or primary source to improve learners' English language skills, it will be a powerful and excellent tool for English language learners. However, relevant videos must be chosen, and teachers also need to control the proportion of the class design to ensure the best learning outcome. This caution is in line with a study conducted by Moghavvemi et al. (2018). According to their findings, if the videos are relevant to the subject at hand, they can be an effective tool for enhancing the learning experience. It is similar to what has been studied by Abdul Khaliq R. Nasution (2019) entitled "YouTube as a Media in English Language Teaching (ELT) Context: Teaching Procedure Text". He emphasized that some videos may contain images or themes which considered controversial or indecent in some cultures, so teachers should be careful when searching for videos on YouTube to use as appropriate teaching materials.

Based on the studies of Tira Nur Fitria (2019) and Francesco Pierini (2014), the writer wanted to make a list of considerations for teachers while incorporating YouTube videos into and out of the English classroom to achieve the research objective and take full advantage of YouTube videos in teaching and learning English as well.

✚ Identify who your students/learners are:

They can be (busy) adults, students at universities, pupils at high schools, pupils at primary schools, or children. Once you have determined who your learners are, you will pay close attention to the length and content of the videos you choose.

✚ Recognize the objectives of the lesson and then the objectives of the course.

Teachers must have a thorough understanding of both the lesson's and the course's objectives. The objectives of the various courses are not the same. Francesco Pierini's (2014) study researched that "General English" is used to refer to the English language with ordinary content. The course objectives would be to help learners use the English language in all ways and contexts and then be able to communicate in everyday life and situations, from very simple contexts to very complex ones. Meanwhile, Tira Nur Fitria (2019) reminded us that "the goal of any Business English course is to allow its users to communicate effectively with others in a business environment, whether the communication is through correspondence, face-to-face meetings, or other methods. Therefore, a business English language may include topics like business English reading, letters and resumes, business phrases, terms of sale, advertising, and marketing. As well if your students are learning English to get an IELTS certificate, the objectives of every lesson delivered will be different in specific skills, including listening, academic reading, academic writing, and speaking.

✚ Ascertain a clear understanding of why they are learning English.

Teachers have to dig out what their students' purposes for learning English are. From that, they keep an eye on choosing appropriate learning materials to help them achieve their goals. Your students studying English would be there for a variety of reasons. Some want to learn English to work in an international environment where English is required, others want to learn English to relocate permanently to a country where English is spoken officially. Others learn English simply because it is one of the compulsory subjects at school, while others need to study English for international certificates, as I listed above, and for various other purposes, such as finding a job in foreign companies, getting promoted, and so on.

✚ Find out what your students/ learners want to achieve.

The English level of the students must be assessed, and what the students hope to achieve after the lessons (courses) must be clearly understood by the teachers or educational administrators. Teachers need to concentrate on the goals and needs of their learners. For example, the students may wish to;

- Improve Listening skills, like practicing telephoning more effectively, etc.
- Enhance Speaking skills/ Communicating Skills; chairing meetings, debating, negotiating, discussing, giving opinions, etc.
- Sharpen Writing abilities, such as writing more coherent emails and letters, writing more logical and organized essays, etc.
- Strengthen Reading skills; reading for general information and detailed information, etc.
- Expand vocabulary list; business English vocabulary, general English vocabulary, English for specific purposes vocabulary, etc.
- Boost pronunciation: British English pronunciation, American English pronunciation, Canadian American English pronunciation, etc.
- Achieve a high level of proficiency in English and so on.

✚ Choose your materials wisely

When teachers fully comprehend and carry out the steps outlined above, they will select materials for their lectures in an appropriate, easy, and wise manner in order to obtain the objectives of the lesson and then the objectives of the course in the most convincing way and make the learning and teaching process meaningful and fruitful.

4.2. Conclusion

In the age of the internet, applying information technology to practical life is an unavoidable trend. It is even more critical to pay close attention to the use of information technology in education. As a result, an increasing number of websites are being created to assist users in learning and working. Most researchers consider YouTube.com to be one of the most valuable tools that people all over the world use to learn and exchange information with others. It is an undeniable fact that most foreign language teachers and students must accept that YouTube videos are used to aid in the achievement of the goal of teaching and

learning. To summarize, we must realize our objectives and requirements. Furthermore, we must understand the goals and needs of those involved in general, and our students in particular, and the use of the websites that we are employing will always help us (users) find ways to overcome their weaknesses and know how to dig out their strengths to bring us results that exceed our expectations. Like the proverb said, “He who sees through life and death will meet most success”.

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Abstract

This study investigates the factors influencing the teaching of English as the second language for non-English major students at economic universities in Hanoi. The key findings indicate that all the factors which affect the quality of teaching English at economic universities in Hanoi include teaching methods, lectures skills and qualifications, teaching materials, assessment, facility, and English learning attitudes. Specifically, English teaching methods have the strongest impact on the quality of teaching English. Through the results, the researchers propose practical recommendations for administrators, lecturers, and students to improve the quality of teaching English as the second language for non-English major students at economics universities in Hanoi.

Keywords: *factors, quality of teaching English, non-English major students, economic universities.*

1. Introduction

With the increasing global economic integration, it is obvious that foreign languages, especially English, have tremendous effect upon all the aspects of human life. Therefore, there is a constant demand to learn and grasp the English language which has nowadays become a universal language, used both for business and pleasure. Teaching English at schools and universities is an important bearer of such a process. It is supposed to be based on effective study strategies and established on the basis of sustainable development, with a high-quality result as a final outcome. There is no doubt that scientific and effective teaching assessment is the important means by which teachers and learners can check whether the aim is well realized.

Universities worldwide all share a commitment to assuring high quality teaching and learning and emphasize the maintenance and constant development of quality. No matter what a language course a teacher may use while teaching, to maintain quality, teaching and learning must meet learners' needs. That it, the process must be creative, with inevitable usage of up-

to-date information technologies, employing different resources to support good practice, and as a final step, the process must end up with evaluation of teaching and learning outcomes.

In Vietnam, the majority of universities understand the importance of English and they have focused on developing the quality of English teaching and learning to meet the speed of industrialization and modernization of the country as well as globalization. In order to be better employed after graduation, students need to acquire English language proficiency. The requirement of an English outcome standard for non-English major students at many Vietnamese universities with IELTS 5.5 or equivalent certificates before graduation has become more challenging to students, lecturers, and university administrators.

It can be seen clearly that numerous international and domestic studies were conducted to identify factors that affect the quality of teaching English to give an in-depth understanding. In particular, Betts et al. (2003) conclude that the teacher qualifications most significantly related to better student success are subject-area certification. Similarly, Cavalluzzo (2004) indicates that lecture qualifications and student achievement have strong correlations. In addition, educational facilities are also necessary for the teaching and learning process to take place (Sopiatin, 2010). Urbina (2016) discovers that lecturers were aware of the teaching process by using the grammar-translation method most of the time, which was combined with the direct method and audio-lingual methods such as repetition and presentation. Julia and her colleagues (2020) also analyze five terms including pedagogy-related factors. The findings show that lecturers were aware of how important pedagogy-related factors were. Such teaching methods, implementation of lesson plans, and classroom management could either aid or impede a lecture in ELT. Kausar, Shoukat, and Zafar (2020) conduct research to identify factors affecting the quality of education of secondary school students in Tehsil Faisalabad. Four elements (Teacher related factors, Examination related factors, Psychological related factors, Socio-economic related factors) are used to evaluate the quality of teaching in the study.

As indicated by Tran (2013), English was poorly taught at Vietnamese universities. The data showed that most students were not taught according to the English curriculum. Additionally, the study results indicate de-motivating factors of English teaching at HUTECH in particular and in Vietnamese universities in general. Nguyen (2014) & Pham, (2021) investigates factors affecting the quality of teaching English at NEU. The findings reveal that teaching method has the strongest impact on teaching quality, followed by teaching materials, teaching attitudes, assessment, and facilities.

To conclude, a great deal of research has been carried out to investigate the factors affecting the quality of teaching English; however, little research was concerned with the non-English major students at economic universities in Hanoi. Considering these factors is crucial to improve students' English proficiency since students are required to achieve English outcome standard before graduation. In order to fill the research gaps, it is of great importance to conduct research on factors influencing the quality of teaching English as a second language for non-English major to analyze the influencing factors as well as evaluate the level of influence of these factors, and propose implications for institutions, lecturers, and students to enhance the quality of teaching English.

On the basis of previous international and domestic studies, the researchers selected six factors affecting the quality of teaching English as the second language of non-English major students at economics universities in Hanoi. These factors include (i) English teaching methods, (ii) Lecturers' skills and qualifications, (iii) English teaching materials, (iv) Facilities, (v) Assessment, and (vi) English learning attitudes.

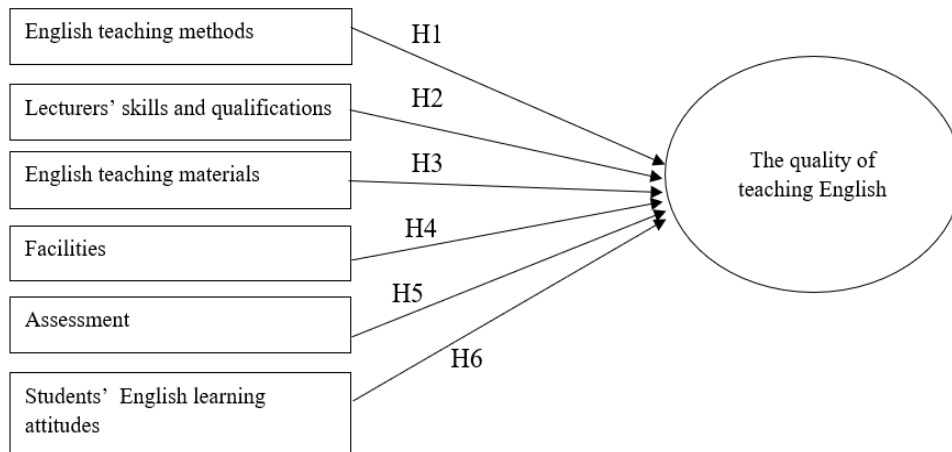


Figure 1. Proposed research model

2. Method

The researcher follows these steps to conduct the study:

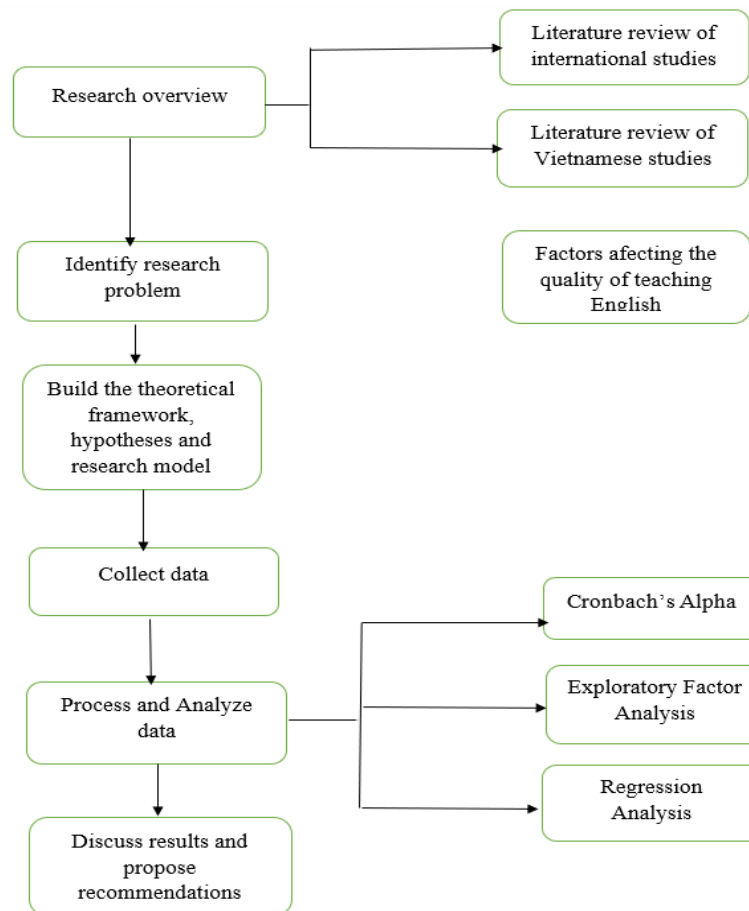


Figure 2. Research process

2.1. Qualitative methods

In-depth interview method: The researchers conducted in-depth interviews with 10 students from economic universities to analyze, supplement necessary factors and adjust the scales. Due to the Covid-19 pandemic, the interviews were carried out via telephone calls and Google meetings.

Expert-opinion method: After interviewing 10 non-English major students of the National Economics University, Foreign Trade University, and Banking Academy in Hanoi to adjust the questionnaires, lecturers of the Faculty of foreign languages from the three economics universities were invited to provide their opinions, comments, evaluations to help the researchers finalize the questionnaire before distributing it to the respondents.

2.2. Quantitative methods

Data collection

Due to Covid-19, the questionnaires were uploaded to Google Forms and distributed to economics students via Facebook, student platforms, and student email systems. The results were then compiled and put into SPSS for analysis.

Data Analysis

The reliability and validity of the scales is evaluated thanks to SPSS. The reliability of the scale is tested through Cronbach's alpha coefficient. The validity of the scale was tested through exploratory factor analysis (EFA). Finally, the impact of factors on the quality of teaching English was estimated using a regression model.

Evaluating of Scale Reliability by Cronbach's Alpha

Cronbach's Alpha coefficient is used to analyze the consistency of a scale consisting of many observed variables. Through this coefficient analysis allows the researchers to remove the garbage variables (do not guarantee the consistency when reflecting on the same concept). Specifically, variables having Corrected Item-Total Correlation less than 0.3 will be excluded from the set of observed variables of the scale. Criteria for a good scale is that the scale has Cronbach's Alpha greater than 0.6 and no any Corrected Item-Total Correlations below 0.3 (Nunnally & Burnstein, 1994).

Exploratory Factor Analysis

To analyze the validity of the scales, the researchers use EFA technique. This tool is able to evaluate the homogeneity of component elements that are expected to be significantly correlated with each other in the same component. During analysis, observed variables with a loading factor of less than 0.5 continue to be excluded from the set of observed variables because the scale's convergence is not guaranteed. The method of extracting is the Principal components method with Varimax rotation and the stopping point when extracting factors with Eigenvalues being equal to 1. According to Hair et al. (1998), the scale is accepted when more than 50% of the total variance is extracted and not less than 0.5 of loadings factor.

Regression Analysis

Regression analysis is a reliable method of identifying which variables have impact on a topic of interest. The process of performing a regression allows researchers to confidently determine which factors matter most, which factors can be ignored, and how these factors influence each other. There are two main components to be essentially comprehended: dependent variable and independent variables. Dependent Variable is the main factor to be understood or predicted while Independent Variables are the hypothesized factors having an impact on the dependent variable.

3. Results

3.1. Qualitative Results

425 questionnaire forms that were delivered online via Facebook, student platforms, and student email systems. However, after the initial visual examination 25 invalid or unreliable responses were removed due to acquiescing responses (i.e., providing same values for all items) or missing values in the key variables of interest. A total of 400 cases of analyzable samples were used in the study.

The respondents of this study are undergraduate and graduate students from three economic universities in Hanoi including National Economics University (35.5%), Banking Academy (33.25%) and Foreign Trade University (31.25%).

3.2. Quantitative Results

Evaluating of scale reliability by Cronbach's Alpha

The analysis results of evaluating of scale reliability by Cronbach's Alpha reveals that the corrected Item-total correlation is greater than 0.3; Cronbach's alpha of six scales is greater than 0.6. Therefore, it ensures sufficient reliability to be included in the exploratory factor analysis.

Table 1. Summary of the results of the scale reliability analysis

Factors	Cronbach's alpha
ETM	0.886
LSQ	0.880
TM	0.881
F	0.920
AS	0.911
LA	0.888

Source: Researchers's summary from the results

Analysis of the scale validity

After analyzing the reliability of the scales, the researchers analyzed the validity of the scales to ensure that these scales reflect completely the aspect that they need to measure. Analyzing indicators such as KMO, P value of Bartlett's test, Total Variance Explained which showed that the overall quality of teaching English scale is valid allowed the

researchers to compute the overall quality of teaching English for non-English major students at economics universities in Hanoi.

Total Variance Explained							
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6.520	16.300	16.300	6.520	16.300	16.300	4.667
2	4.403	11.006	27.306	4.403	11.006	27.306	4.324
3	4.213	10.533	37.840	4.213	10.533	37.840	4.235
4	4.094	10.236	48.076	4.094	10.236	48.076	4.195
5	3.750	9.376	57.451	3.750	9.376	57.451	4.150
6	2.405	6.013	63.464	2.405	6.013	63.464	3.814

KMO and Bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.764
Bartlett's Test of Sphericity	Approx. Chi-Square	901.127
	Df	3
	Sig.	.000

KMO is $0.764 > 0.5$; P value of Bartlett's test is 0.000, very small (< 0.05); therefore, the EFA method is suitable.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.601	86.686	86.686	2.601	86.686	86.686
2	.210	7.015	93.701			
3	.189	6.299	100.000			

The table indicates that the observed variables of the overall quality of teaching English scale converge on 1 main component with the total variance explained as 86.686%. It shows that this main component explains 86.686% of the variation of the set of observed variables for the scale of overall quality of teaching English.

As a result of this finding, the researchers may infer that the overall quality of teaching English scale is valid (i.e. it can measure exactly the concept it is supposed to measure). The researchers can make use of this scale to calculate the overall quality of teaching English for non-English major students in economics universities in Hanoi.

Assessment of quality of teaching English in economics universities in Hanoi and factors affecting the quality of teaching English in economics universities in Hanoi

Students' assessment about factors affecting the quality of teaching English

Moreover, the findings indicate that generally the students have positive assessment of factors affecting the quality of teaching English in economics universities in Hanoi. Specifically, the students are most satisfied with Facilities, English teaching methods, Teaching materials, and Lecturers' skills and qualifications (with the average satisfaction score from 3.7 to 3.9).

Students' assessment about the overall quality of teaching English

Items	N	Minimum	Maximum	Mean	Std. Deviation	Items
QTE1	400	1	5	3.87	.480	QTE1
QTE2	400	1	5	3.87	.489	
QTE3	400	1	5	3.87	.469	

Source: Researchers' data processing

With the average assessment score of about 3.8 points, it can be supposed that the majority of students evaluated the quality of teaching English with optimistic effects.

Analyzing the impact of factors on the quality of teaching English in economics universities in Hanoi.

The researchers figured out 6 major factors that can affect quality of teaching English, including: (i) English teaching method, (ii) lecturer's skills and qualifications; (iii) English teaching materials; (iv) Facilities; (v) Assessments; and (vi) students' learning attitude.

To determine the effect of each of these components on the quality of teaching English, the researchers performs a regression with an analytical model written in the following form:

$$QTE = B_0 + B_1*ETM + B_2*LSQ + B_3* TM + B_4*F + B_5*AS + B_6*LA + U_i (1)$$

The researchers used summary of model indicators and analysis of variance.

Results of estimate

Variables	Estimate	Std. Error	Beta	T - stat	P_value
(Constant)	.288	.180	-	1.601	.000
ETM	.133	.026	.204	5.185	.000
LSQ	.083	.021	.141	4.048	.000
TM	.238	.019	.438	12.577	.000
F	.147	.019	.265	7.629	.000
AS	.133	..023	.227	5.793	.000
LA	.196	.020	.336	9.671	.000

Source: Researchers' data processing

4. Discussion & Conclusion

Conclusion

From the above results, there are six factors responsible for the quality of the teaching of English as a second language at economics universities in Hanoi, namely (1) English teaching methods, (2) lecture skills and qualifications, (3) English teaching materials, (4) facilities, (5) assessment, and (6) English learning attitudes. Additionally, the six factors above have a positive impact on the quality of teaching English as the second language for non-English major students in economics universities in Hanoi. The most dominant factor was English teaching methods, followed by lecture skills and qualifications, teaching materials, facility, assessment, and English learning attitudes.

Discussion

To start with, the results indicated that the role of English language teachers in achieving significantly the quality of education in economics universities cannot be denied. In language acquisition, skilled and capable pedagogues are recognized to make a positive impact on students' motivation and help in innovatively implementing pedagogical approaches. Thus, English language lecturers act as quality facilitators who influence educational quality.

Teaching skills are capabilities that enable lecturers to contribute to students' success. These skills are essential at every step of the way, from creating lesson plans and instructing learners to collaborating with parents and school administrators. Therefore, it is obvious from the findings that teaching skills have great influence on the quality of teaching English at tertiary education.

Teaching materials form an important part of most English teaching programmes. From textbooks, videotapes and pictures to the Internet, teachers rely heavily on a diverse range of materials to support their teaching and their students' learning.

According to the research results, assessment is also a crucial factor that positively affects student satisfaction and the teaching English quality. It is a pedagogical context designed to encourage and promote student engagement in studying. In addition, the assessment system should be improved to ensure more fairness, transparency and equality in assessing student learning outcomes, which is clearly shown in each assessment item.

It can be seen from the data analysis that the next crucial affecting factor was related to facilities which can be defined as the necessary resources in an EFL classroom. Facilities referred to libraries, multimedia equipment such as English labs, the use of projectors, computers, as well as the number of students in the classroom as areas of infrastructure.

The research results also indicate that students' learning attitude is also an integral factor that has a detrimental impact on the quality of teaching English and the student's satisfaction. Students are the major subject in the training process and their attitude contributes an extremely important part to the quality of teaching and learning.

Recommendations

On the basis of findings, the researchers propose some viable recommendations to improve and enhance the quality of teaching English for non-English major students.

In terms of English teaching methods, the new ones are put forward to help lecturers of English to improve the existing methods: (i) layered teaching methods, which aims at different English levels and different learning abilities of students; (ii) life-related teaching methods, that is, integrating English into life, learning English in life, and mastering the basic skills of English in practice; (iii) group-divided and cooperative teaching methods, which means dividing students into groups according to students' interests, the English levels and autonomous learning.

In terms of lecturer skills and qualifications, it is crucial to follow these steps to improve the English teaching quality: (i) identify strengths and areas for improvement - find out what they are good at and use it as a springboard to work on their weaker areas, (ii) implement improvement strategies, including public speaking practice, reading inspirational books and listening to motivational speakers, attending workshops and conferences, etc.

In terms of English teaching materials, they should be authentic and contextualized. Moreover, they need to offer opportunities for integrated language use. Lastly, English teaching materials should be attractive in terms of physical appearance, user-friendliness, durability and ability to be reproduced.

In terms of facilities, in order to bring the best learning conditions and create a modernized and friendly atmosphere in classes, universities should take into consideration several attributes. Firstly, the classrooms need to be organized in an appropriate way. Secondly, the building in the university has to be equipped with whiteboards, multimedia equipment such as speakers and computers, and even projectors. Finally, libraries should be provided with full and diverse sources of learning materials such as books and reference ones or even pre-recorded lectures.

In terms of assessment, due to its significance to students, lecturers and parents, it is necessary for lecturers to consider the following: (i) Supporting student learning through formative assessment, (ii) Using assessment data to improve learning, (iii) Providing feedback on student work, (iv) Recording and tracking progress and achievement, (v) Standardizing teacher assessments within subjects, (vi) Using assessment data for school evaluation and target setting.

In terms of English learning attitudes, it is obvious that students' attitude towards the foreign language is very often influenced by teacher-student relationships, the general classroom atmosphere, and the use of authentic teaching materials and activities; therefore, it is highly recommended for lecturers to take into consideration some suggestions. Firstly, they should foster a positive psychological classroom atmosphere in which students feel free to communicate using a foreign language by the following techniques: (i) Avoiding excessive, "on the spot" correction in speaking activities; (ii) Adopting a correction code in writing tasks; (iii) Establish a set of classroom rules and enforce them fairly and consistently with all students and Incorporate collaborative work in your English classroom. Secondly,

they should create an attractive physical classroom environment. Some practical advice includes: (i) Paying attention to seating arrangement; (ii) Making effective use of bulletin boards and display areas; (iii) Using posters, maps, newspaper clippings to provide a stimulus for classroom discussion; (iv) Establishing classroom procedures and rules; (iv) Bringing to the classroom a number of English books. Lastly, they should supplement the teaching material with authentic texts and tasks. Authentic material and tasks should be selected based on the students' interests, knowledge and everyday experiences. Additionally, they should foster students' autonomy by providing activities and tasks that require students to use English for authentic communicative purposes.

Limitations & Suggestions for Further Studies

The researcher made a significant effort to investigate the relationship between factors mentioned above and the quality of teaching English in Hanoi economics universities but limitations on the study are inescapable. First of all, the research investigates on only three economics universities in Hanoi due to the Covid-19 pandemic and the shortage of time. 400 responses were collected, but this number is not able to make a sweeping statement of the results to a larger group of students effectively. Secondly, the researchers intended proposed to interview lecturers and administrators in economics universities in advance, but due to the Covid-19 pandemic, the researchers could not interview administrators; therefore, the evaluation of factors affecting the quality of teaching English would not be all inclusive. Last but not least, the study only focuses on evaluating six major dimensions of the quality of teaching English in university while it may cover other aspects. The aforesaid issues could be solved and be a basic foundation for further research. Firstly, future researchers can extend the scope of the study with more data from more universities in other cities in Vietnam. Instead of just focusing on economics universities, the research should be conducted at other universities with different fields such as medicine, art, culture or technology. Expanding domains of university would make the findings even more beneficial. Secondly, further studies should consider the impact of other factors, including the university reputation/ image, gender on the quality of teaching English as the second language.

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A STUDY OF ADULT STUDENTS' SATISFACTION ON THE TRAINING QUALITY IN VIETNAM

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Abstract

The study aimed to evaluate the students' satisfaction and identify the factors affecting the training quality for adult students in Vietnam. By desk study and in-depth interviews, the theories of students' satisfaction evaluation and the legal documents relating to training quality were analyzed and symbolized with a conceptual theory frame. The research was then based on the quantitative method to analyze the students' satisfaction on training quality. Primary data was collected from 200 students of two training institutions in management of agriculture and rural development. A set of criteria, including five factor groups with 31 observed variables was developed. The Exploratory Factor Analysis (EFA) method and the multivariate linear regression model were used to identify the groups of factors that affect the level of students' satisfaction with the training quality at the two institutions. Accordingly, there were three groups of factors that most strongly influence the students' satisfaction, including trainers, training curriculum, infrastructure facilities. Basing on the analysis, recommendations to improve the training quality were also provided.

Key words: *Adult student, training quality, satisfaction level.*

1. Introduction

In the context of knowledge-based market economy, the short-term training for civil servants and public employees in Vietnam has been changing to meet the students' needs in the new period (Thuy et al., 2018). Accordingly, assessment of the training quality is an inseparable part of the training cycle. Through the assessment and evaluation, training managers can make reasonable adjustments to meet the learning needs and to improve the quality of teaching and learning.

In adult training, the students must be the ones who decide the goals of their learning contents what could support for their careers or awareness ability (National Research Council, 2000). However, in fact, at the education and training institutions, especially short-

term training for public employees in Vietnam, assessment of the training quality is only considered as a channel to provide information about learning results rather than being seen as a tool to improve training quality. Therefore, the assessment of factors affecting the quality of training is extremely important for training institutions to identify key factors that need to be focused on improvement in a limited resource. However, current studies have mainly focused on assessing the students' satisfaction at higher-education organizations while the research for students' at the training institutions for civil servants have not been cared much (Thuy et al., 2018). Thus, this study was conducted as a case study at two training institutions in Vietnam where provide the training programs to the public employees to evaluate how the adult students expressed their satisfaction on the training quality. The research results were expected to provide significant scientific evidences for adult training, especially for public employees. Furthermore, the relevant recommendations were expected to contribute to improve the profession, qualifications and public service skills for training of employees to meet the requirements of innovation and international integration.

2. Literature review and Conceptual framework

Customer satisfaction is considered the basis in the marketing concept of satisfying customer needs and desires (Spreng et al., 1996). In education, Nadiri et al. (2009) suggests that educational managers need to apply market principles and strategies used by manufacturing enterprises. Accordingly, schools must learn their students' expectations and thoughts about the factors that affect educational service quality in order to meet their demand in learning.

In the UK, a toolkit for assessing students' satisfaction on their universities was developed by scholars (Harvey et al., 1997). The toolkit consists of 3 criteria, including: student learning support, infrastructure (learning resources) and support services for students' lives. In the United States, the American scholars developed a toolkit for students' satisfaction survey that has been popularly applied in the US and Canada since 1994. The toolkit includes 70 questions relating to the satisfaction (Ruffalo Noel Levitz, 2020). Those are divided into small groups, such as: effectiveness of academic counseling, academic support services (library, computer room, etc.), school environment, and school-based support programs, level of individualized interest, effectiveness of teaching, safety and confidentiality. Accordingly, a study by Wiers-Jenssen et al. (2002) reveals three main groups of factors that affect the students' satisfaction at Norwegian universities, including: the quality of education related to the curriculum and lecturers; the social environment; facilities and resources of the university. Meanwhile, a study by Butt & Rehman (2010) shows that four factors that affect the satisfaction of university students in Pakistan as followed: lecturers' expertise, provided courses, learning environment and facilities. In Vietnam, a study by Chau & Chau (2013) discovers the factors that affect the level of students' satisfaction on the quality of training services in the Faculty of Economics and Business Administration at Can Tho university. They are the element of internship conditions, social knowledge, lecturer interaction and improvement of foreign language skills. By contrast, Lien (2016) shows that factors affecting student satisfaction at University of Economics and Business-Vietnam National University, Hanoi are ranked in the descending orders as following: training programs; supportive ability of the staff; the

infrastructure and facilities. Furthermore, Nhung et al. (2019) points out the students' satisfaction with IFRS accounting training at the Banking Academy is influenced by the quality of the lecturers, IFRS curriculum and students' foreign language ability.

According to Parasuraman et al. (1985), satisfaction can be measured at 5 to 7 level. The Likert scale is often applied in survey students' satisfaction. The scale can be divided into 7 levels to access student satisfaction in the UK (Harvey et al., 1997) and to profile the students' satisfaction at Noel Levitz in the US and Canada (Ruffalo Noel Levitz, 2020), or a 5-level scale as shown in a survey in Norway (Wiers-Jensen et al., 2002) and in Vietnam (Lien, 2016). The use of a 3-level, 5-level, or 7-level scale depends on the evaluation goal. In Vietnam, the Ministry of Home Affairs issued a Circular No.10/2017/TT-BVN on evaluating the quality of training for cadres, civil servants and public employees (Government of Vietnam, 2010). Accordingly, the evaluation objects include 6 criteria: training curriculum, leaners, trainers, infrastructure and facilities, training course, post-training effectiveness with 28 indicators and 78 evaluation sub-indicators. The 10-point scale is used for evaluation according to the provisions of the Circular. Through the desk review, 31 factors (observed variables) that affect the level of students' satisfaction were identified. Accordingly, these 31 factors are divided into 5 groups, including: (1) training curriculum; (2) trainers; (3) assessment and evaluation; (4) infrastructure and facilities; (5) training course delivery. A 10-point scale is used to evaluate the students' satisfaction.

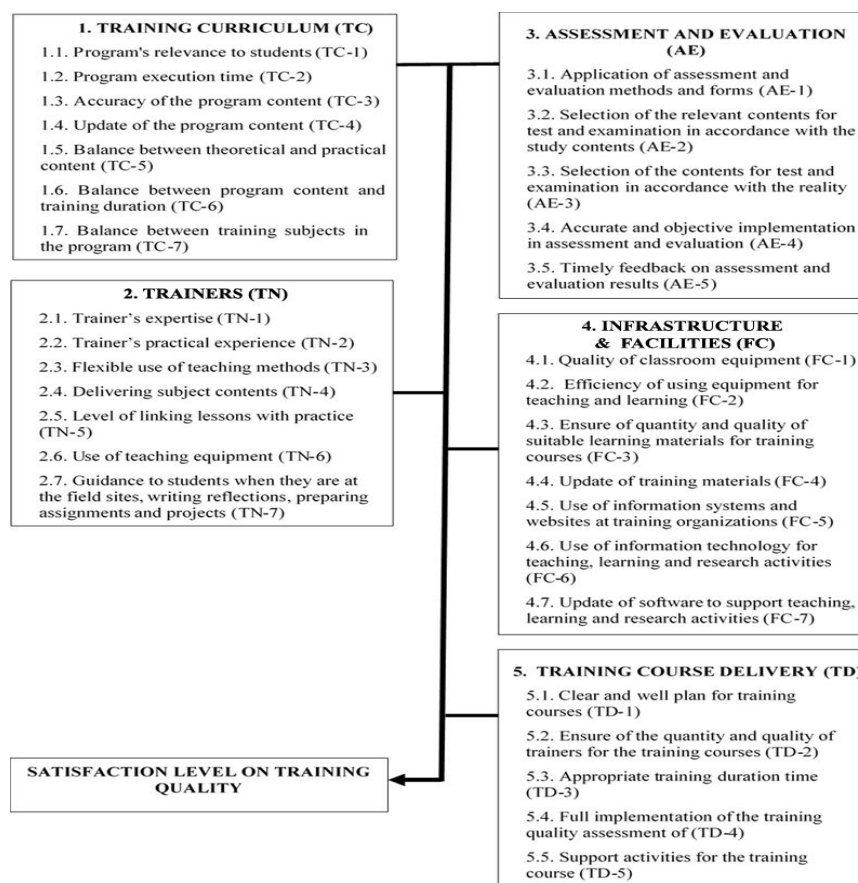


Figure 1. The research conceptual framework

3. Method

3.1. Data collection

The quantitative and qualitative research methods were applied. Both secondary and primary data was used in the study. Secondary data was collected at the institute in terms of training management and teaching activities. Primary data was collected by some in-depth interviews with trainers and students and a survey based on the prepared questionnaires to collect students' assessments of training quality including the factors of (1) training curriculum; (2) trainers; (3) assessment and evaluation; (4) infrastructure and facilities; (5) conduction of training.

The questionnaire was designed with a 2 main part structure: Part A (General information about interviewees) and Part B (Assessment of 05 groups of factors with 31 sub-indicators and satisfaction level on training quality). The questionnaire could be answered within 15 minutes. Additionally, the introduction and closing parts were both put in the sheet to make sure information, questions and survey results achieve in the most effective manner.

Before conducting the survey, the questionnaires were pilot within a small group of volunteers for testing the questions and information and revising. They were then revised and finalized basing on the pilot result and experts' recommendations.

3.2. Sample selection

The sample size was determined by Smith (2013):

$$n(\text{total} > 50,000) = \frac{Z^2 p(1-p)}{c^2}$$
$$n(\text{indented total} < 50,000) = \frac{n(\text{total} > 50,000)}{1 + \left(\frac{n(\text{total} > 50,000) - 1}{\text{Pop}}\right)}$$

Where, Z is a parameter interval, with $Z^2 = 1.96$ (the equivalent of the confidence interval is set at 95%); P is the probability of making a choice, assumed to be 0.5; c is the marginal of error, chosen at 0.07; Pop is the identified total. Accordingly, when $N = 9,671$ students (average of 3 years), the number of minimum survey samples should be 193. However, to increase the accuracy, 200 students were surveyed by questionnaires.

3.3. Data analysis and processing

Both qualitative and quantitative methods were utilized to analyse students' satisfaction on the training quality in this study. The quantitative method was implemented through 04 steps:

Step 1: The reliability of the scale was tested by Cronbach's Alpha coefficient and the correlation coefficient of the total variable (Corrected Item Total Correlation). The Cronbach's Alpha coefficient allows to assess if it is appropriate to include certain observed variables belonging to a research variable (potential variables, factors). Accordingly, when Cronbach's Alpha is from 0.8-1, the measurement scale is good; if from 0.7-0.8 is usable; if

from 0.6-0.7 is usable when the measurement concept is new or it is a new concept to respondents in the context of the study; if it is less than 0.6, it cannot be usable (maybe in the research interviewees do not have their feeling about that factor). However, if the Cronbach's Alpha coefficient is over 0.95, the observed variables should be considered because there may be a "coincidence" phenomenon (Hair et al., 2006; Nunnally, 1994).

Step 2: Using the Exploratory Factor Analysis (EFA) to test the influencing factors and to identify the factors that are considered suitable for analyzing the level of students' satisfaction. However, some certain conditions that need to be ensured for factor analysis results as followed:

(1) The Factor Loading coefficient of an observed variable between the factors must be ≥ 0.5 to ensure the distinction between the factors to ensure simple correlation between variables and factors. Factor Loading >0.3 is considered to be a minimum, Factor Loading > 0.4 is considered important, Factor loading >0.5 is considered to be of practical significance (Hair et al., 2006). If Factor Loading ≥ 0.3 the sample size should be at least 350, if the sample size is about 100 then Factor Loading should be >0.55 , if the sample size is about 50, then Factor Loading should be >0.75 . Therefore, in a rotation deviation, an observed variable uploads in both factors that the difference value of loading factor coefficient is below 0.3, that variable is disqualified (Jabnoun & Hassan Al-Tamimi Hussein, 2003).

(2) KMO index (Kaiser Meyer-Olkin) ranges from 0.5 to 1 and the Sig coefficient of Bartlett's test <0.05 . These two values help to consider the suitability of factor analysis. If this value is less than 0.5, factor analysis is likely to be inconsistent with the data (Hair et al., 2006).

(3) Percentage of variance (% Cumulative) indicates the percentage of variance explained by factors, which must be greater than 50% (Gerbing & Anderson, 1988).

Step 3: From the results of exploratory factor analysis, statistical analysis was utilized (mean, median, standard deviation) to analyze the data.

Step 4: Using a multi-dimensional linear regression model to identify the factors and the influence of each factor on students' satisfaction to the quality of the institution's training services. A model to identify the factors effecting the satisfaction level on training quality (Y) was established. The independent variables in the model included 5 factors (Xi) which resulted by the exploratory factor analysis (EFA), including: training curriculum (X1); trainers (X2); assessment and evaluation (X3); infrastructure and facilities (X4); training course delivery (X5). The parameters in the model were estimated by the Least Squares Regression on SPSS software. The model was presented as followed: $Y = f(X_i)$

4. Results

4.1. Sample characteristics

The study was conducted at training organizations for adult students in the sectors of agriculture and rural development. These institutions deal with training and improving the quality of human resources for agriculture and rural development management. The study

focused on training programs for professional expertise and management from 2016 to 2020. This study focused on surveying the alumni who participated in the training courses of leadership and management, profession standards for public employees those held at the training institution. 200 selected alumni were invited to join the survey. Their information is presented in Table 1 below:

Table 1. Information of survey respondents

Characteristics	Mean	Median	Standard deviation	Minimum	Maximum
Age	39.08	38.00	6.983	24	60
Sex (Male=1; Female=0)	0.69	1.00	0.464	0	1
Years of experience (year)	13.30	13.00	6.922	1	36
Number of courses participated (course)	1.14	1.00	0.471	1	4

The Table 2 shows that the average age of the survey respondents is at 39.08. In terms of gender, 69% of male and 31% of female students participated in the survey. The statistical index of the experience years shows that those who have attended the training courses have many working experience years (average of 13.03 years). The average number of courses they attended is 1.14.

4.2. EFA results

Table 2 below shows that the 5 scales with Cronbach's Alpha coefficients are all greater than 0.6. Thus, the scales are at the high reliability. In addition, all observed variables in the factor scale reach a total correlation coefficient greater than 0.3, therefore, they should be included in EFA.

Moreover, the analysis results show that the KMO coefficient (Table 1) reaches 0.875 >0.5. Bartlett test result with statistical significance sig =0 <0.05. Thus, the Ho hypothesis: the correlation between zero observed variables in the population is rejected, i.e., the observed variables are correlated with each other in the population. These results show that EFA is appropriate.

Bartlett's test of correlation of observed variables (sig. =0.000 <0.05) proves that the variables are closely related; The total variance extracted =62.001% (>50%) is satisfactory and shows that 5 groups of factors explain about 61.001% of the variance of the data. This shows that the EFA analysis results are perfectly consistent.

Table 2. EFA results

Observed variables	Code	TC	TN	AE	FC	TD
Training curriculum (Cronbach's Alpha =0,884)	TC					
Program's relevance to students	TC-1	0.744				
Program execution time	TC -2	0.806				
Accuracy of the program content	TC -3	0.791				
Update of the program content	TC -4	0.663				
Balance between theoretical and practical content	TC -5	0.622				
Balance between program content and training duration	TC -6	0.622				
Balance between training subjects in the program	TC -7	0.649				
Trainers (Cronbach's Alpha = 0,903)	TN					
Trainer's expertise	TN-1		0.736			
Trainer's practical experience	TN-2		0.772			
Flexible use of teaching methods	TN-3		0.696			
Delivering subject contents	TN-4		0.778			
Level of linking lessons with practice	TN-5		0.691			
Use of teaching equipment	TN-6		0.795			
Guidance to students when they are at the field sites, writing reflections, preparing assignments and projects	TN-7		0.748			
Assessment and evaluation (Cronbach's Alpha = 0,797)	AE					
Application of assessment and evaluation methods and forms	AE-1			0.597		
Selection of the relevant contents for test and examination in accordance with the study contents	AE-2			0.674		
Selection of the contents for test and examination in accordance with the reality	AE-3			0.801		
Accurate and objective implementation in assessment and evaluation	AE-4			0.692		
Timely feedback on assessment and evaluation results	AE-5			0.688		

Observed variables	Code	TC	TN	AE	FC	TD
Infrastructure and facilities (Cronbach's Alpha = 0,886)	FC					
Quality of classroom equipment	FC-1				0.712	
Efficiency of using equipment for teaching and learning	FC-2				0.762	
Ensure of quantity and quality of suitable learning materials for training courses	FC-3				0.719	
Update of training materials	FC-4				0.753	
Use of information systems and websites at training organizations	FC-5				0.770	
Use of information technology for teaching, learning and research activities	FC-6				0.786	
Update of software to support teaching, learning and research activities	FC-7				0.762	
Training course delivery (Cronbach's Alpha = 0,871)	TD					
Clear and well plan for training courses	TD-1					0.741
Ensure of the quantity and quality of trainers for the training courses	TD-2					0.530
Appropriate training duration time	TD-3					0.767
Full implementation of the training quality assessment	TD-4					0.822
Support activities for the training course	TD-5					0.664

Accordingly, 5 groups of factors have no change in observed variables. Thus, the observed variables are representative of the measurement scale. Some statistical values of 5 groups of factors are presented in Table 3.

Table 3. Statistical values of 5 groups of factors after EFA

	Mean	Median	Std. Deviation	Minimum	Maximum
TC	9.05	9.00	1.014	6	10
TN	9.16	9.00	0.853	5	10
AE	9.22	9.00	0.807	7	10
FC	9.11	9.00	0.979	5	10
TD	8.87	9.00	1.009	6	10

The analysis results show that the average value of the training curriculum, trainers, assessment and evaluation, facilities, and training delivery is 9.05 (standard deviation 1.01), respectively; 9.16 (standard deviation 0.85); 9.22 (standard deviation 0.81); 9.11 (standard deviation 0.98); 8.87 (standard deviation 1.01). The classification of assessment results follows Vietnam's Circular 10/2017/BNV on assessing the quality of training for cadres, civil servants and public employees (Table 4).

Table 4. Classification of training quality evaluation results

General evaluation indicator	Evaluation level
$0 \leq \text{indicator} < 2.0$	poor
$2.0 \leq \text{indicator} < 4.0$	weak
$4.0 \leq \text{indicator} < 6.0$	average
$6.0 \leq \text{indicator} < 8.0$	moderate
$8.0 \leq \text{indicator} \leq 10.0$	Good

Source: Government of Vietnam (2010)

Accordingly, all 5 factors (training curriculum, trainers, assessment and evaluation, infrastructure and facilities, training course delivery) have achieved "good" rating. The following is students' evaluation:

Training curriculum: The training curriculums defined clear and specific objectives, reasonable structures. They were systematically designed in accordance with the framework program. In addition, the curriculums were also reviewed and self-assessed for quality improvement to meet “the social needs and learners' needs”. They were basically relevant and responsive to the students' learning needs.

Trainers: Most of the trainers were professional in their expertise and good at teaching skills. The trainers all achieved the basic foreign language and computer skills to meet the requirements of the innovation in teaching, research, consulting and international cooperation. In addition, the team of training managers and support staff were qualified enough to serve the training services. In particular, visiting trainers and experts with excellent profession from management agencies and training institutions to participate in teaching.

Infrastructure and facilities: According to students' assessment, the training facilities, equipment and textbooks were generally sufficient for teaching, learning and other activities. Additionally, management software and intelligent software were gradually utilized in teaching and training management.

Training course delivery: The training courses were well organized. Timeframe and duration of the training courses were adequately suitable. Trainers were enthusiastic and responsible with their work.

4.3. Linear regression model

In order to determine the influence of factors on the students' satisfaction level, 01 model to determine the influence level of 5 factors is set up based on the factor analysis of the satisfaction level on training quality and the results of linear regression analysis on the

relationship between the factors affecting the satisfaction of training quality. The model with 5 independent variables is presented in Table 5 below.

Table 5. Standardized regression model

Variables	β	Standard deviation	P-value	VIF
CT	0.276	5.267	0.000*	1.700
GV	0.547	10.594	0.000*	1.646
DG	0.092	1.865	0.064	1.493
VC	0.119	2.709	0.007*	1.194
TC	0.029	0.567	0.571	1.587
Adjusted R-square = 0.678				
Durbin-Watson coefficient = 1.731				
Sig. = 0.000				

Note: * it is statistically significant at 5%

Results of linear regression analysis shows that Sig coefficient. = 0.000 <0.05, proving that the model is statistically significant, Durbin-Watson coefficient =1.731, proving that the model has no autocorrelation phenomenon. The VIF is also much smaller than 10, so the variables in the model have negligible multi-collinear phenomena. The adjusted R² coefficient =0.678 proves that the independent variable explained 67.8% of the value of the dependent variable.

Accordingly, 3 variables (among 5 independent variables) are statistically significant. Specifically, the factor that most strongly influences the student satisfaction is “trainers” (β =0.547; p-value =0.000), followed by “training curriculum” (β =0.276; p-value =0.000) and “infrastructure and facilities” (β =0.111; p-value =0.007). These variables have positive β values, proving that all factors are positively correlated with the student satisfaction to training quality.

5. Discussion and Conclusion

According to the results of in-depth interviews and primary report, most of trainers at the two training institutions have suitable qualifications and teaching skills. At present, the institutions have also focused on selecting and inviting qualified visiting trainers and experts who come from relevant management agencies and training institutions to participate in training. However, a part of the faculty (especially young trainers) is weak in practical experience, professional competence and teaching methods. In addition, many trainers have mainly applied traditional teaching methods and monologues which are less interesting for students and not fit with civil servants who not only expect to learn knowledge, skills but also would like to share working experience with their classmates and experts (Thuy et al., 2018).

In terms of training curriculums, the goals are all clear and specific. Additionally, they are systematically designed in accordance with the framework. At present, many practical subjects have been included in the trainings, but they only refer the general issues and avoid

the sensitive situations. Additionally, some curriculums are not relevant to students' learning needs, resulting in the less effectiveness in learning outcomes than expectations. Specifically, the existing training curriculums do not meet the increasing students' needs of intensive and separate learning. Moreover, the training contents have not been regularly updated and supplemented with new knowledge. They have been also not close to job requirements in the new context.

Additionally, besides human resource building, the institutions also care of their training facility development. Basing on available resources, the organizations have reserved certain budgets for infrastructure renovation and new construction, buying equipment and materials for teaching and learning. However, their training materials have been focused much in theory. Furthermore, classrooms and training equipment have not been synchronized and modernized to meet the students' learning objectives yet.

5.1. Recommendations

To improve training quality, it is necessary to promote active learning. This is a measure to improve the quality of training in the orientation to change students' awareness and attitudes on learning. For those who have less time for study, trainers should focus on specific and practical assignments. Furthermore, the trainers should gradually reduce the one-way presentations but change to introduce learning materials and instruct students to learn and solve problems themselves. In the classroom, trainers should apply positive teaching methods and have sessions to summarize and answer students' questions at the end of each topic.

With regards of training curriculum, the institutions should develop a standard training package for specific training subject and target audience. Moreover, the training contents should be updated with regulations, guidelines and policies regularly. The training contents should be designed basing on society's requirements and students' needs because that will be a motivation for students in their learning process and performance. Additionally, there should be more time for self-study, discussion and case study. Furthermore, to equip students with the necessary knowledge and skills for their work, the institutions should emphasize on more flexible modules and offer more elective subjects in the curriculum, or supplement "elective on demand" subjects. At the same time, it is possible to consider eliminating unnecessary subjects within the permitting authority or provide recommendations to reduce inappropriate subjects. Another suggestion is reserved for opportunities of exchanging working experience, difficulties and obstacles between students and trainers. Re-evaluation of the training needs is also a solution for timely adjustment to meet the students' demand.

Furthermore, the institutions should develop a plan to improve trainers' profession and skills with focus on young trainers, including (i) Organizing internal seminars and training workshops on expertise and teaching skills for trainers. The teaching techniques should be integrated into the training such as: designing lesson plan (scripts), writing and developing instruction questions and case study for teaching, designing assessment criteria, preparing presentations; (ii) Sending trainers to study at training courses related to specific profession and teaching methods which are conducted by reliable domestic and international

organizations. These training will provide their teaching staff opportunities to access to new professional knowledge and active teaching methods that should be appropriate to the training subjects for civil servants or public employees; (iii) Providing opportunities for young trainers to participate in practical research and field study in order to improve their professional capacity associated and active teaching methods.

Finally, the institutions should improve their infrastructure system including to invest in modernizing their information technology equipment to provide students and trainers favorable using conditions for their teaching and learning. In addition, the organizations should also develop their electronic materials and install advanced teaching software those may help trainers and students take the most effective use of the Learning Management System (LMS).

5.2. Conclusion

Improving the quality of training, especially training for civil servants is an urgent task and requirement for Vietnam to implement successfully the objectives of the National Socio-Economic Development Strategy, including public employees in agriculture and rural development. The research results have shown that, under limited resources, to improve the training quality at the training institutions in management of agriculture and rural development, the organizations should focus on improving the quality of trainers; improving the training curriculums as well as the system of infrastructure and facilities for teaching and learning. Specifically, it is necessary to develop a plan to improve professional qualifications and skills with a focus on integrating occupational skills for young trainers. In addition, it is necessary to develop the curriculums associated with students' specific and intensive learning needs. The training contents need to be regularly developed, updated and supplemented in accordance with the students' specific and specialized work requirements in the new context. Furthermore, a priority should be given to increasing investment in modernizing information technology equipment at training institutions which will be provide favorable conditions to trainers and students in their study and usage.

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IMPROVING WORK MOTIVATION OF OFFICE EMPLOYEES AT TECHNOLOGY COMPANIES IN THE DIGITAL AGE

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Abstract

Motivation plays an incredibly important role in guaranteeing the level of job performance and the development of the company as well. In other words, in the current competitive market, no corporation or company could be successful without employee motivation. Recently, tech firms have tried a lot to inspire workers. However, recently, the turnover rate is becoming a considerable majority of the board of directors. Therefore, the author decided to conduct a study regarding the topic “Improving work motivation of office employees at technology companies in the digital age”.

The objectives of this study consist of:

- To review theories of employee motivation to identify the theoretical framework for analyzing employee motivation at technology firms.*
- To analyze and evaluate the current situation of motivating employees at technology companies in the information age.*
- To suggest solutions to improve employee motivation at technology companies.*

The author used both secondary data and primary data with the scope of 100 employees working in various departments at technology companies. In addition, the factors mentioned had no strong impact on worker motivation as the mean of the factors was at the average score with the notable exception of working environment and co-worker relations.

To sum up, the author suggested some recommendation to enhance employee motivation including: diversifying the nature of work, improving working environment, harmonizing the benefits of the company and compensation of employees, raising recognition and appreciation for employees’ performance, giving more effective training courses and development, creating more job opportunities and promotions, creating effective administrative policy and strengthen relationship between colleagues and others.

Keywords: *Digital age; Office employees; Technology companies; Work Motivation*

1. Introduction

It is conspicuous that Human Resource plays an integral part in guaranteeing the success of an organization. Many managers have been successful because they had the knack for hiring the right people for the right job and motivating, appraising, and developing them. Over the years, many studies have illustrated that motivation is seen as one of the most essential factors in issues linked with human resources management (HRM) and

organizational behavior management (Latham, 2007). As such, inspired employees are crucial to the quality of job performance in every organization as they are generally more productive at the workplace.

According to Abzari and Sadri (2006), if employees work harder, the workplace will become more joyful, absenteeism will be reduced, satisfaction will be enhanced, workplace rules and regulations will be observed, and employees will do their best to actualize the organization's goals and strategies. Therefore, studying motivation is extremely imperative and it should be at the top of any organization's agenda. However, each enterprise needs to find appropriate ways to achieve high results.

The rapid development of technology-based enterprises has led to some problems. One of the major issues in tech firms is employee motivation. This factor is indeed important for the health of the company. Only when employees are motivated sufficiently can they contribute their best. Over the years, tech firms had many policies to balance the benefits of the company with the compensation of workers. It not only improves the company's profits but also improves the performance of employees and gives them more motivation to work. However, with the speedy development of the companies, the pressure from the market and the competition of competing companies, the firms need more solutions to improve the motivation for workers. It will be an important factor in building a successful long-term business and limit "brain drain" within the company itself.

After an interval of time thoroughly learning, surveying and researching about previous studies, the author finds out that there is a lot of research about employee motivation. On the other hand, these studies are more about the theory, not to mention the specific circumstances and difficulties of a technology company in today's economy. Therefore, the author decided to conduct a study regarding the topic "Improving work motivation of office employees at technology companies in the digital age" in order to help relatives parties have a comprehensive view over this situation. Then they can enhance employee motivation and contribute to the development of the organization as well.

2. Literature Review

Definition of employee motivation

In the early 20th century, money was regarded as the most important input into the production of goods and services (Kreitner, 1995). However, after a series of researches, one known to be the "Hawthorne Studies", conducted by Elton Mayo from 1924-1932 at the Hawthorne Works of the American Western Electric Company in Chicago, it was observed that employees were not motivated solely by money but that employee behavior was linked to their attitudes (Dickson, 1973, in Lindner, 1998). The Hawthorne studies began the human relations approach to management, whereby the needs and motivation of employees become the primary focus of managers (Bedeian, 1993). This paved the way for other theories and definitions on motivation and performance at the workplace.

The most celebrated idea is from Herzberg (1958). He illustrated that working motivation was personnel's prevalence and expectation to achieve organization's objectives.

Furthermore, Herzberg et al. (1959) proposed that an employee's motivation to work was best understood when the respective attitude of that employee is understood. That is, the internal concept of attitude which originates from a state of mind, when probed, should reveal the most pragmatic information for managers with regard to the motivation of workers.

According to Vroom (1964), motivation was a formative state where workers expect that they will receive the desired results if they attempt to do the job.

Additionally, motivation at the first stage was "an internal state or condition (sometimes described as need, desire, or want) that serves to activate or energize behavior and give it direction" (Kleinginna and Kleinginna, 1981). After a long time researching for improvements, Franken had ascertained his own definition of motivation by adding components to this concept that "motivation also included arousal, direction, and persistence of behavior".

Mitchell (1982) illustrated that motivation was the level which an individual wanted to reach and choose to engage his or her behavior.

Robbins (1993) found out that motivation is the willingness to exert efforts to achieve the highest goal of the organization, provided that the organization must be able to satisfy some personal needs.

Locke (2000) described motivation as made up of four key concepts: needs, values, goals and intentions and emotions.

Crossman & Abou Zaki (2003) pointed out that work motivation was the action encouraging workers such as nature of work, salary, promotion, supervision, and relationships with peers that may affect attitudes, behavior and determine the level of passion, commitment, participation and concentration.

Lin P Y (2007) indicated that motivation has the impact that makes people choose a specific job, stay and do it hard.

Shah and Shah (2010) defined motivation as encouraging people to do a job; independently or teamwork to produce best performance.

There are two types of motivation at work including internal and external motivation. Internal motivation is a satisfying activity for individuals who want to work in order to understand their abilities and self-determination in their job, and challenge their work as well (Deci 1975, Warr, Cook, & Wall in 1979; Amabile in 1993). In the meantime, external motivation is fueled by all exterior sources to stimulate efficiency of personal work. External factors may include reward, feedback, recognition, rewarding perk, monitoring, wage and promotion (Kluger & DeNisi 1996, Whang & Hancock, 1994).

Through these studies, there are many different definitions and studies related to the motivation of workers. Based on these valid references, along with the adjustments, the author will consider, analyze these data to complete the specific target and scope of the study in a suitable and accurate way.

Theories on employee motivation

As a multidimensional psychological concept, employee motivation should be viewed from an academic perspective in order to have a firm technical background. The

second half of the twentieth century saw a development in the motivation concepts, leading to the classification into two major theoretical streams: the content (or need) theories of motivation and the process (or cognitive) theories of motivation. Maslow's hierarchy of needs and Herzberg's two-factor theories are considered to be major content theories of motivation, which focus on internal drives as an explanation for motivated behaviors. Process theories of motivation, based on the assumption that behavior is the result of rational decision-making processes, illustrate the other school that traces motivation back to conscious human decision processes. Expectancy theory is categorized as one of the typical process theories of motivation. The author would carefully examine the three main theories: Maslow's hierarchy of needs, Herzberg's two-factor theory and expectancy theory.

3. Method

Research process

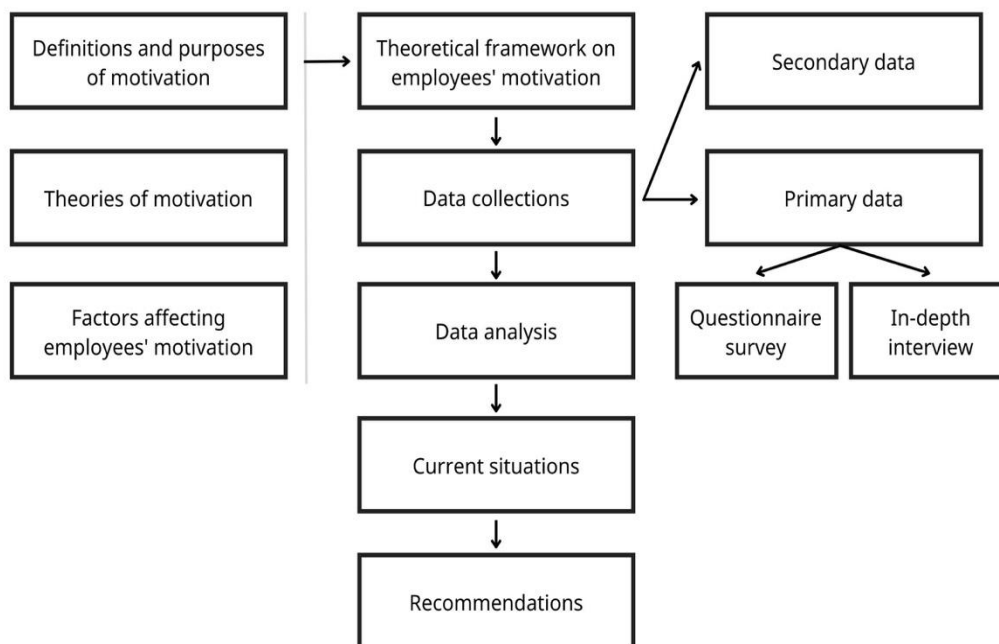


Figure 1. Research process

Source: The author

Data collection

To achieve the research objectives as well as providing reliable information for the study, the author has adopted both primary data and secondary data. Further details of each method will be discussed below.

Secondary data

The secondary data is essential in this study. These data were collected through both internal and external sources.

The companies' official website, Facebook fanpage, periodic and extraordinary reports, HR monthly and annual reports, the annual survey, etc., which provide me with useful knowledge about companies overview and the current situation of technology

companies' employees. Moreover, the information through textbooks, documents and research also broadens my own knowledge about the theoretical background on employee motivation.

Primary data

Primary data is indispensable in answering the research question and plays an important role to obtain the research objectives. In this study, the primary data is collected from questionnaire surveys and in-depth interviews to obtain multidimensional and reliable information.

- *Objectives:* The surveys are conducted with the aim to analyze and evaluate the current situation of working motivation at tech firms.
- *Respondents:* People that are working at tech companies.
- *Sample size:* The population of the study includes a group of employees currently working at tech firms from many departments.
- *Sampling method:* The research was conducted by using convenience sampling which is not only convenient, accurate but also timely to collect information.
- The author conducted surveys by handing out questionnaires to staff working at tech based companies. The response rate was 100% as all workers joined in and completed the questionnaire.

Data processing

- *Qualitative research:* the research uses methods of collecting information, describing and analyzing secondary data. Thereby, the author builds a design research model.
- *Quantitative research:* the author examines primary data, calculates mean score via Microsoft, adjusts the research model in line with the motivational factors in the enterprise.
- Finally, the author presents the results of the research model and suggests solutions to improve motivation for working in the enterprise.

Proposed research model

It is undoubted that employee motivation plays an unmatched vital role in the success of every organization. So far, many studies have shown that only when employees are motivated sufficiently can they give their best. In contrast, without a motivated workplace, companies could be placed in a very risky position.

After consulting with many researches related to the topic, the author realized that Herzberg's two factor theory was one of the most widespread theories used in studies towards employee motivation. Following Baaren and Galloway (2014), the reason is that Herzberg's achievement tends to provide a higher level of reliability and consistency. Hence, the author decided to build a proposed research model based on Herzberg's two factor theory and many studies above.

The figure below indicates factors that impact on employee motivation proposed by the author.



Figure 2. Proposed research model

Source: The author

For detail, the proposed research model contains 9 factors namely Working environment, Nature of work, Compensation and Benefits, Administrative Policies, Career Advancement, Managers, Training and Development, Recognition, Co-worker relations.

4. Results

Detailed assessment

- ***Working environment:*** It is visible that clean working area reached the highest point. Moreover, the importance of secured workplace should be considered when it ranked the second place, followed by fully equipped facilities and appropriate schedule.

- ***Nature of work:*** Suited competence reached a peak of the average score. The figure for variety of skills, reasonable workload and balanced life were slower.

- ***Compensation and benefits:*** Rewarding perk reached the highest score. Furthermore, the 3 following elements namely commensurate salary, wage meets basic human needs and fair wage were smaller respectively.

- ***Administrative policies:*** The figure for Organizational culture makes employees proud of their job took the highest score. Additionally, the average score of policies are able to motivate employees, employees can develop administrative policies and the company cares about employees' targets and values were lower.

- ***Career Advancement:*** While trained sufficient skills for occupation reached a peak while equal promotion opportunities dropped to the lowest point. Additionally, the average score of the variety of opportunities and manager promotes and helps employees to get promotions were similar

- **Managers:** Supervisor allows employees to join in the decision- making got the highest mark almost the time surveyed. The figure for easily conversasion with manager, manager meteculously give specific instructions to employee’s work, enthusiastic supervisor were lower respectively.

- **Training and Development:** While the courses broaden employees’ own knowledge and help them master vital skills reached a peak, the positive infulences on employee’s working performance was the lowest point. Additionally, the figure for sufficient training course and suitable evaluation after training courses ranked the third and fourth place.

- **Recognition:** While the score of gained appreciation as my expectation was higher than 3 remaining categories, the figure for equal appraisal system was the lowest. Futhermore, the figure for everyone is grateful for what employee contribute and clear & consistent terms and conditions of performance were similar.

- **Co-worker relations:** Enthusiastic parents reached the highest score almost the time surveyed. In contrast, the figure for partners respect employee, valuable experience from the colleges and efficient cooperation between parents and employees were lower respectively.

Overall assessment

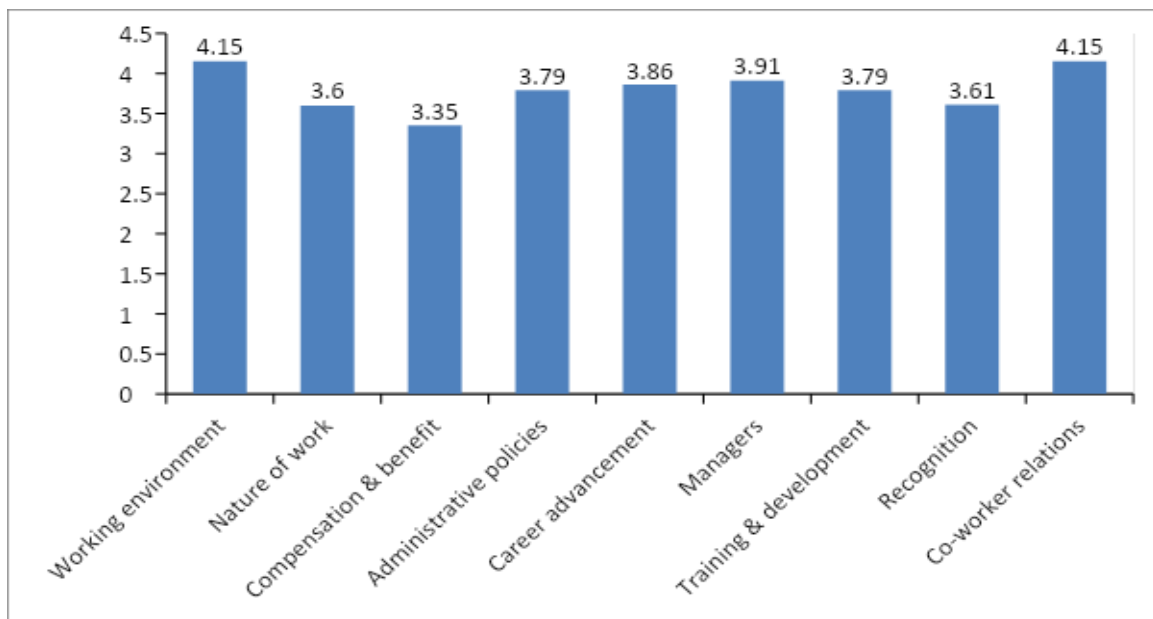


Figure 3. Overall assessment

Source: Research data

The bar chart illustrates the figure for the mean of 9 motivating elements which employees believed that tech companies had gained.

Overall, working environment and co-worker relations both had the highest mean score, which accounted for 4.15. In contrast, compensation and benefit was the factor that got the lowest mean score, at 3.35.

The mean score of managers was 3.91, compared to 3.83 of career advancement, 3.79 of both training & development and administrative policies. The figures for recognition, nature of work were lower, at 3.61 and 3.6 respectively.

As a result, it is true that technology based firms have tried to satisfy employees. However, according to the data above, the factors mentioned in the chart had no strong impact on worker motivation as the mean of the factors was at the average score with the notable exception of working environment and co-worker relations.

Recommendation to improve employee motivation at tech companies

According to previous sections, research models and factors in this study are given after consulting many previous analyses on motivation of work. This study has shown that the 9 factors including: Working environment, Nature of work, Compensation and benefits, Administrative policies, Career advancement, Managers, Training and development, Recognition and Co-worker relations affect the inspiration of workers. Hence, the author proposes some suggestions to increase the motivation for the employees at technology-based enterprises.

Matching work nature and staff competency

The nature of work is one of the most influential factors in motivating workers at office. It demonstrates relevance between employees' performances and the content of work. Almost all departments in tech firms require workers with highly specialized skills and progressive spirit. However, the nature of work, following the mean score in chapter 2, was the second least favorite among factors influencing employee motivation. As a result, the study proposes some solutions to match work nature and staff competency.

First of all, providing specific job descriptions and selecting suitable candidates at the beginning of the recruitment process are extremely crucial. The organization should arrange the tasks in accordance with the ability of each person, help them broaden their own knowledge and understand the significance of the job. Moreover, based on the capabilities and qualifications of the employees, the firm needs to spend time introducing and training their staffs to enhance essential skills for the job. Furthermore, the companies can give employees opportunities to join in the decision-making within their capacity and permission. It aims to enhance efficiency and avoid micromanagement as well.

Additionally, the firm can make the job become more productive and meaningful via:

- Make employees feel responsible for their work and their important role in the organization.
- Ensure that employees can see their significant contribution to the overall results of the companies.
- Provide timely and accurate feedback on the completion of tasks.
- Increase job requirements such as increasing the level of difficulty of the job and the responsibility of the employee.
- Enhance the diversity of tasks or challenging jobs so that employees can see their importance in the companies.
- Provide feedback on employee's performance and vice versa, employees should also report performance on a regular basis to the supervisor.

Improving working environment

Almost all of the respondents in the survey were extremely pleased with the working environment. However, some people disagree with the recent working schedule as sometimes they had to work overtime too much which related to the deadline of projects. It can lead to the situation of overburdened with work and then reacting against working. As a result, the companies should improve the schedule in a more timely and flexible way. It means that the companies can lighten the workload or create a free and fair working schedule within the allowed limit such as: let workers do their jobs according to their own schedule, time limits. This improvement will ensure the health and the balance between personal life and work of employees, simultaneously, motivate the staff to devote themselves to the firms.

Harmonizing the benefits of the companies and compensation of employees

According to many respondents in the survey, compensation and benefit is the most vital factor to inspire employees at work. Recently, the salary and rewarding perk has been implemented well by tech companies, but it still has some problems affecting the motivation of employees. Hence, in the coming time, the companies should improve policies to adjust the salary, bonus and welfare system. For detail:

- Current salaries have not yet had positive effects in motivating workers. They can only guarantee the basic necessities of life for employees. Therefore, the firms need to adjust its compensation system to the employees' work efforts and ensure the payment for their lives. If employees have higher income which is consistent with the current inflation situation and enough to ensure the life of their family, the staff will do their best. So the work efficiency will increase dramatically.

- Wages should be calculated and paid fairly between employees by using appropriate timekeeping forms, closely monitoring the production process and calculating monthly wages according to real workdays. The companies will award bonuses and penalties based on the number of working days and the working process of employees. It will create confidence and satisfaction for the staff at work.

- The companies should intensify rewarding perks as well. This bonus will encourage them to try hard and enhance the level of job performance significantly.

- The companies need to publicly announce wage regimes in their employment contracts, in meetings with employees or departments, to avoid conflicting opinions on how to calculate wages.

- The companies must pay full wages on time and enhance fringe benefits such as team-building activities, vacation, health insurance as well.

Raising recognition and appreciation for employees' performance

Performance appraisal is a formal system to review and evaluate the periodically finished work of an individual on the basis of comparison with the standards, which has been developed and discussed with the employee. It aims to improve employee performance and helps business leaders make the right human resource decisions such as: training and development, remuneration, promotions, etc.

Recognition has a great impact on employee benefits so this is one of the motivating factors for them. To make performance evaluation as motivation for employees, the companies should use clear evaluation criteria with reasonable evaluation methods. Evaluators must have sufficient knowledge and professional ethics as well. Furthermore, the firms should provide a fair assessment and this will be a basis for HR activities such as: promotion and reward.

In addition to evaluating the capacity of employees, the promotion of their potential is also important in motivating employees. To promote the potential of employees, the companies should follow the solutions below:

- Modelling typical people: they must be exemplary, progressive and serious in their work. They are progressing and materializing the qualities that the employees in the companies want to look forward to. Hence, workers can access a world of new knowledge and draw inspiration.

- Set clear objectives and tasks: Setting goals for employees is a necessary element in motivating employees to work. This is an important part of the evaluation and reward program because without goals, the results are not easily measurable to help employees see the purposes to reach.

Giving more effective training courses and development

Currently, tech firms organize many training courses about specialized skills for all freshers, juniors and seniors in different departments such as: tester, DEV, BA, etc and foreign languages including Japanese and English. These courses are extremely effective and related to job requirements of employees. Hence, employees can apply this sort of knowledge for the next task. The companies encourage employees to attend courses by paying the full tuition fee if they pass the final exam. If not, they only pay 50% of the course fee. This policy not only encourages workers to enhance their knowledge, gain some valuable skills, but also directly relates to their performance in the future. It proves the effective long-term strategic vision of the company.

Through training, the companies can maximize the available resources and improve the efficiency of the organizations. At the same time, it helps employees have a clear understanding of the companies' goals and culture and learn more about the job requirements, occupations. And then they can perform their tasks in a self-conscious way to improve future adaptability and meet the goal of the companies as well. Furthermore, the training process has the effect of motivating. For detail, when an employee is trained, they develop a sense of belonging or get recognition, which is one of the motivating factors. Therefore, based on the needs of work and the ability of employees, the companies should organize training courses in order to broaden their specialized skills and master vital soft skills. To do that, the firm needs to focus on onsite training, content training which is close to the work that employees are taking and improve the efficiency after training as well. During the training period, employees do not have to undertake 100% of the workload.

Creating more job opportunities and promotions

To inspire employees, the work of promotion is one of the important factors that stimulates employees eager to work with the hope of being considered promoting to a better position with higher salaries and more attractive job opportunities. The promotion should be based on the capacity, personality and practical performance of employees at work. For individuals in need of promotion, the companies need to give them opportunities to gradually accrue the standards. Additionally, for employees who are working in the company but have the need to move or leave their job, the company leaders need to meet, exchange frankly, ask for their opinions and reasons and then have suitable solutions.

Motivating employees by promotion is one of the essential solutions for employees to see that their contributions and endeavors at work are highly appreciated. Since then, employees will have more motivation to work effectively, dedicate and have long-term attachment to the companies.

Creating effective administrative policies

It is clear that policies are the major concern of both workers and organizations. According to these, they create organization culture and help employees understand basic rules of the office as well. Currently, there are a lot of established policies related to general rules and benefits of workers, which is clearly disclosed via employee handbooks, portals and so on. However, the companies still need to improve their policies system so that employees can concentrate on fulfilling the assigned tasks. For detail:

- Leaders should support workers to join in the development of the performance evaluation system. It aims for the employees to express their own opinions, aspirations and ensure the fairness, accuracy of the policy system. From there, leaders can understand the desire and expectations of employees to develop the most effective and appropriate policy system.

- The policy system needs to improve timely and efficiently, giving benefits to both employees and the organization.

- The companies should enhance fringe benefits such as team-building activities, vacation to inspire workers to do their best.

Strengthen relationship between colleagues and others

a. Narrowing the gap between managers/leaders and employees

According to the result mentioned above, a manager/leader is also an element affecting the motivation of employees at work. When the superiors listen to the views and thoughts of the workers as well as appreciate the talents and contributions of each person, they create a great motivation. Therefore, the company leaders need to pay attention to these factors in order to bring positive inspiration from the workers to improve the efficiency of work. In order to have a positive impact on the employees, managers and leaders of the company need to change the working style into an open and gentle way to create a friendly, dynamic and creative environment which closed to the employees.

- Leaders must always be at the forefront of implementing policy advocates such as company movements. In terms of expertise, the manager must demonstrate a thorough

understanding of and ability to make sound professional decisions. To achieve this, leaders must always work hard to learn to improve their knowledge, listen, analyze and synthesize the situation.

- Leaders demonstrate trust with employees by: reducing control, empowering employees within allowed limitations. It will make the employee feel confident, comfortable and then motivating them to contribute more for the company.

- For each employee's achievement, leaders need timely rewarding perks.

There are many ways to motivate workers which are not only praise but sometimes just a pat on the shoulder to record a good performance that also has a great impact on the working spirit of the workers. Additionally, the leader can choose the meaningful reward for workers such as:

- Weekly, monthly record for employees with outstanding performance on the board of the companies.

- Sending greeting cards to high-performing workers.

- Praising and rewarding excellent employees in sum-up meetings.

b. Strengthen relationship among co-workers and others

Following the respondents in the survey, the relation of co-worker with others plays an integral part in motivating employees. Therefore, if this factor changes positively, it will have the greatest impact on the motivation of every worker. Through the process of carrying out their responsibilities, members of the company cooperate directly with each other and build a strong relationship. It allows employees to learn how to manage conflicts, obtain a lot of real experience and sometimes draw inspiration. Therefore, the first thing that the management board of tech firms should do is to improve the working environment, narrow the generation gap between young workers and older ones and create a close relationship between colleagues to increase motivation at work.

- Need to create coordination and efficiency at work between co-workers.

- Create a creative, harmonious and cheerful atmosphere of collective work.

- Create conditions for employees to exchange experience, knowledge and learn from each other.

- Build the spirit of solidarity in every worker by helping each other both in work and life.

There are some suggestions to improve the motivation for employees at technology based enterprises as they illustrate any work performance and contributions are recognized and highly evaluated. Therefore, workers will try their best for the development of the company.

5. Discussion and Conclusion

The first decades of the 21st century have witnessed many important changes all over the world, especially the impact of technological development on employee's motivation and the labour market as well.

According to the results of the survey and tests above, the author found out that employee motivation plays an integral part in not only guaranteeing the level of job

performance but also having a strong impact on the development of the whole company and each worker as well. The more satisfied the employees are, the better results they gain.

After consulting with many researches related to the topic, the author realized that Herzberg's two factor theory was one of the most widespread theories used in studies towards employee motivation. However, during the information age, particularly after the outbreak of Coronavirus, the world witnesses various complex and unpredictable changes, which have far-reaching effects on employee motivation.

In addition, technology companies are growing rapidly and becoming an indispensable part of economic development. They bring a variety of job opportunities for many people. However, currently, the companies still have some limitations which lead to the dissatisfaction of employees and reduce their quality of performance. Therefore, they should have timely and suitable solutions to solve all problems and improve the motivation of workers.

In this research, the author illustrated 9 dimensions which have huge influence on the motivation of workers at tech firms including: Working environment, nature of work, compensation and benefit, administrative policies, career advancement, managers, recognition and co-worker relations. Furthermore, the study also gives some recommendations to help the company enhance the satisfaction of workers including matching work nature and staff competency, improving working environment, harmonizing the benefits of the company and compensation of employees, raising recognition and appreciation for employees' performance, giving more effective training courses and development, creating more job opportunities and promotion, creating effective administrative policies, strengthen relationship between colleagues and others. However, the research still has some disadvantages as the scope is limited within some tech firms, not the whole companies on the market.

In short, the author hopes the data in this research will be useful and practical, contributing to the development of the companies in the future.

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FACTORS AFFECTING STUDENTS' ADVERTISEMENT AVOIDANCE BEHAVIOR ON SOCIAL MEDIA IN HANOI

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Abstract

The Internet has become a virtual platform for a great number and large diversity of social relations thanks to the proliferation of social media, which have undergone exponential growth. Being aware of this, many advertising companies consider using this platform to promote their products. However, this leads to a lot of advertisement avoidance when students are constantly affected by those. Although previous studies have investigated advertising avoidance in traditional media and on the Internet, there has been little investigation of advertising on social networking sites. The study is carried out to investigate influencing factors that affect students' advertisement avoidance on social media in Hanoi. Questionnaires were sent to students to investigate their avoidance behavior. The study investigates crucial factors influencing students' advertisement avoidance, including (i) prior negative experiences, (ii) skepticism towards advertisement, (iii) perceived privacy concerns, (iv) perceived personalization(v) perceived advertisement clutter and (vi) skepticism toward advertising mediums. It is worth noting that prior negative experiences are the key factor affecting students' advertisement avoidance behavior on social media in Hanoi.

Keywords: *factors, advertisement avoidance, social media*

1. Introduction

Electronic and print media have changed the world of advertisement and innovations in electronic media have made new ways to advertise products or brands. Advertisement is considered a million- or billion-dollars game as multinational companies have a healthy budget for advertisement and companies spend millions or billions of dollars for advertisement. Innovations in modern technologies and electronic media explore new ways

for advertisers. No doubt the basic purpose of advertisement is to create awareness in customers about brands. It is stated that personalized advertisements give opportunities to both marketers and customers. With the help of personalized advertisements, it makes customers easily search for their needed products or services and personalized advertisements give opportunities to marketers to develop relationships with customers by making advertisements according to their interests.

With innovations in hand-held devices, personalized advertisements allow marketers to grant increased exposure to their brands. No suspicion that personalized advertisements provide a new dimension to markets and advertisers but not all of them are appreciated because of the irritation people can get when they want to determine the number of advertisements by different companies (Rezola et al., 2016). Ovalized advertisements give new dimension to markets and advertisers but not all personalized advertisements are welcomed because people may get irritated to see the number of advertisements by different companies (Rezola et al., 2016). Advertisement avoidance is a major problem for advertisers and marketers. Advertisement avoidance is also a big question for academicians and practitioners and is an action in which users reduce exposure to advertisements in unusual ways (Speck & Elliott, 1997). The advertisement avoidance leads to the user's intent to skip the advertisement, and it is considered one of the biggest obstacles of advertisement. Users may have separate ways to avoid advertisement, depending on personal characteristics and other frameworks such as demographics, target disruptions, and related issues (Speck & Elliott, 1997).

Although avoidance of advertising is a well-researched topic, it has only recently been studied in the online environment (Cho & Cheon 2004; Grant, 2005) and never specifically in online social media. Thus, the study is conducted to explore the factors that affect students' avoidance of advertisement on social media in Hanoi because this range of subjects has not been studied before. To accomplish the research aims and objectives, the study is to explore the answers to three following research questions:

- What are the factors that affect students' advertisement avoidance in Hanoi?
- How do the factors affect students' advertisement avoidance in Hanoi?

2. Literature Review

Advertisement avoidance is a big question for academicians and practitioners and is an action in which users reduce exposure to advertisements in unusual ways (Speck & Elliott, 1997). Advertisement avoidance leads to the user's intention to skip the advertisement, and it is considered one of the biggest obstacles of advertisement. Users may have separate ways to avoid advertisement, depending on personal characteristics and other frameworks such as demographics, target disruptions, and related issues (Speck & Elliott, 1997). According to (Cho & Cheon, 2004; Grant, 2005), due to a well-researched topic, avoidance of advertisement recently has only been examining within the online environment, particularly never in online social media. Thus, our purpose is to explore the factors that affect students' avoidance advertisement on social media in Hanoi because this range of subjects has not been studied before.

There are many reasons for advertisement avoidance in general and online advertisement, which is one of the biggest obstacles for businesses. Research on advertisement avoidance is exploited under various aspects. It is suggested by Bettman & Park (1980) that theoretical justification stems from the impacts of prior knowledge and experience on the decision processes of consumers. Several researchers reach a conclusion that consumers' avoidance is caused by the proliferation of advertisements (Zanot, 1984). Cho & Cheon (2004) examine three variables of Internet advertisement avoidance: Perceived goal impediment, perceived ad clutter, and prior negative experiences. The research of Chatterjee (2008) discovers that consumers felt that they are interrupted their goals when advertisements appeared. Perceived goal impediment was measured by items as makes more difficult, interrupts the movement of texting, disrupts or hinders people from utilizing other devices or content, disrupts receiving wanted incoming content, infringes on control, interfering with the search for desired information (Speck & Elliott, 1997; Edwards, Li & Lee, 2002; Cho & Cheon, 2004; Shin & Lin, 2016). Due to these activities, they cause discomfort for users, which in turn leads to avoiding advertisement (Nettelhorst & Brannon, 2012). Li & Huang (2016) in the research "Influence Factors of Online Behavioral Advertisements Avoidance" delved in the idea of Online behavioral advertisements, or the idea of gathering information to tailor a personalized advertisement list to each person. In the study "The impact of advertisement value to Awareness and behavior of advertisement avoidance" (Ho, 2018) proposes to expand on the correlation between advertisement avoidance behavior and awareness of the advertised product brand. Research results show that advertisement avoidance is negatively and strongly affected by valuable content in advertisement including informational value and entertainment value, incentive value.

In the research "Behavior of avoiding personalized advertising of social network users" (Pham & Huynh, 2021), the authors conduct the study to identify factors affecting advertisement avoidance of Youtube users, which focuses on people using smart phones, personal laptops, television installed social media. Research results find out that user's advertisement avoidance behaviors are affected by four factors: (1) negative experience, (2) perceived privacy concerns, (3) perceived personalization, (4) skepticism towards advertisement. In addition, research shows that the premise of avoiding personalized advertisement is: when there are more and more advertising means thanks to the development of science and technology, the ability to reach users is easier, this leads to advertisement avoidance behaviors.

In this study, "The impact of advertisement value to awareness and behavior of advertisement avoidance" (Ho, 2018) proposes to expand on the correlation between advertisement avoidance behavior and awareness of the advertised product brand. Research results show that advertisement avoidance is negatively and strongly affected by valuable content in advertisement including informational value and entertainment value, incentive value. This result is similar and re-rendering the discovery of Edwards, Li & Lee (2002). Besides, the impact from the customer's past negative experiences also affects avoidance

behavior, which is again in agreement with Cho & Cheon (2004). Research results have found that harmfulness does not affect advertisement avoidance, this result is contrary to the findings of Edwards, Li & Lee (2002) on adjudication. This is the difference in this study, businesses can consider when implementing advertisement activities.

It can be clearly seen that there have been few researches on factors affecting students' advertisement avoidance on social media related to user perception. Secondly, the research focuses on students who spend a lot of time using social media and explores students' advertisement avoidance on social media in Hanoi. The previous study mentioned above are considered as references for the researchers to conduct a new study.

3. Method

Research process

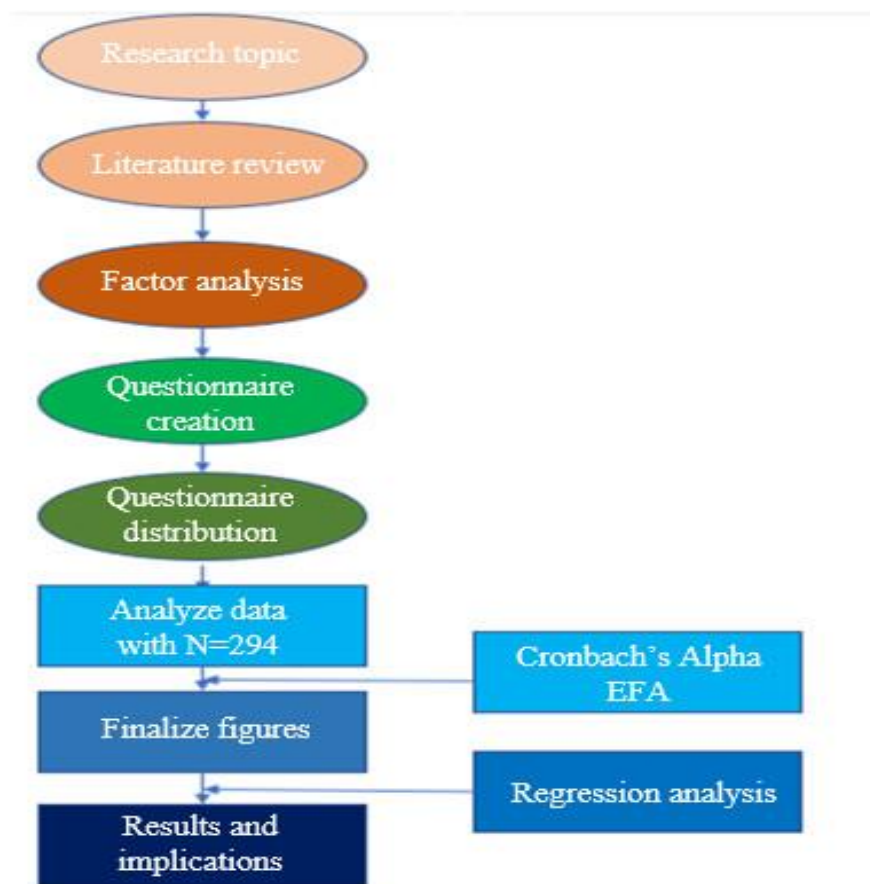


Figure 1. The research processes

Research model

The researchers conducted a preliminary study before conducting an official study to identify clearly factors affecting students' advertising avoidance on social media. Firstly, the researchers collected all the factors that might affect students' advertising avoidance on social media from a review of literature. The result of the preliminary study was the basis to build up the research model and hypothesis of the research.

Basing on the research models of Ho (2018) and Cho & Cheon (2004), the researchers propose the research model for the study.

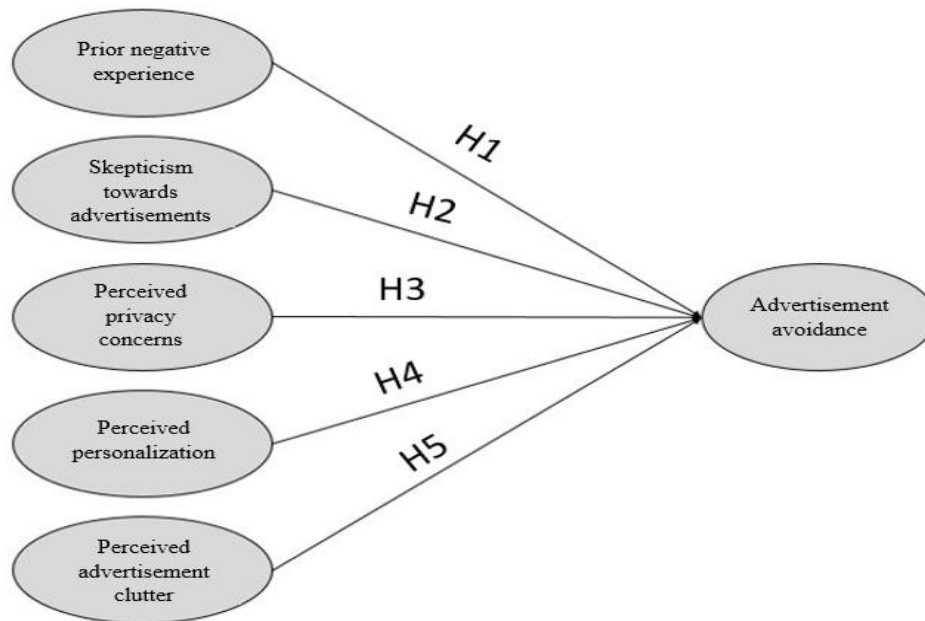


Figure 2. Recommended research model

Hypothesis

Table 1. Main research hypothesis

Hypothesis	Content
H1	Prior negative experiences are positively related to advertisement avoidance.
H2	Skepticism towards advertisement is positively related to advertisement avoidance.
H3	Perceived privacy concerns are positively related to advertisement avoidance
H4	Perceived personalization is positively related to advertisement avoidance.
H5	Perceived advertisement clutter is positively related to advertisement avoidance.

Research instruments

The study is conducted through quantitative method which were distributed to university students in Hanoi. The data collected from the questionnaires was then synthesized in the excel forms and illustrated by SPSS software according to each research question. The data was analyzed and interpreted qualitatively to identify factors impacting students' advertisement avoidance on social media.

4. Results

Cronbach's Alpha method was used to eliminate inappropriate variables, limits scattered variables in the research process and evaluates the reliability of the scale by coefficients through the Cronbach alpha coefficient. After evaluating the reliability of the scale by Cronbach's alpha coefficient and removing the variables that do not ensure reliability, factor analysis was carried out.

Table 2. Summary of the results of the scale reliability analysis

Factors	Denotation	Observed Variables	Corrected Item-Total Correlation	Cronbach's Alpha
Prior negative experiences	H1.1	It is unreliable to click advertisements on social medias	.625	.764
	H1.2	I do not dare to click on advertisements for fear of being attacked by a virus	.476	
	H1.3	Clicking advertisements on social medias does not bring benefits to me	.520	
	H1.4	There is no stimulation that makes me loyal and continue to use the service after clicking advertisements on social medias	.562	
	H1.5	Having bad experiences with advertisements before leading to negative perceptions about advertisements.	.376	
	H1.6	I feel advertisements on social medias are not as reliable as old-fashioned platforms	.494	
Skepticism toward advertisement	H2.1	I feel skeptical towards advertisements because friends and family are skeptical towards it, too.	.454	.737
	H2.2	I prefer advertisements that give emotion over advertisements that give information.	.405	
	H2.3	I am skeptical towards advertisement by new or non-familiar brand	.577	
	H2.4	I think there are numerous advertisements that are only instructive and extraneous	.555	
	H2.5	I am skeptical when there is an orientation of high price in advertisements.	.403	
	H2.6	I assume that companies only show positive side of products or brands and aggravate by publicizing	.459	

Factors	Denotation	Observed Variables	Corrected Item-Total Correlation	Cronbach's Alpha
Perceived privacy concerns	H3.1	I feel uncomfortable when information is shared without permission	.741	.875
	H3.2	It is important for me to know how my personal information is used	.689	
	H3.3	I feel that my privacy is invaded if I cannot control my personal information	.773	
	H3.4	I am worried that my record of network activity will be abused	.715	
	H3.5	I am worried that advertisements will lead me to a phishing website	.614	
Perceived advertisement personalization	H4.1	Advertisement is not according to consumers' demographic or characteristics; contents of advertisement are not according to the culture or society and perception of consumers towards advertisement	.543	.746
	H4.2	I do not receive any positive message or essential information tailored to my requirements and preferences through advertisements on social medias	.651	
	H4.3	These advertisements do not enable me to order products I need easily.	.379	
	H4.4	These advertisements do not make purchase recommendations match my needs.	.598	
Perceived advertisement clutter	H5.1	There are excessive advertisements on social medias	.689	.767
	H5.2	Advertising content exceeds the level of acceptance of consumers in specific social medias	.429	
	H5.3	I think advertisement on social media should be limited by sites.	.590	
	H5.4	Too many advertisements cannot meet the customer's needs	.578	

Overall, the study uses six conceptual scales, of which 05 are for factors affecting students' advertisement avoidance behavior and 01 are for students' advertisement avoidance on social media. A total of 27 observed variables are retained after analyzing the reliability of the scale, of which there are 6 observed variables measuring for components of students' advertisement avoidance and 21 observed variables measuring for factors affecting students' advertisement avoidance.

After evaluating the reliability of the scale by Cronbach's alpha coefficient and removing the variables that do not ensure reliability, factor analysis was carried out. EFA discovery factor analysis for independent variables is performed four times. On the first time, second and third time, 25 observed variables were included in the analysis and 04 observed variables which did not meet the conditions was removed for re-analysis. In the forth (final) analysis, 21 turned the observation converged and distinguished into six components.

Table 3. Six new factors

Part	Detonation	Factors
1	A1	Prior negative experiences
2	A2	Skepticism towards advertisement
3	A3	Perceived privacy concerns
4	A4	Perceived advertisement personalization
5	A5	Perceived ad clutter
6	A6	Skepticism toward advertising mediums

Multiple regression was used to predict the intensity of the impact of factors on students' avoidance of advertisement on social media in Hanoi.

The multiple linear regression has the form:

$$HPT = \beta_0 + \beta_1 * A1 + \beta_2 * A2 + \beta_3 * A3 + \beta_4 * A4 + \beta_5 * A5 + \beta_6 * A6 + \alpha$$

Table 4: Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.726 ^a	.527	.517	.46606	1.945

The results of multiple linear regression analysis show that the model has R = 0.527 and adjusted R² = 0.517. The findings reveal that the adjusted R² is smaller than R, so it is safer to use it to evaluate the fit of the model because it does not inflate the fit of the model (Hoang & Chu, 2008). Adjusted R² = 0.517 indicates the appropriateness of the model is 51.7% or in other words is 51.7% variation of the variable "Students' advertisement avoidance behavior on social media" is explained in analyzing 6 independent variables. Thus, the given multiple linear regression model is suitable for the data and can be used.

The results of verification of research hypothesis are summarized as follows:

Table 5. (Using Enter method) Regression coefficient

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		
	B	Std. Error	Beta			Lower Bound	Upper Bound	
1	(Constant)	.562	.212		2.655	.008	.145	.979
	A1	.259	.046	.298	5.644	.000	.169	.350
	A2	.273	.047	.291	5.835	.000	.181	.365
	A3	-.082	.051	-.081	-1.594	.112	-.183	.019
	A4	.153	.051	.143	2.987	.003	.052	.254
	A5	.227	.049	.238	4.636	.000	.131	.324
	A6	.044	.039	.055	1.122	.263	-.033	.120

Regression results for independent variables A1, A2, A4 & A5 with significance level 0.00 to 0.003 (< 0.05) are variables that affect the overall decision and have a positive impact because the regression coefficients are all positive. The variable A3 and A6 are excluded due to the sig value. is 0.112 and 0.263 (> 0.05).

Table 6. Summary of results of research hypothesis verification

Hypothesis	Standardized Coefficients Beta	Content	Result
A1	.298	Prior negative experiences	Accepted
A2	.291	Skepticism toward advertising	Accepted
A3	-.081	Perceived privacy concerns	Rejected
A4	.143	Perceived advertisement personalization	Accepted
A5	.238	Perceived ad clutter	Accepted
A6	.055	Skepticism toward advertising mediums	Rejected

From the above results, the authors get the following regression equation:

$$\text{HPT} = \beta_0 + 0.298 * A1 + 0.291 * A2 + 0.143 * A4 + 0.238 * A5 + \alpha$$

According to the regression equation on the weights of the factors affecting "students' advertisement avoidance behavior on social media of students in Hanoi" are presented as follows:

Prior negative experiences: 0.298

Skepticism towards advertisement: 0.291

Perceived advertisement clutter: 0.238

Perceived advertisement personalization: 0.143

To determine the importance of each variable for the dependent variable in the comparative relationship between the independent variables, the authors use the normalized regression coefficient (Beta). According to beta coefficient results, Prior negative experiences place the greatest vital role in students' advertisement avoidance (0.298) while 0.291 is the beta coefficient value of Skepticism towards advertisement which presents the second most important factor, followed by the Perceived advertisement clutter factor (0.238). The least important one is the Perceived advertisement personalization (0.143).

5. Discussion and Conclusion

To summarize, the research reveals four major factors that influence students' advertisement avoidance on social media in Hanoi. It is worth noting that prior negative experiences are considered the most influential of all, followed by skepticism towards advertisement, perceived advertisement clutter, perceived personalization.

Firstly, the findings show that prior negative experience is the most factor influencing advertisement avoidance on social media. Prior negative experience is revealed to be a factor in social media advertisement avoidance in this study. The findings imply that negative prior experiences induce students to avoid the source of the negative experience, specifically advertisement avoidance, as evidenced by overall unhappiness and a perceived lack of value and incentive. The perceived motivation and usefulness of clicking advertising on social media, as well as student contentment with advertisement services, are all key elements in building customer retention intentions for clicking advertisements.

Secondly, the result shows that skepticism towards advertisements is the second most dominant factor contributing to advertisement avoidance. Consumers will be overwhelmed by something altogether new, the majority of individuals believe advertisements only show the good aspects of products, sometimes aggravated by publicizing while the bad side remains hidden. Students, on the other hand, prefer emotional commercials to factual advertisements, possibly because they do not trust the facts presented.

Thirdly, the findings of the study reveal the significant effect of perceived advertisement clutter. Users tend to avoid commercials that appear frequently in a congested media environment, and advertisements gain less attention from users for the following reasons. People are irritated by advertisement, and as a result, they ignore them entirely. Due to limited memory capacity, users are unable to remember all of the advertisements shown at the same time.

Finally, according to the research results, perceived personalization is also a factor that affects students' advertisement avoidance on social media. Personalization has a crucial impact on customers, who find individualized advertisements to be beneficial. However, in spite of the benefits of personalization, highly tailored ads in mobile device ad settings, web ads, and social media ads pose issues about user privacy. Users believe that companies grab personal information and utilize it for marketing purposes, which has heightened their concern about privacy.

There are limitations to the generalizability and reliability of these findings. Many of the findings may not be generalizable to all online social media users or to teenaged online social networking users internationally. Therefore, further research is needed to define social media as an advertising medium and address their relevance and credibility to their target market. Further research could widen the frame of reference by drawing on larger samples nationally and internationally and addressing users of different ages and demographic profiles. Researchers could also consider the issue that students raised regarding the lack of advertising regulation on online social network sites. Finally, this research presents a new model for advertising avoidance in the online social media environment. Further investigation into this model could clarify and confirm its importance in developing advertising in the online social networking environment.

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FACTORS AFFECTING HIGH SCHOOL STUDENT'S INTENTION TO CHOOSE GAP YEAR IN HA NOI

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Abstract

This study was carried out with the aim of exploring the factors affecting high school students' intention to choose gap year in Ha Noi. This research used the combination of qualitative and quantitative methods. The result indicated 7 factors related to research object in total, namely internal motivation, media, financial capability, influence of people around and society, attitude, personality and risk perception. From there, the research pointed out the potential for development and proposed solutions to promote the popularity of gap year in Viet Nam.

Key words: *intention to choose, gap year, high school students, Ha Noi.*

1. Introduction

Gap year has long become a popular choice of American students and Western countries like Britain, Canada, Australia. Well-known universities such as Harvard, Yale have encouraged students to postpone one year before studying to attend extracurricular activities for self-development. According to American Gap Association research, 98% of students informed that gap year allowed them to have chances to improve themselves, became more mature, 84% have more job experiences and 77% could define clear goals in life instead of being under pressure because of exams and mark results. In Southeast Asia, Malaysia has integrated gap year programme as part of the university curriculums. Idris Jusoh, minister of university education, announced that students in 8 selected public schools will take a one-year break from their studies starting from 2017.

In Viet Nam gap year is not really popular because of barriers of social prejudice, students do not have enough financial capability, lack of family support and do not have many options to have an effective gap year. However, due to global integration, parents have gradually realized that practical experience is immensely useful for their children development, and students have also ready to step out of their comfort zone to find new opportunities for self-development.

These are the reasons to conduct this research, which determine the factors affecting the intention to choose gap year of high school students in Hanoi.

2. Method

2.1. Theoretical basis

SWOT analysis model strengths and weaknesses. The theory of SWOT model was studied by Stanford research institute (1960 - 1970) to understand the planning and decision making process of enterprises. However, the SWOT analysis can also be applied to an individual in the process of giving the next direction. Through SWOT analysis, individuals clearly identify their goals along with internal and external factors that can positively or negatively affect the goals they have set. SWOT is a collection of letters that stand for English words: Strengths, Weaknesses, Opportunities, Threats.

The learning zone model (Senninger, T., 2000) shows the typical process when a person starting to learn something new. The model also proves that learners need to get out of their comfort zone, but not to the point of causing them to panic or stressed, the result of this situation is normally failure. The model has 3 zones in total, namely comfort zone, learning zone and panic zone.

Theory of planned behaviour TPB (Ajzen, 1991) predicts an individual's intention to perform a behaviour at a given period of time. An individual's behaviour is influenced by three basic factors, including their own attitude to action, subjective norms, perceived behavioural control. An individual's behavior is influenced by his or her attitude about action, subjective norms, and ways of controlling perceived behavior.

In addition, the authors also found several theoretical models related to gap year. The decision-making process model for choosing gap year activities (Jones, 2004) is divided into two basic classes: the first layer (UK or overseas, structured, or unstructured activities), the second layer includes 6 types of activities (paid job, voluntary work, study, organized and independent travel, leisure activities).

The model of factors affecting the intention to choose gap year (Wu et al., 2014) includes push factors (derived from psychological such as rest, learning social and soft skills, broaden the perspectives, getting to know yourself better, earning money, etc.) and pull factors (derived from environmental factors namely Appreciate foreign culture, family related destination and domestic landscapes). The four linked factors to stimulate behaviour are education, peer influence, family influence and information.

The pre-college gap year hierarchy model (Kaoru Ta, 2012) classifies gap year activities based on low to high levels of freedom, planning, and environment. Gap year

participants can choose from one of four programs: travel exploration, volunteering, participating in planning and presenting them to universities and organizations, programs run by university of administration and management.

2.2. Suggested model

On the basis of theoretical models and studies related to research object, the authors propose a research model with "Decision to choose gap year" as dependent variables and 7 independent variables H1, H2, H3, H4, H5, H6 and H7.

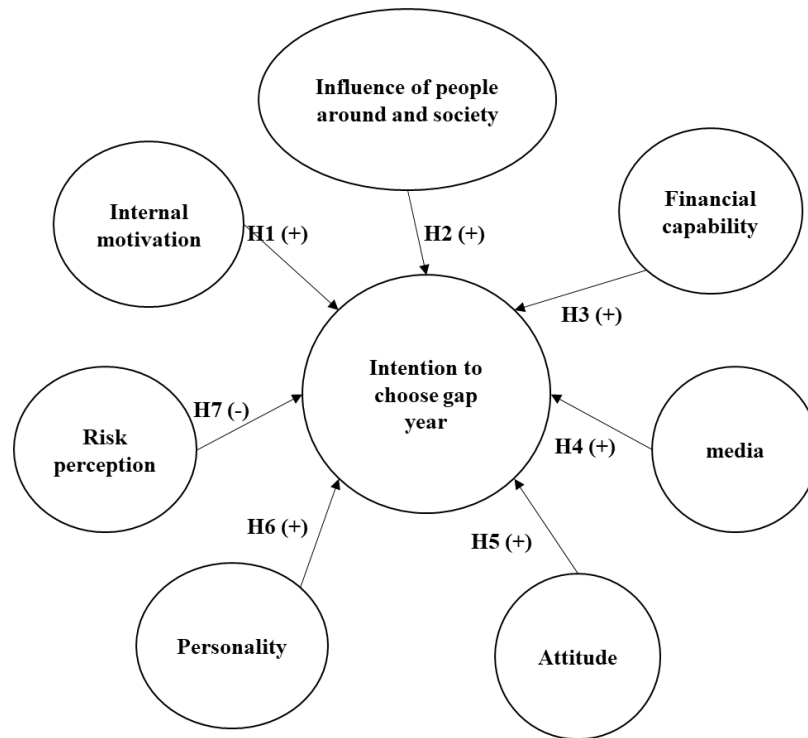


Figure 1. Theoretical model of factors affecting the high school students' intention to choose gap year

Source: The research team

Internal motivation: the desire for self-development, knowledge, improve soft skills has prompted students to choose gap year.

The influence of people around and society: Student consideration is often affected by close relationship (family members, friends, society, v.v.)

Financial capability: financial issues consist of financial conditions is suitable for gap year; the cost is worth it for the outcome of gap year. Besides, reasonable cost can result in the increasing rate of gap year demand. In conclusion, financial capability is also considered as one factor influences the decision to choose gap year.

Media: The process of exchanging information between people to acquire knowledge, which is the driving force of society development. The information sources from mass media strongly influences students' intention to choose gap year. This also helps students, families and society have better understanding the concept of gap year, experiential activities and the advantages after taking gap year.

Attitude: the reactions toward an object or a situation, positive or negative. Three components of attitude are: perception, emotion, and behavioural tendencies.

Personality: Personal nature that regulates the actions and reacts to the surroundings. Each person has their own personality and different reactions. The research group refer to this factor in order to point out how the personality differences affect the intention to choose gap year of high school student.

Risk perception: The student's concern when taking gap year such as not achieving goals, fall behind peers, wasting time and money. There may be some other unfortunate risks like scam, robbery. Therefore, the final decision is the comparison between benefits and risks.

- Hypotheses:

H1: Internal motivation is positively correlated with intention to choose gap year.

H2: The influence of people around and society is positively correlated with intention to choose a gap year.

H3: Financial capability is positively related to intention to choose gap year.

H4: Media factor has a positive correlation with intention to choose gap year.

H5: Attitude is positively correlated with intention to choose a gap year.

H6: Personality is positively correlated with intention to choose a gap year.

H7: Risk perception is negatively correlated with intention to choose a gap year.

The study uses qualitative and quantitative method and divided into two processes:

+ Stage 1: Qualitative research: interviewing, collecting expert opinions, high school students to form preliminary scale.

+ Stage 2: Quantitative research: information collected from questionnaires, analysing, data processing and model testing.

3. Results

3.1. Descriptive statistics

Gender: The difference is quite high, there are 256 female students, account for 83.1% while the number of male students is 52, only 16.9%.

Age: 18 years old students tend to take gap year more than others, account for 73.4%, around 226 students, the number of 17 years old student makes up 17.8%, which is 55 people and students at the age of 16 have the lowest record.

Family income: Mostly from 15 to 30 million dong, about 38.7% in total equal to 119 students. There are 115 students' family have under 15 million doing income per month, account for 37.3%. The family group that has income more than 45 million dong has the lowest record, only about 10.4%, which is 32 students, the rest have 30 to 45 million dong per month.

The way students approach gap year: Mostly from media (news, social networking sites, youtube, v.v.) with 83.1%, following is from family, friends with 11.1%. The number of students know about gap year from extracurricular activities and educational organization is 3.2% and 2.0% respectively, only 0.6% of other sources.

3.2. Cronbach's Alpha reliability test and Exploratory factor analysis EFA (EFA)

3.2.1. Cronbach's Alpha reliability test

After conducting Cronbach's Alpha analysis, the result shows that all 7 independent variables of a model have Alpha coefficient which is greater than 0.7, this justifies that the scale of all variables ensures about the coefficient. Of those, a scale of risk awareness factor has the greatest Cronbach's Alpha value (0.842) and media factor has the lowest value (0.757). With each of the scales, the research group realizes that none of the values of Corrected Item - Total Correlation less than 0.3. Therefore, all 26 observed variables on a table of the notions such as the influence of the people around and society, internal motivation, financial capability, media, attitude, personality and risk perception reach a requirement and continue to be used for analyzing Exploratory factor analysis EFA.

3.2.2. Exploratory factor analysis EFA

EFA result for the first time:

Table 1. KMO Coefficient and Bartlett test first time

KMO Measure of Sampling Adequacy		.784
Bartlett's Test of Sphericity	Approx. Chi-Square	4329.130
	Df	325
	Sig.	.000

Source: The research team

According to table 1, KMO is equal to 0.784 (satisfying $0.5 \leq \text{KMO} \leq 1$) which shows the results of analyzing factors that are suitable with the research data. Bartlett's Test of Sphericity has Sig as equal to 0.000 less than 0.05 which illustrates observed variables have a correlation with each other in the whole. Cumulative of variance reaches 68.261%, satisfyingly higher than 50% that justifies the EFA model is appropriate. In addition, the Eigenvalues value of seven factors is 1.138, higher than 1 so all factors are detained.

The result of research demonstrates RR3, DC3, AH4 variables have Factor Loading greater than 0.5 on two factors and the difference of Factor Loading is lower than 0.3, so this does not ensure discriminant value. Thus, the research group conducts to eliminate three observed variables (RR3, DC3, AH4) and continues to bring 23 remaining variables to do the second of Exploratory factor analysis EFA.

EFA result for the second time:

Table 2. KMO coefficient and Bartlett's test second time

KMO Measure of Sampling Adequacy		
Bartlett's Test of Sphericity	Approx. Chi-Square	2458.577
	Df	253
	Sig.	.000

Source: the research team

Table 2 shows that KMO is equal to 0.878 (satisfying $0.5 \leq KMO \leq 1$) and the results of analyzing factors are suitable with the research data. Bartlett's Test of Sphericity has Sig as equal to 0.000 less than 0.05 which illustrates observed variables have a correlation with each other in the whole. Cumulative of variance reaches 66.356%, satisfyingly greater than 50% that justifies the EFA model is appropriate. Besides that, the Eigenvalues value of seven factors is 1.065, higher than 1 so all factors are retained.

3.3. Pearson Correlation analysis

In short, all seven independent variables have a correlation with dependent variables.

Table 3. Correlation between variables

		AH	ĐC	KT	TT	TĐ	TC	RR
QĐ	Pearson	0.545**	0.593**	0.516**	0.519**	0.526**	0.516**	-0.489**
	Sig (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000

***. Correlation is significant at the 0.01 level (2-tailed)*

Source: the research team

The result illustrates that all variables such as the influence of people around and society, financial capability, media, attitude, personality, and risk perception are used for Linear Regression analysis.

3.4. Regression analysis

3.4.1. F-statistic

According to the analysis results, "Adjusted R square" reached 0.628, meaning that the independent variables explain 62.8% the variation of the dependent variable. 37.2% of the variation of dependent variable are affected by variables outside the model and statistical errors. This result indicates a suitable regression model.

Table 4. Model Summary

Model	R	R square	Adjusted R square	Std. Error of the estimate	Durbin-Watson
1	0.798	0.637	0.628	0.54724	1.962

e. Estimate variables: Constant, RR, TĐ, TT, TC, KT, AH, ĐC
f. Independent variables: QĐ

Source: The research team

The F value equal 75.077 with Sig. By $0.000 < 0.05$, this shows that linear regression model fits the data and can be used.

Table 5. Result of ANOVA analysis of general linear regression

Model	Sum of Squares	Df	Mean Squares	F	Sig.
Regression	157,382	7	22.483	75.077	.000
Residual	89,840	300	0.299		
Total	247,222	308			

e. Estimate variables: Constant, RR, TĐ, TT, TC, KT, AH, ĐC
f. Independent variables: QĐ

Source: The research team

3.4.2. Testing the hypothesis and evaluate the significance of the variable

Table 6. Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
Constant	-0.115	0.334		-0.345	0.730		
ĐC	0.296	0.049	0.252	6.029	0.000	0.694	1.442
AH	0.204	0.042	0.199	4.818	0.000	0.710	1.408
KT	0.151	0.039	0.160	3.896	0.000	0.714	1.400
TT	0.185	0.040	0.185	4.593	0.000	0.750	1.333
TĐ	0.172	0.048	0.148	3.572	0.000	0.706	1.416
TC	0.127	0.044	0.121	2.881	0.004	0.686	1.457

Source: The research team

The values in the Sig column are all less than 5%, so all 7 independent variables are statistically significant to the dependent variable. In other words, 7 hypotheses H1, H2, H3, H4, H5, H6, H7 are accepted.

From the result, our research group suggest regression model below:

$$\mathbf{QD} = \mathbf{0.296*ĐC} + \mathbf{0.204*AH} + \mathbf{0.151*KT} + \mathbf{0.185*TT} + \mathbf{0.172*TĐ} + \mathbf{0.127*TC} - \mathbf{0.137*RR}$$

Including:

ĐC: Internal motivation

AH: Influence of people around and society

KT: Financial capability

TT: Media

TĐ: Attitude

TC: Personality

RR: Risk perception

3.4.3. Standardized Distribution Residual of Sphericity

To a Histogram chart, if Mean value is approximately equal to 0, standard deviation is close to 1, bell-shaped distribution curves can confirm that the distribution is approximately normal, assuming the normal distribution of the residuals is not violated. The survey indicates the residual has Mean value is -2.48E-15 (approximately equal to 0) and standard deviation is 0.989 (close to 1). Therefore, distribution of residuals is approximately normal, the assumption of normal distribution of residuals is not violated.

With a Normal P-P Plot chart, if quantiles in the distribution of the residual are centered on a diagonal, that is, the residuals are normally distributed. The data show that the percentiles are concentrated on a diagonal, so the residuals are normally distributed.

4. Discussion and Conclusion

4.1. Solution

4.1.1. Students

First, students should focus on opportunities in high school such as engaging in community services, research programme, participate in domestic and foreign projects or part-time job to acquire practical knowledge and have clearer view of the professions so that students can make accurate decisions.

Second, students should evaluate the advantages and disadvantages to form a detailed plan, prioritize necessary activities for time management and effective experiences.

4.1.2. Family

First, parents should hear more from their children to fully understand about gap year information and carry out navigation. Moreover, children need to be equipped with knowledge, necessary skills to handle problems themselves. Parents will have chance to connect more with their children through communicating.

Second, Parents should share with children about financial capability to avoid gap year time become financial burden for the family.

4.1.3. School

First, schools, especially high school level, should invite experts to give advice to students related to gap year, benefits, and drawbacks, how to have effective gap year time, or organize competitions related to gap year, encourage students to express their point of view.

Second, schools should support students intend to take gap year with scholarships. In addition, the school can refer to the gap year support programme of foreign universities such as Harvard, Yale. Besides, the school can open a counselling support room to help students orient their careers appropriately.

4.1.4. Society

Firstly, stimulate media activities effectively through conveying the messages with meaningful and appropriate content. Therefore, students can easily find a lot of highly reliable activities, for example volunteering activities of WWOOF, Working Holiday, Picking Jobs, etc when they take a gap year.

Secondly, diversify the way of conveying the messages to not only students but also society. In the era of increasingly advanced technology, people can access sources of information in several ways such as watching a video summary of gap year strategy on social networks or consulting a large number of volunteering, traveling and exploratory activities via groups on Facebook.

4.2. Conclusion

Gap year brings a range of benefits to not only education but also national development goals. It is necessary to conduct a survey and research the factors affecting the

intention of taking gap year of high school students in Hanoi, which provides parents, school managers as well as organizations with a clear view of gap year in order that they can propose appropriate solutions. In addition, media campaigns and extracurricular activities with purpose of promoting gap year should be stimulated to meet the growing students' demands of self-discovery.

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FACTORS INFLUENCING STUDENT PARTICIPATION IN ONLINE LEARNING

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Abstract

This study employs structural equation modelling (SEM) to identify and evaluate determinants of online learning student participation. Data was collected from 543 students from 29 universities in Hanoi. The results indicated that individual factors (Goal Clarity, Process Clarity, Expertise, Perceived Control) have a magnitude of impact on student participation in online learning.

Keywords: *online learning, student/customer participation, teaching styles.*

1. Introduction

Due to the Covid-19 pandemic, universities had to close or switch to online teaching and blended learning methods. Online learning has been used for a long time, playing an essential role in keeping Vietnamese universities running and students engaging in their learning.

Although the growth rate of e-Learning globally is about 35.6%, the implementation of e-learning has also encountered failures in some countries. Before that, there have been many studies on the critical success factors of the online learning system from learners' perspectives. From the service standpoint, user participation influences their decisions about using the system, and this process is repeated throughout the user's experience with that system. On the other hand, from the practical perspective of the application system, although the factors affecting user participation have been identified in many different studies, the direct integration of these factors in the specific implementation of the system seems to be missing.

This study has three objectives, namely:

Summarizing and identifying factors of students that affect student participation in online learning classes in universities.

Determining the influence of those factors on online class participation thus leads to student satisfaction in online classes.

Proposing specific models and solutions to improve learner participation in online learning in universities.

This study aims to answer three main questions: (1) How do students tend to take university online classes today?; (2) What factors influence student participation in university online classes?; (3) To what extent do factors influence university online class participation, thus leading to student satisfaction?

The research consists of four sections: the theoretical foundation and recommended conceptual model for the investigation; the study approach is then provided, followed by the research findings and related comments. Finally, results are offered, as well as suggestions for further research.

2. Literature Review

Student participation: Although customer participation has been developed from many perspectives, with many different terms, the number of definitions of student participation in learning is relatively small. While most concepts of student participation still consider student investment in learning activities as the main component, the concepts have recently been expanded to include related and closely tied together components, which are cognitive and emotional engagement.

While not directly developing a scale of student participation behaviour, the concept of customer participation behaviour in the scale of Yi and Gong (2013) includes four dimensions: information seeking, information sharing, feedback, and personal interactions are impressive for comprehensive exploiting the dimensions of participation. To confirm the diverse essence, spanning different stages of the service process, and to consider this concept and the scales for student participation summarized above, the authors decided to develop the scale of Yi and Gong (2013) for the research model.

Table 1. Comparing related concepts

	Definitions/Related research	Author
Co-creation	Students can co-create curriculum in real-time to support peer-informed learning	Aaron McDonald et al. (2021)
Student engagement	Student engagement includes three interrelated dimensions: behavioral, emotional, and cognitive	Bond et al. (2020)
Student involvement	The extent of a student's involvement in academic work, for instance, can be measured quantitatively and qualitatively	Alexander W. Astin (1984)

Components of student participation:

Table 2. An overview of definitions affecting the theory of student participation

	Dimensions of the research concept (dimensionality)	Author
Dimensions of customer participation behavior	<ol style="list-style-type: none"> 1. Information seeking 2. Information sharing 3. Responsible behavior 4. Personal interaction 	Yi & Gong (2013)
Criteria for assessment of class participation	<ol style="list-style-type: none"> 1. Preparation 2. Contribution to discussion 3. Group skills 4. Communication skills 5. Attendance 	Dancer & Kamvounias, (2005)
Six levels of student participation	<ol style="list-style-type: none"> 1. Students attend class and stay awake/ pay attention 2. Students attend class, take notes and complete assignments. 3. Students write papers that are thoughtful and reflective. 4. Students ask questions in class, make comments and provide inputs for class discussions. 5. Students do additional research or come to class with additional questions. 6. Students deliver oral presentations (i.e. they become teachers themselves) 	Fristchner (2000)

Factors affecting student participation:

Source Credibility: Source credibility has received considerable scholarly attention in the educational context (Myers & Martin, 2006; Teven, 2007). Source credibility concluded with three dimensions: Trustworthiness, Expertise, and Attractiveness (Roobina Ohanian, 2013).

Trustworthiness: The trust paradigm in communication is the listener's degree of confidence in and acceptance of the speaker and the message (Roobina Ohanian, 2013). As a source of trustworthiness in the classroom, teacher credibility is a student's attitude towards a teacher related to the perceived degree of trustworthiness of the instructor's abilities (McCroskey & Teven, 1999; McCroskey & Young, 1981).

Expertise: skills, knowledge and related competencies that an individual or organization possesses. Expertise is the second dimension of source credibility, as defined by Hovland, Janis, and Kelley (1953). Perceived instructor credibility has been related to

several instructional communicative behaviours. Instructors who are perceived as being credible have students who report greater levels of state motivation and affective learning (Frymier & Thompson, 1992; Teven & McCroskey, 1997). Additionally, instructors who are perceived as credible are rated as more immediate by their students (Johnson & Miller, 2002) [b] and have higher ratings of student satisfaction (Teven & Herring, 2005). Research investigating source expertise in persuasive communication generally indicates that the source's perceived expertise has a positive impact on attitude change (Horai, Naccari, and Fatoullah 1974; Maddux and Rogers 1980; Mills and Harvey 1972; Ross 1973)

Attractiveness: A considerable body of research in advertising and communication suggests that physical attractiveness is an essential cue in an individual's initial judgment of another person (Baker và Churchill 1977; Chaiken 1979; Joseph 1982; Kahle và Homer 1985; Mills và Aronson 1965; Widgery và Ruch 1981). Except for a few studies (Mills and Aronson 1965; Maddux and Rogers 1980), Joseph's findings are consistent with others that report that increasing the communicator's attractiveness enhances positive attitude change (Simon, Berkowitz, and Moyer 1970; Kahle and Homer 1985).

Teaching styles: Student participation may easily be moulded through pedagogy, and it can be expressed through teacher teaching, which is what teachers do to encourage students to participate in classes. their educational institution (Fredericks and partners, 2004, 2019; Kahu, 2013; Lawson & Lawson, 2013)

Each teacher has a different teaching method. In this study, 4 teaching style clusters which are developed by Anthony F. Grasha & Natalia Yangarber-Hicks (2000), consist: (1) Teachers present information through televisions or online classes., students will become more passive and act as receivers of information. (2) Students coach, guide, and model how to do things are strongly represented in this cluster (architecture or graphics design course). The coaching and role modelling can occur in a classroom or clinic, or even in a virtual environment. (3) Teachers use strategies for collaborative participation, include case studies, research projects, problem-based learning assignments, small-group discussions, role-playing and simulations, and activities in which students learn information and then teach their peers. (4) Teachers adopt the roles of consultants and resource people to students working alone or in small groups. They are available to comment on and to help clarify issues that were particularly troublesome.

Role clarity: Students understanding service training means that they know what they need to do and how to get the best out of the subject. The specific roles, contributions, boundaries and avenues for customer participation should be clear, familiar and consistent (Lengnick-Hall, 1996). This study chose the definition of (Beard, 1996) to do empirical research and find a positive relationship between the two components of role clarity (goal clarity and process clarity) with the effectiveness of marketing service providers (agency) as well as customer satisfaction.

Goal clarity: consistent with Kahn et al. (1964) scope of responsibility and considered to be "the extent to which the outcome goals and objectives of the job are clearly stated and well defined" (Sawyer, 1992).

Process clarity: parallel to the terminal knowledge dimension of Kahn et al. and is defined as "the extent to which the individual is certain about how to perform his or her job" (Sawyer, 1992).

Ability: Effective participation also requires customers who are capable of making useful and timely contributions during service delivery (Lengnick-Hall et al., 2000). Rodie and Kleine (2000) provide a very broad definition of ability, which includes "... all pertinent resources such as knowledge, skill, experience, energy, effort, money, or time". Customer ability refers to resources owned by the customer, including the customer's knowledge, skills, creativity, and network assets.

Motivation: Student motivation refers to the willingness to exert effort to work on a learning task (Kim & Bennekin, 2013). Participation makes student self-learn intentionally because participation is associated with learning results and motivation could enhance participation (Martin, 2012).

Therefore, theorists have been able to identify several specific types of motivation:

(1) Intrinsic Motivation defined as the doing of an activity for its inherent satisfactions rather than for some separable consequence

(2) Extrinsic Motivation defined as the doing of an activity for its external purposes or as a means to an end.

(3) Motivation defined as a driving force to do something (Ryan & Deci, 2000a; Vallerand, 1992).

Perceived control: Perceived control is the psychological perception of a customer's level of control over the environment and behaviour, affecting service production and service outcomes (Dabholkar, 1990, cited in the study of Yang and He, 2018). Perceived control is the emotional cognition of the individual's control level of the environment and his behaviour, and it is the perception of the customer's impact on the production and results of service (Koufaris, M., 2002; Wu, G.M., 2000; Peng, Y.J., 2009).

Student satisfaction: According to Oliver (1997), satisfaction is the consumer's response to the satisfaction of their wants. Kotler (1997) defines satisfaction as "a person's feeling of pleasure or disappointment resulting from comparing a product's perceived performance (or outcome) concerning his or her expectations".

Table 3. An overview of the previous research model on student participation

Authors	Figure	Research approach	Information about experimental results
<p>ShinYi Lin, Ching Kuo, Chou-Kang Chiu, Ching Kuo</p>	<p>Figure 1. The conceptual model of online participation from the andragogical aspect</p>	<p>Based on empirical studies, exploring factors related to learning performance in the context of e-learning from an Andragogical (Principles of Adult Learning) perspective.</p>	<p>The main factors (with reciprocal relationship) affecting online learning participation: sense of community, instructors, life characteristics, experience, interaction, learning style, motivation.</p>
<p>Yiran Jiang, Lan Xu, Nan Cui, Hui Zhang (2019)</p>		<p>Customer participation is based on two dimensions: breadth and depth of participation. Therefore, research found impacts on the role stressors of customer involvement and satisfaction behind.</p>	<p>The hypotheses in the model are supported. Customer participation affects role stressors, creativity, compliance, and satisfaction; the broader the range of involvement, the more ambiguous the role.</p>
<p>T.G. Kotzé and P.J. du Plessis (2003)</p>		<p>Students can be seen as educational co-creators, directly participating in their satisfaction, quality, and perceived value. The student participation figure here is experimental in higher education settings.</p>	<p>Student participation is influenced by role clarity, ability, and motivation. Participation impacts perceived teaching quality, influential contribution, satisfaction and loyalty to the course.</p>

Framework

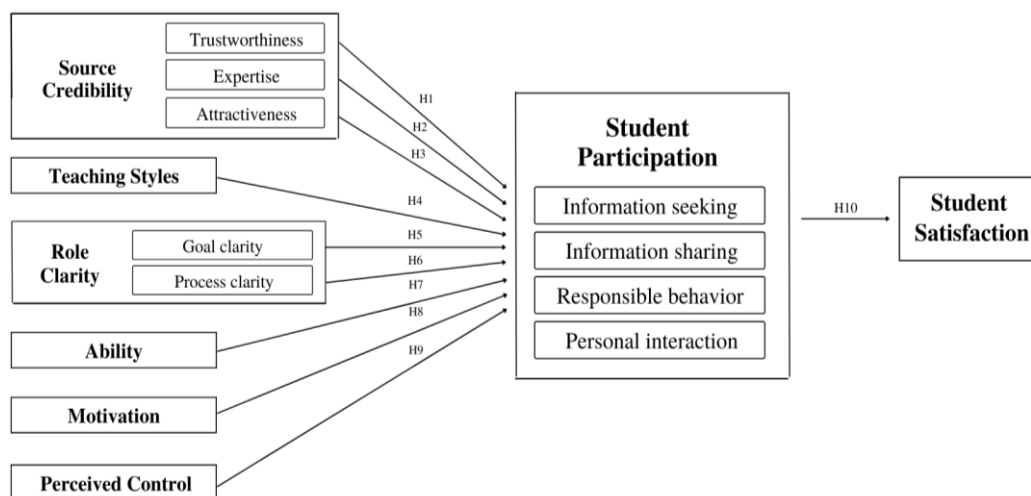


Figure 1. Proposed research model

H1: Teacher's trustworthiness is positively related to students' participation in online classes.

H2: Teacher's expertise is positively associated with students' participation in online classes.

H3: Teacher's attractiveness is positively associated with students' participation in online classes.

H4: Teaching styles are positively associated with students' participation in online classes.

H5: Students' goal clarity is positively associated with their participation in online classes.

H6: Students' process clarity is positively associated with their participation in online classes.

H7: Students' ability is positively associated with their participation in online classes.

H8: Students' motivation is positively associated with their participation in online classes.

H9: Students' perceived control is positively associated with their participation in online classes.

H10: Student participation in university online classes is positively associated with their satisfaction.

3. Method

3.1. Selection of research variables

By researching previous studies on student participation in online classes and based on observations of student characteristics, the authors discussed and decided to choose the following eight variables as the basis for the study—the basis for determining the factors affecting the participation in classes of students of universities in Hanoi city. Independent variables include Teacher credibility, Teaching styles, Role clarity, Ability, Motivation, and Perceived control. Mediating variables include Student participation. The dependent variable contains Student satisfaction.

3.2. Design quantitative questionnaire

In the quantitative questionnaire, the authors have selected the appropriate scale for the variables in the research figure. At the same time, the authors edited the content and

wording so that the survey respondents could fully understand and answer the questions in the questionnaire, avoiding misunderstandings or omitting questions.

3.3. Pilot study

The number of respondents in the preliminary quantitative study was 75 responses. 16% are first-year students, 14.67% are sophomores, 61.33% are juniors, and 8% are seniors. After delivering the questionnaire, the results are helpful and more comprehensive than initially intended by the group authors. From the data collected from the preliminary quantitative research results and the experts' advice, the authors have made some changes to adjust the questionnaire before the formal quantitative study.

3.4. Data collection

After completing the official questionnaire, the authors delivered more than 600 questionnaires on a large scale indirectly (online surveys, posted on social networks such as Facebook, ...) and collected 543 valid responses in official analysis.

3.5. Data analysis

This study implemented a structural equation modeling (SEM) approach, using SPSS 26.0 và AMOS 24.0 for data entry, analysis and processing:

1. Analyzing descriptive statistics to get an overview of the research object.
2. Using Cronbach's Alpha to assess construct reliability to reflect the close correlation between the observed variables of the same factor and remove the observed variables that are considered garbage.
3. Exploratory factor analysis (EFA) to remove the factors that do not fit the model.
4. Conducting confirmatory factor analysis (CFA) from Pattern Matrix to empirically test the measurement model, quality of observed variables, reliability, convergence, discriminant of variable structures.
5. Designing a general figure for the study and analyzing the SEM model to evaluate the hypothesis, the level of impact of the independent variables on the dependent variables.
6. Checking Model Fit in CFA.

4. Results

The analysis sample includes data collected from 543 students from 29 universities in Hanoi city. In the survey sample, females accounted for 71.8%, and males accounted for 27.8%. Most of them are first-year students with a rate of 45.5%, followed by the group of sophomore, junior, senior, and five-year students, respectively, with the rate: 22.8%; 23.2%; 7.0% and 1.5%.

4.1. Analyze the reliability of the scales (Cronbach's Alpha)

Firstly, the reliability of the criteria is evaluated through Cronbach's Alpha coefficient.

The minimum condition for testing the reliability of the scale using Cronbach's Alpha coefficient is that each factor in the research model must have at least 2 observed variables. All 8 variables in the research model of the authors meet this requirement.

The results show that all 62/63 variables give Cronbach's Alpha coefficient > 0.6 . At the same time, the observed variables of each scale have a total correlation coefficient > 0.3 , showing that the observed variables meet the standards (Nunnally, J., 1978).

There is only 1 variable on the scale (DC7) with Cronbach's Alpha coefficient below 0.6 - the scale, including 62 variables, is qualified and well used (Hoang Trong, Chu Nguyen Mong Ngoc, 2008).

After confirming the reliability of the variables and discarding the observed variables are considered garbage. Next, the authors turned to EFA exploratory factor analysis to remove the factors that do not fit the model.

Table 4. Cronbach's Alpha coefficient of each variable after correction

	Number of observed variables	Cronbach's Alpha coefficient
Teachers' credibility	15	0,945
Teaching styles	4	0,875
Role clarity	9	0,954
Ability	4	0,780
Motivation	6	0,808
Perceived control	4	0,780
Student participation	16	0,929
Students' satisfaction	4	0,931

4.2. Exploratory factor analysis (EFA)

According to (Kaiser, H. F., 1974), to meet the requirement that EFA can be performed, the $KMO > 0.5$. KMO value, in this case, reached $0.953 > 0.5$, this is for consistent data seen for factor analysis; and Sig. of Bartlett's Test = $0.000 < 0.05$, saying that the variables are compatible with each other in the population. Therefore, the group author can perform EFA.

According to (Hair, 1998), Factor loading ≥ 0.5 ensures the practicality of EFA. The author group found that 46/62 observed variables all satisfy this condition. There are 46 variables to ensure convergence and discriminant validity when analyzing EFA. In addition, the PP2 variable is confused with the Participation factor group, which means that the question of one factor is confused with the question of the other factor. The authors obtained the extracted variance = 67.230% and the Eigenvalues = 1.084 index, ensuring that the results of factor analysis are only accepted when the extracted variance is $> 50\%$ and Eigenvalues > 1 . Thus, the independent variables include 46 observed variables belonging to 7 factors that explain 67.230% of observed variables.

After analyzing EFA factors, the authors decided to remove 16 variables which are not compatible: TN9, TG2, TG3, TG10, TG11, KS2, KN3, KN2, KN1, KN4, KS1, TN14, TN11, DC2, DC1, PP1 and continued to test CFA.

4.3. Confirmatory factor analysis (CFA)

The authors encode and start the confirmatory factor analysis by software AMOS 24.0. The authors check the convergent and discriminant values of the research concepts (factors) before analyzing them through structural equation modelling (SEM).

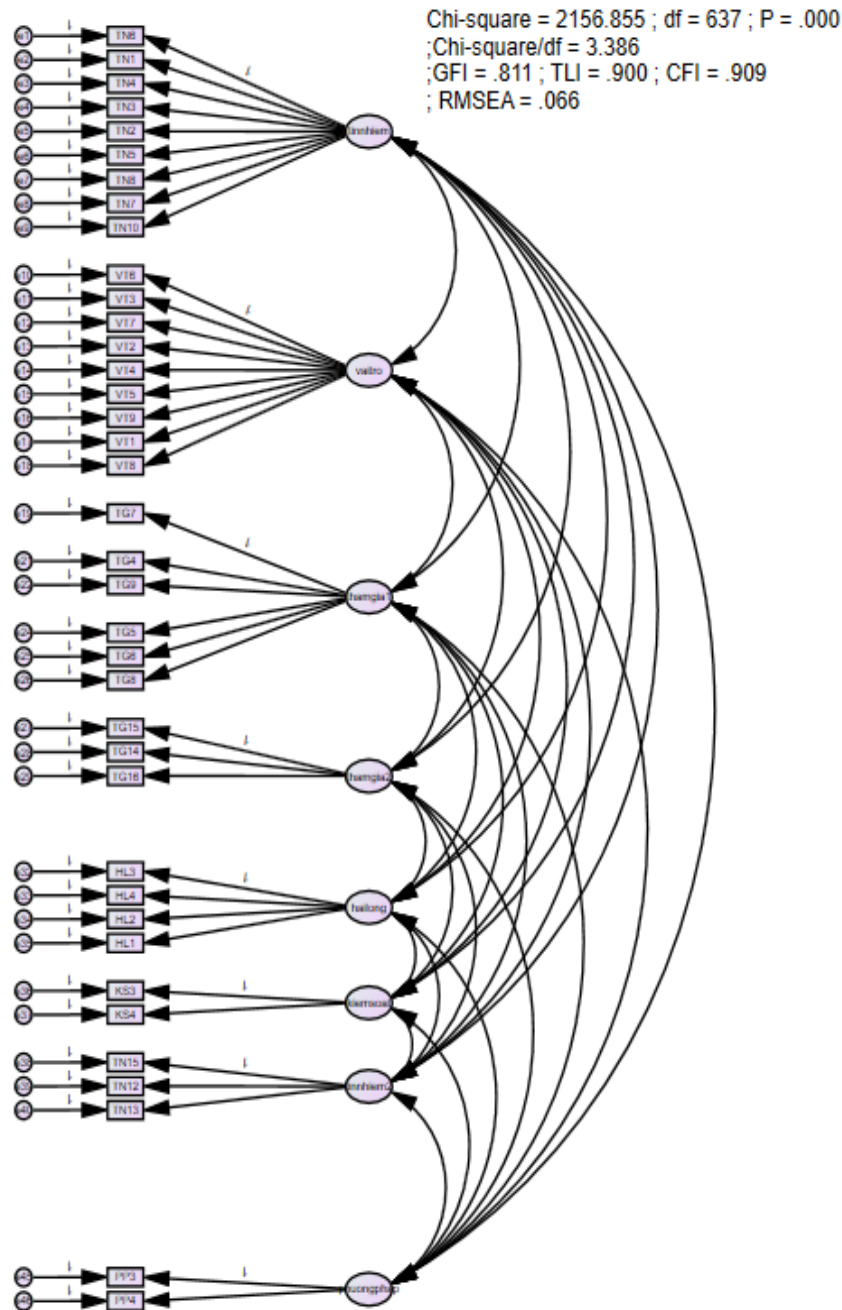


Figure 2. A model of analyzing positive factors in Chartered Financial Analyst (CFA)

The author separates the factors TN15, TN12, TN13 into the group "Teacher's style" with coding "tinnhiem2". After confirmatory factor analysis, the authors removed variables not belonging to the confirmed hypothesis group including PP2, DC3, DC4, DC5, DC6.

All concepts achieve composite reliability (CR) greater than 0.7 and extracted variance (AVE) greater than 0.5 (Hu and Bentler, 1999).

The results show that Information Searching of Student Participation's scale is inappropriate. Information Sharing and Responsible Behavior are considered separate from Individual Interaction because of the author's way of questioning. Information Sharing and Responsible Behavior is represented by a specific sequence of actions, while Personal Interaction refers to students' attitudes towards teachers then, the respondents might have separated aspects into two distinct groups. Since then, TG14, TG15, TG16 were divided into "Personal interaction" with the encoding "thamgia2".

Goal Clarity and Process Clarity were also grouped into the "Role Clarity" after CFA because of the author's way of asking questions and personal responses. Accordingly, factors VT1, VT2, VT3, VT4, VT5, VT6, VT7, VT8, VT9 belong "Role Clarity" with coding "vaitro".

H1a: Teacher's trustworthiness is positively related to students' information sharing and responsible behavior in online classes.

H1b: Teacher's trustworthiness is positively related to students' individual interaction in online classes.

H1c: Teacher's attractiveness is positively related to students' information sharing and responsible in online classes.

H1d: Teacher's attractiveness is positively related to students' individual interaction in online classes.

H2a: Teaching styles are positively related to students' information sharing and responsible in online classes.

H2b: Teaching styles are positively related to students' individual interaction in online classes.

H3a: Students' goal clarity is positively related to students' information sharing and responsible in online classes.

H3b: Students' goal clarity is positively related to students' individual interaction in online classes.

H4a: Students' ability is positively related to students' information sharing and responsible in online classes.

H4b: Students' ability is positively related to students' individual interaction in online classes.

H5a: Students' motivation is positively related to students' information sharing and responsible in online classes.

H5b: Students' motivation is positively related to students' individual interaction in online classes.

H6a: Students' perceived control is positively related to students' information sharing and responsible in online classes.

H6b: Students' perceived control is positively related to students' individual interaction in online classes.

H7a: Student' information sharing and responsible in university online classes is positively related to their satisfaction

H7b: Students' individual interaction in university online classes is positively related to their satisfaction

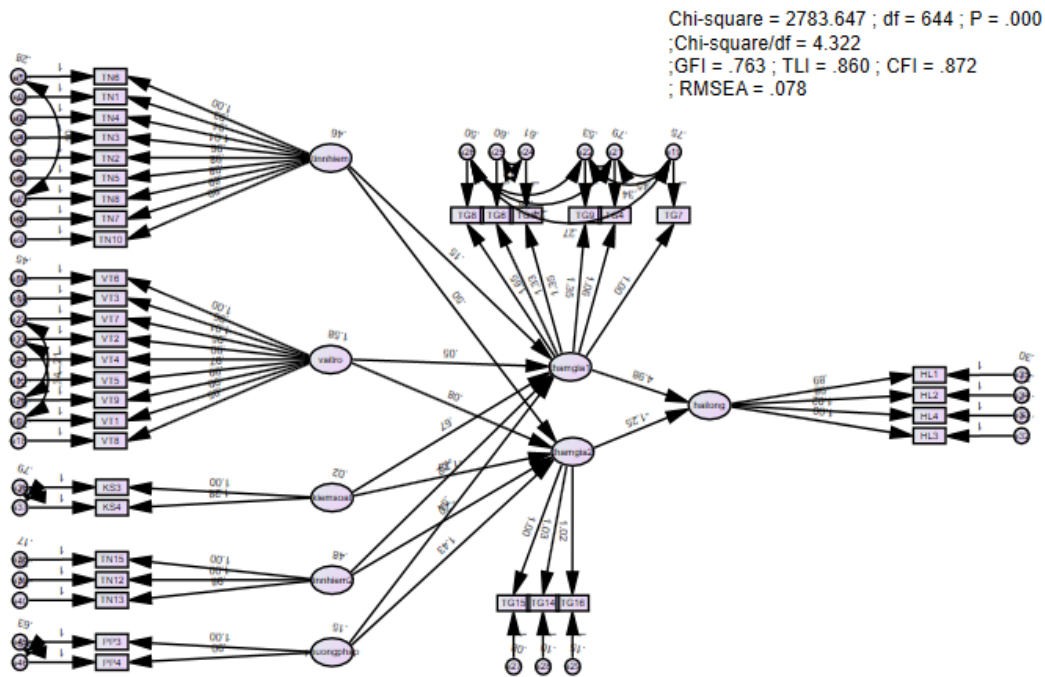


Figure 3. Structural equation modelling

The linear structural model achieves better indexes than the confirmatory factor analysis model. According to Hu & Bentler (1999), the model's goodness of fit indexes include CMIN/DF; CFI; RMSEA is at an acceptable level, TLI is close to good, and GFI is near a good level.

4.4. Test the research hypotheses

All hypotheses related to Students' perceived control (the first dimension of participation) were rejected because this concept did not meet the threshold for testing the scale's reliability. Some hypotheses related to the concept of student's motivation and ability were also rejected because this concept also failed to test the reliability of the scale.

Table 5. Accepted variances in the research model

The ordinal number of the factor (From EFA)	Research variances	Coding for positive factors	Component observable variances
1	Source credibility	tinnhiem	TN1, TN2, TN3, TN4, TN5, TN6, TN7, TN8, TN10
2	Attractiveness	tinnhiem2	TN15, TN12, TN13
3	Teaching styles	phuongphap	PP3,PP4
4	Role Clarity	vaitro	VT1, VT2, VT3, VT4, VT5, VT6, VT7, VT8, VT9
5	Perceived control	kiemsoat	KS3, KS4
6	Information sharing and responsible	thamgia1	TG4, TG7, TG9, TG5, TG6, TG8
7	Individual interaction	thamgia2	TG15, TG14, TG16
8	Student satisfaction	hailong	HL1, HL2, HL3, HL4

Table 5. Accepted hypotheses in the research model

Relationship			Weight	Standard deviation	Significance	Hypothesis
thamgia1	<---	tinnhiem	.151	.028	***	1a
thamgia1	<---	vaitro	.052	.011	***	3a
thamgia1	<---	kiemsoat	.665	.268	.013	6a
thamgia1	<---	phuongphap	.536	.097	***	2a
thamgia2	<---	tinnhiem	.501	.041	***	1b
thamgia2	<---	vaitro	.079	.020	***	3b
thamgia2	<---	kiemsoat	-1.230	.492	.012	6b
thamgia2	<---	tinnhiem2	-.196	.038	***	1d
thamgia2	<---	phuongphap	1.431	.141	***	2b
hailong	<---	thamgia1	4.981	.836	***	7a
hailong	<---	thamgia2	-1.245	.180	***	7b

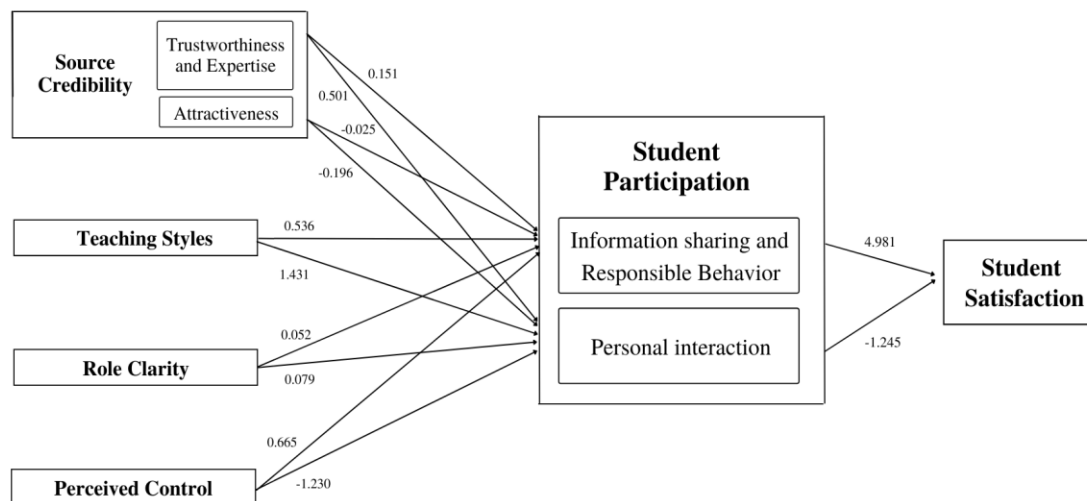


Figure 3. Accepted research model

In summary, from the initial 40 hypotheses of the proposed research model developed from the framework of previous researchers, through testing with actual data, the author group obtained an accepted model with 14 hypotheses. The theory meets the requirements of the linear structural model (with a non-zero impact level). Although the number of accepted hypotheses is not much, the model's indicators are relatively good and have many new points compared to previous studies.

5. Discussion and Conclusion

The research results have clarified the research issues and answered the research questions related to the factors affecting the students' participation in online learning through the proposed research model and tested the correlation between factors with learners' participation.

Research results show that changing the scale different from the initially proposed model is correct with the results of data analysis of the CFA model, supporting the running

of the model and creating an accurate analysis direction, reflecting the characteristics of the model. of the University's online learning environment. After analyzing the model, the number of hypotheses and the way to divide the hypothetical groups has changed to be more suitable to the standard model, specifically, the participation of students from 4 groups: Find information, Information sharing, Responsible behaviour and Interaction behaviour are divided into 2 main groups: Information sharing and responsible behaviour, and Personal interaction. Second, lecturers' trust from 3 groups Credibility, Expertise, Attractiveness is separated into 2 groups including Credibility and Attractiveness.

There is a standard correlation between 8 observed variables, including 6 independent variables: Role Clarity, Source Credibility, Teaching Styles, Motivation, Ability, Perceived control; 1 dependent variable is satisfaction, and one intermediate variable is participation.

The four major groups include Source Credibility, Teaching Styles, Role Clarity, and Perceived Control. The strongest influence is Teaching Styles on Personal Interaction (Weight = 1.431, $p < 0.05$).

Within the scope of the research, the authors have examined the relationship of the main components in the theoretical framework of factors affecting students' participation in the online learning process in university classes. The study is one of the first attempts to concretize the conceptual framework of student participation management by empirical research with multi-dimensional concepts. This governance model is of great significance for lecturers and administrators of higher education institutions in online classes in particular and in educational services in general when they want to promote student participation through the following factors: Factors affecting student participation (Source credibility (including trustworthiness and expertise, and attractiveness), Teaching styles, Role Clarity, Perceived control)

Certain limitations remain in the study. The following research direction should have more expansion in terms of scale; analysis with a deeper focus on a specific factor; design of simpler questions; research more about Analyzing Student Participation as a higher-order concept.

Development direction from the authors' research: distilling the relationship between Student Participation and outcomes such as Students' Grade, perceived values to conclude the influence of participation on outcomes; expanding participation with more relevant and diverse representations; clarifying the different components of the critical element (Teaching Styles); find out the hindering factors (negative/reverse effect on Student Participation).

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FACTORS AFFECTING THE INTENTION TO RECEIVE THE LUMP-SUM SOCIAL INSURANCE OF EMPLOYEES IN VIETNAM

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Abstract

The study was conducted in a rather special context: 2 years after the Covid-19 pandemic took place and affected the economy and labor market of Vietnam. This research on factors affecting intention to receive the lump-sum social insurance benefit in Vietnam reveals that there are seven groups of influencing factors including Media, Income, Social security aspect of the Social insurance policies, Labor market context, Attitude towards behavior, Social insurance policies and Social influence. The research is based on theories combined with relevant studies and analytical results from data collected from 378 employees in the research area. From the analysis and practical assessment of the influence of these factors, the authors offer solutions and recommendations to reduce the demand for the lump-sum social insurance benefit, moving toward the goal set by the Party and State, which is to ensure social security for everyone. The research results are the basis for policymakers to publish policies to develop social insurance in Vietnam.

Keywords: *Social insurance, Lump-sum social insurance, Intention to receive*

1. Introduction

Social insurance policies have always been considered very important and adjusted to suit socio-economic conditions as well as the development of the country by the Party and the State, moving towards the goal of social security for all. However, opposite to the Government's efforts to increase the coverage of social insurance, an increasing number of employees are choosing to receive lump-sum social insurance, leaving the social insurance system, especially in the complicated situation of the Covid-19 pandemic.

According to statistics from Vietnam Social Insurance, from 2014 to 2019, over 3.7 million people received the lump-sum social insurance policy; nearly 750,000 people leave the system every year, accounting for over 5% of the total number of participants. This means with every two new people joining the social insurance system, one person is leaving.

This trend is getting worse and shows no sign of stopping either. In 2021, 963,272 cases of claiming lump-sum social insurance benefits were recorded. This is a worrying fact, a danger to the social insurance system. Employees who leave the social insurance system are deprived of their right to receive other social insurance benefits, especially long-term benefits such as pension and survivorship. Workers will face disadvantages in both the short term and long term.

With the present situation, it is urgent to identify the underlying causes of the increasing demand for lump-sum social insurance benefit, so regulators can find effective solutions to tackle this problem. Therefore, the analysis of factors affecting the intention to receive lump-sum social insurance benefits of Vietnamese workers is very necessary during this time.

2. Method

2.1. Data collection methods

2.1.1. Secondary data collection

Primary data is collected from social insurance reports at Viet Nam Social Security; Ministry of Labour, Invalids and Social Affairs (Vietnam); Vietnam General Confederation of Labour; in addition to scientific journals, relevant national and international prior science research.

2.1.2. Primary data collection

The authors use the convenience sampling method by direct investigation of employees in 3 provinces (Thai Binh, Quang Ninh, Thai Nguyen) and an online survey.

2.2. Data analysis methods

2.2.1. Descriptive Statistics

Descriptive statistics are used to describe the basic features of the data collected from a survey. The authors chose these demographic features: ages, genders, working and areas, educational levels. Through IBM SPSS Statistics 23.0, we could process and analyze data. In addition, for ease of inputting, analyzing and presenting data, the researched variable will be encrypted.

2.2.2. Cronbach's Alpha Reliability Analysis

This is used to eliminate ineligible scales. Cronbach's Alpha coefficient indicates relative uniformity in measurement according to variables that have close content and form a group of factors. According to authors Hoang Trong and Chu Nguyen Mong Ngoc (2008), a Cronbach's Alpha ranging from 0.8 to 1 indicates a good scale, and from 0.7 to 0.8 indicates that the scale is usable.

2.2.3. Exploratory Factor Analysis (EFA)

EFA will examine the relationship between the observed variables in all the different independent variables in order to detect whether the observed variables are loaded with multiple factors or with differential variance initially. Specifically, from a set of many original observed variables, after factor exploratory analysis, they will become more meaningful groups of factors. KMO coefficient is an index used to consider the suitability of performing factor analysis. If the KMO value is within the required range, then EFA factor analysis is appropriate. Necessary conditions to perform factor analysis are $0.5 \leq KMO \leq 1$.

2.2.4. Pearson correlation

Pearson correlation analysis aims to test the strong linear correlation between the dependent variables. When analyzing Pearson correlation, it is necessary to pay attention to the sig value. If $\text{sig} < 0.05$, there is a linear correlation between the dependent variable and the independent variables, and if $\text{sig} > 0.05$, there is no correlation. If there is a correlation, the Pearson correlation index will have a value ranging from -1 to 1. If the index is closer to 1 or -1, the stronger the linear correlation, the closer it is, corresponding with a positive or negative correlation. If the index is closer to 0, the linear correlation is weaker, if it equals 0, there is no relationship between the two variables.

2.2.5. Linear regression analysis

This method specifically determines the weight of each independent factor affecting the dependent factor, then gives a regression equation. The coefficient R Square indicates the percentage (%) of the variation of the dependent variable by the independent variables. If this value is above 30%, the study is considered significant. The F test in the ANOVA table is used to assess the fit of the model. Sig(P-value) of the F test $< 5\%$, the model fits the population. The Sig value in the Coefficients table indicates whether the regression parameters are significant or not (with 95% confidence, $\text{Sig} < 5\%$ is significant).

3. Results

3.1. Characteristics of surveyed subjects through Descriptive Statistics

By direct and indirect survey, we collected 378 eligible answers.

3.1.1. Age and gender of survey subjects.

The subjects are divided into 4 age groups ranging from 15 years old to 55 years old, which increases the reliability and objectivity of the research. The 35-year-old to 54-year-old age group took the highest percentage with 43.9%. Besides, there were 156 replies by men (41.3%) and 222 replies by women (58.7%).

3.1.2. Working and living areas

The private area made up 45.2% with 171 answers, whereas the public sector took 54.8%. In addition, employees working in the North of Vietnam showed the highest proportion at 60.1%, the figures for the Middle and South of Vietnam were 21.4% and 18.5%, respectively.

3.1.3. Education levels

There were 213 people with College/University education (56.3%), 61 people with intermediate education (16.1%), 56 people with high school education (14.8%) and 48 people with postgraduate education (12.7%). The group of people with college/university degrees accounted for the highest percentage, while the group of people with university degrees accounted for the lowest percentage in the study. Most of the research subjects are at the college/university level, reflecting the increasing intellectual level of the Vietnamese people today.

3.1.4. The time of participating in social insurance

The highest percentage is the group of people participating in social insurance from 10 years to less than 20 years with 38.4% and the second place is the group of employees

participating in social insurance. 20 years or more with 23%. Meanwhile, the group of workers who have not yet joined and who have just joined in the first year accounted for a small proportion, 2.9% and 2.6% respectively.

3.1.5. Status of receiving lump-sum social insurance allowance

The number of employees who have never received accounts for 80.2%, nearly 4 times higher than the number of employees who have received (19.8%). This difference can be explained based on the number of years of participation in the popular social insurance of the respondents above (from 10 years or more).

i) Reasons for having received lump-sum social insurance allowance

In 75 survey samples that were received, up to 52% were due to the needs of employees who needed an urgent amount of money to cover their lives. This reason is completely consistent with the goal of the lump-sum social insurance allowance policy: a large amount of money that is immediately beneficial to employees when they are in financial difficulty. In addition, there are many other reasons why employees do so such as feeling they will not live until they receive their pension, seeing that their colleagues consider them entitled to benefits.

ii) Reasons for not having received lump-sum social insurance allowance

The reason why the majority of respondents answered that there was no demand, with 43.23% of the total number of employees who had never received the lump-sum social insurance allowance. This figure is relatively consistent with the characteristics of the state employment sector, which has a relatively stable and less volatile nature of work. At the same time, there is a link with the characteristics of the number of years participating in social insurance of the surveyed subjects. It is more remarkable that up to 27.72%, equivalent to 84 people, do not know or understand the lump-sum social insurance allowance policy.

3.2. Testing the reliability of the scale

Cronbach's Alpha coefficient of all groups of observed variables has results greater than 0.6. Simultaneously, the results of the correlation coefficients of the total variables of the component measures all reached values greater than 0.3. The corresponding observed variables all meet the reliability condition.

Table 1. Reliability statistics

No.	Variables	Label	Cronbach's Alpha	N of items
1	Social insurance policy	CS	0.934	6
2	Communication	TT	0.884	6
3	Attitude towards behavior	TD	0.938	4
4	Social influence	AH	0.949	3
5	Income	TN	0.806	3
6	Social-security characteristic of social insurance	AS	0.827	4
7	Labor market context	BC	0.900	3
8	Intention to receive lump-sum social insurance	YD	0.965	3

Source: compiled from analysis result of authors

3.3. Exploratory factor analysis EFA

Results of factor analysis showed that there are 7 groups of independent factors and 1 group of dependent factors:

The first factor includes 6 observed variables CS1, CS2, CS3, CS4, CS5, CS6 . These variables constitute the factor of the Social insurance policy.

The second factor: Includes 6 observed variables TT1, TT2, TT3, TT4, TT5, TT6. These variables constitute the Communication factor.

The third factor: Includes 4 observed variables TD1, TD2, TD3, TD4. These variables constitute the Attitude towards behavior factor.

The fourth factor: Includes 3 observed variables AH1, AH2, AH3. These variables constitute the factor of Social influence (subjective norms).

Fifth factor: Includes 3 observed variables TN1, TN2, TN3. These variables constitute the Income factor.

The sixth factor: Includes 4 observed variables AS1, AS2, AS3, AS4. These variables constitute the factor Social-security characteristic of social insurance.

The seventh factor: Includes 3 observed variables BC1, BC2, BC3. These variables constitute a factor: Labor market context.

Dependent factor: Includes 3 observed variables YD1, YD2, YD3. These variables constitute the factor of Intention to receive lump-sum social insurance.

Table 2. Rotated Component Matrix^a

	Component							
	1	2	3	4	5	6	7	8
CS3	.850							
CS4	.849							
CS6	.848							
CS5	.820							
CS1	.784							
CS2	.743							
TT4		.828						
TT1		.825						
TT3		.821						
TT5		.781						
TT2		.744						
TT6		.682						
TD2			.933					
TD3			.906					
TD1			.905					
TD4			.874					
AH3				.898				

	Component							
	1	2	3	4	5	6	7	8
AH2				.879				
AH1				.866				
YD3					.947			
YD2					.932			
YD1					.845			
AS2						.863		
AS1						.824		
AS3						.724		
AS4						.705		
BC1							.841	
BC3							.751	
BC2							.639	
TN2								.804
TN1								.760
TN3								.751

Source: compiled from analysis result of authors

3.4. Pearson's Correlation Analysis

According to the results, the independent variables TN, AS, TD, CS, and AH have a linear correlation with the dependent variable YD because they have a sig. correlation values with dependent variable YD are less than 0.5. Among the above variables, CS has the highest Pearson correlation coefficient (0.389) and TN has the lowest Pearson correlation coefficient (0.199).

Between the independent variables, there are two pairs of variables with the sig. correlation values greater than 0.5 are TD, TT (0.758), and BC, TN (0.743), which means they have no linear correlation with each other. Every other pair of variables have sig. correlation values smaller than 0.5, which means they are linearly correlated with each other.

3.5. Linear Regression Analysis

The analysis results of the linear regression model:

$$YD = \beta_0 + \beta_1 \times TT + \beta_2 \times TN + \beta_3 \times AS + \beta_4 \times BC + \beta_5 \times TD + \beta_6 \times CS + \beta_7 \times AH$$

In which:

+ YD is the dependent variable (the employee's intention to receive lump-sum social insurance).

+ TT, TN, AS, BC, TD, CS, and AH are independent variables, showing the factors affecting the intention of employees to receive lump-sum social insurance in Vietnam. (TT: Communication, TN: Income, AS: Social security, BC: Labor market context, TD: Attitude towards behavior, CS: Social insurance policy, AH: Social influence) .

Regression Result of Determinants Influencing Intention is summarized as follows:

Table 3. Regression Result of Determinants Influencing Intention

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
TT: Media	-0.165	0.073	-0.114	-2.263	0.024
TN: Income	0.161	0.073	0.099	2.194	0.029
AS: Social security	-0.383	0.079	-0.223	-4.869	0.000
BC: Labor market context	0.150	0.067	0.122	2.240	0.026
TD: Attitude towards behavior	0.133	0.057	0.104	2.313	0.021
CS: Social insurance policy	0.629	0.076	0.435	8.300	0.000
AH: Social influence	0.261	0.052	0.247	4.998	0.000
R ²	0.308				
Sig. F Change	0.000				

Source: compiled from analysis result of authors

The coefficient of determination R^2 is 0.308, which means that the built linear regression model fits the data set to the level of 30.8%. This also shows the relationship between the dependent variable and the independent variables. The relationship is quite close, all 07 variables above contribute to explaining 30.8% of employees' intention to receive lump-sum social insurance in Vietnam.

The F-test used in the analysis of variance is still a hypothesis test of the fit of the overall linear regression model. We see that the F-test has a value of Sig = 0.000 showing that the multiple linear regression model is suitable for the data set and can be used.

Regression coefficient test: The regression results show the coefficients of β of the variables TT, TN, AS, BC, TD, CS, and AH are all different from 0 and $p(\text{sig}) < 0.01$, proving that all of the above factors affect the intention to receive lump-sum social insurance benefits of employees in Vietnam.

4. Discussion and Conclusion

4.1. Limitations and challenges regarding lump-sum social insurance benefits in Vietnam

Regarding social insurance policies, according to the author's survey, regulations pertaining to the minimum number of eligible years for pensions is unsuitable as the time required exceeds the economy's ability to generate and maintain jobs. Current regulations mandate a minimum of 20 years payment scheme for employed citizens to be eligible for pensions. Therefore, the sentiments of those with under 10 years of payment towards pension funds are often that of impatient and discouragement. In addition, Vietnam's unemployment benefit policies are still only focused on passively dealing with the consequences of unemployment to the workforce while measures to actively prevent and reduce unemployment are currently lacking. Contemporary social insurance policies are, in certain aspects, not as tempting as other forms of capital investment on the market.

In terms of media and PR, despite many attempts to disseminate information relating to social insurance policies, many find such information hard to approach and comprehend. One downside to the unprecedented development of the digital age is the abundance of misinformation from untrustworthy sources that comes with it. As a result, many people feel uneasy and are misled into withdrawing all their retirement funds.

Regarding the workforce's understanding of policies, it is certainly lacking in that aspect due to the media's ineffectiveness. A considerable number of working citizens do not consider funding social insurance schemes as a form of savings guaranteed by the government to maintain minimum living standards when they retire, so as not to burden their children.

Regarding income, according to research conducted by the Vietnam General Confederation of Labour, only 15% of the workforce have savings from their basic salaries while the rest have to work extra hours and live stringently to maintain a minimum living standard for their families. Many feel that a few hundred VND per month for social insurance funds is a considerable sum of money compared to their monthly income.

Regarding the viability of social insurance, people's confidence in the social insurance system is low. Recently, along with many adjustments to the law, the social insurance agency has had many events and information relating to the bureau which leads to an even further reduction of faith in social insurance.

Regarding the labor market context, the Covid-19 pandemic has had heavy impacts on the entire labor market in Vietnam. The official sector's labor market tends to shrink, the freelance labor force has had a reduction in the number of jobs and many had to temporarily stop working, accounting for a large proportion; employed workers decreased in number while unemployment and underemployment rate increased. In 2021, the pandemic is longer and more complicated compared to 2020, causing millions of people to lose their jobs, and the number of jobs in industries will continue to decrease, especially in the service sector. Therefore, in the face of difficulties in finding new jobs, many employees choose to withdraw their social insurance fund in order to get some capital for self-employment.

In terms of social influence, the persistent issue of lump-sum withdrawal of social benefits is creating a mob mentality among the workers in the social insurance system. When employees' awareness of social insurance is limited, they are more easily influenced and shaken by social factors such as family, friends, and colleagues. Especially from those who have been and are considering receiving lump-sum social insurance benefits.

4.2. Some solutions and recommendations

4.2.1. Improve the legal policies on social insurance as a comprehensive unity

Improve the legal policies on social insurance in the direction of "flexibility, diversity, multi-layer, modernity, international integration". It is necessary to improve sanctions for the punishment of violating social insurance law, especially for acts of payment invasion, late payment, and social insurance profiteering.

Implement the new terms of reducing the payment time into the social insurance system from 20 years to 15 years in order to boost motivation for employees, avoid discouragement when waiting too long to receive the pension.

Tighter regulations on receiving lump-sum social insurance allowance without creating more complex administrative procedures. In addition, it is essential to improve the unemployment insurance policies to maximize the function and role of a labor market management tool: creating more job opportunities, preventing and minimizing layoffs.

Add short-term benefits to the voluntary social insurance policies so that they could become more diversified and flexible. Consider increasing contributions from the National Budget and mobilizing from other social resources.

4.2.2. Strengthening communication, propaganda and people's awareness-raising about social insurance policies.

It is necessary to have a unified communication strategy in terms of content, format and methods of propaganda to suit the traits and specific characteristics of each different target group, local area. The communication work should be to develop the beneficiaries of social insurance and attract the groups that are difficult to compromise such as workers in the informal sector.

4.2.3. Providing a more favorable investment environment for businesses and improving the living and working environment for employees, investing in improving social insurance services.

Support small and medium enterprises in investment activities, expand the business scale to concrete financial potential and minimize layoffs. Thus, improving the material and spiritual life, working conditions for employees. Encourage enterprises to continue employing elderly workers and disadvantaged people in society. Enterprises need to accommodate welfare regimes with relative labor productivity of employees, pay attention to employees' aspirations so as to motivate employees to work hard, and give them confidence in the development of the business as well as peace of mind to stick with the business for a long time.

In the VssID - Digital Social Insurance application, there is now a 24/7 consulting support function via ChatBot. Vietnam Social Security may consider adding a new function to compare the number of money employees will receive when receiving lump-sum social insurance allowance with the monthly pension amount that employees will receive if they continue to pay social insurance until they reach retirement age so that employees can see for themselves the benefits of social insurance and limitations when receiving lump-sum social insurance allowance.

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FACTORS INFLUENCING SEXUAL HARASSMENT BEHAVIOURS AMONG UNIVERSITY STUDENTS IN HANOI

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Abstract

The main content of the article is to analyze the factors affecting sexual harassment behavior towards university students in Hanoi, Vietnam. Research results show that there are 5 influencing factors including: Law and institution; Student education; Student management; Culture - Society and Student Factors. In addition, the study also shows many surprising numbers about the status of students suffering from sexual harassment such as 25% of surveyed students saying that they have been victims of this behavior. From studying the current situation and influencing factors, the research team found the cause of the problem and proposed recommendations and solutions for each group of stakeholders.

Keywords: *Behavior, Students, Sexual harassment*

1. Introduction

Under the US Federal Civil Rights Act of 1964, sexual harassment is one of the forms of gender discrimination. "Sexual harassment is the conduct of acts such as using sexual advances, asking for sex against the will of others, using gestures or words that suggest sex with a submissive or reflexive attitude. against an individual that is suggested to be related to that individual's interests, job, and working environment."

Sexual harassment can be expressed through: actions and words that sometimes people have little suspicion. Many people often hear jokes, comments about their own gender and body from the opposite sex. But they did not expect that this is a manifestation of sexual harassment.

Types of sexual harassment

- Physical form of harassment
- Forms of sexual harassment in language or speech
- Non-verbal forms of sexual harassment

2. Literature Review

In the study “Sexual Harassment among University Students within University of Eldoret, Uasin Gishu County, Kenya” by R. K. A. Sang, J. K. Kemboi and R. O. Omenge and the study “Study on Students Sexual Attitudes and Views on Sexual Harassment” are of the same opinion that most Most sexual harassment cases are carried out by men against women. However, there are also cases of women harassing men and same-sex sexual harassment occurring by either sex. Sexual behavior often involves an aggressor who has power over the victim, including men against women, seniors against high school students, and in teacher-student relationships. born. Furthermore, such STD students may become targets of retaliation if they report the incident, by both colleagues and school personnel.

Research on "Group social work with sexual harassment prevention for female students in Bac Hong Secondary School" by Do Thi Hue shows that many people have experienced sexual harassment to different degrees, but most of them only know the negatives. silently suffer because of psychological guilt, shame, fear of market disobedience.

Factors affecting sexual behavior for students

Assumption PL: Institutional and legal factors

In Vietnam, codes on sexual harassment have been promulgated such as Decree 167/2013/ND-CP, Labor Code (2019), New Labor Code (2021), Decree No. 145/2020/ND-CP, Penal Code 2015, ... This is the basis for implementing sanctions for sexual harassment acts, and at the same time, it is also a deterrent to the subjects, helping them to re-aware of their behavior. , avoiding the occurrence of behaviors related to sexual harassment.

Assumption VH: Socio-cultural factors

According to Vietnamese culture or thinking, we seem to think that acts of touching and teasing our genitals towards children are normal, to show affection and affection for them. child. In fact, these acts are all classified as sexual abuse. These behaviors contribute to the "normalization" of sexual abuse while their consequences for children are huge.

Assumption QL: Student management factor

Universities have also introduced dress codes that can be applied to students in accordance with each gender. Not only stopping at the external requirements, universities also offer a lot of disciplinary rules to maintain order, moral education and limit social problems occurring in the school. Most schools comply with Circular No. 10/2016/TT-BGDĐT. Disciplinary actions of students with a warning or higher must be recorded in the student management file and communicated to the student's family. In case a student is disciplined at the level of suspension or expulsion from school, the higher education institution must send a notice to the locality and the student's family for coordination in management and education.

Assumption GD: The factor of student educational work

The common point is that schools in all fields have outstanding movements and activities to propagate and prevent sexual harassment. Activities, propaganda movements, workshops, talkshows, etc. on the topic of prevention and restriction of sexual harassment are held regularly, which have contributed to reducing the incidence of sexual harassment cases in universities in Ha Noi city. Interior. Although the activities offer solutions and ways to act when experiencing sexual harassment, because this is a sensitive topic, as well as psychological fear, most victims of sexual harassment are afraid to share it with others and tend to self-directed problem solving.

Assumption SV: Factor belongs to students

- *Gender issues*

Sexual harassment is the use of sexual acts or words to damage the honor and dignity of both men or women. Although the victims of sexual harassment cases we often hear on the radio, most of them are female. But in reality, both men and women are likely to be harassed.

- *Personality of the person being sexually harassed*

- Extroverts

An extroverted personality will be characterized by being friendly, active, tending to seek excitement and fun at large gatherings such as parties, community activities or crowded places. That's why, extroverts are often easily approached by sexual predators anywhere, anytime.

- Introverts

Introverts are mainly self-loving, focusing on their personal spiritual life. They prefer solitary activities, prefer quiet. This is partly to create a perfect cover for yourself; avoid "unnecessary" meetings, "friendly acquaintances" or avoid depraved harassers in the society.

- *Characteristics of the student's place of residence*

- Dormitory: the dormitory is very secure. All dormitories have security guards. Most have regulations on entry and exit hours; Some are stricter when the rule is that only students in the school can enter the dormitory, so it is very reassuring.

- Stay outside: With the same owner, you will be guaranteed on time, avoiding social dangers in the late period; ensure the security and order of the accommodation

- Stay with family: With this form, students will have their own private spaces, and have a warm and happy time with their families; avoid temptations or social evils.

Assumption TP: The factor belongs to the person who committed the act of sexual harassment

Usually, the perpetrators of sexual harassment are men. However, there are exceptions when the harasser is a woman. Portraits of people who perform sexual harassment are very diverse but will share some common characteristics.

First, there is a deviation in sexual perception and behavior.

Second, often people who have high sexual needs but cannot release and control them should redirect sexual orientation behaviors to other objects in an unusual way.

Third, the "harassers" or have a "safe cover". It can be a position, position, tangible or intangible authority in relationships

3. Method

3.1. Methods of primary data collection

In order to assess the factors affecting sexual behavior towards students in Hanoi, during the group study, we conducted an investigation and survey of the opinions of students in different groups of schools. university in Hanoi city.

This is an information method that uses a set of questions that are prepared according to specific content. At the same time, the group collected data through in-depth interviews using a prepared questionnaire for students in the study area.

The effectiveness of this method of information collection depends greatly on the design of a standard questionnaire capable of giving the collectors complete and accurate information about the subject. On the other hand, a well-designed questionnaire will make the collection, statistics and processing of the collected information easy and convenient.

3.2. Methods of processing survey data

In order for the data entry into the SPSS 22.0 statistical software to be effective, the research team will process the collected data so that the data entry is effective and best serves the data analysis process later. Here are some sketches that the team studied, absorbed and applied in this study:

- Firstly, the information about the address of the young people put into the SPSS 22.0 software is short and easy to understand. Due to this criterion, the research team was not able to update all the exact addresses of schools in Hanoi. The schools are arranged by the research team in the order of groups of disciplines: economics-business, technology-engineering, medicine-pharmaceutical, pedagogy, culture-art

- Second, information on the age of youth representatives will be divided into 4 levels compatible with five groups: first year, second year, third year, fourth year.

- Third, the validity of the young people's answer sheets in the survey. Because the biggest goal of the "questionnaire" is to survey opinions and assess the factors affecting sexual behavior in Hanoi students, the determination of what is a valid answer sheet and which one is not. invalid and must be discarded when analyzing data.

After completing the data entry, the team conducts analysis of the obtained data:

- The team conducted Cronbach's Alpha analysis to test the reliability of 3 variables (HV1- HV3) of the Behavior factor – (HV); 5 variables (PL1 – PL5) belong to the Law - Institution factor – (PL); reliability of 5 variables (VH1 - VH5) belonging to socio-cultural factors (VH); reliability of 4 variables (QL1- QL4) of the factor “Student management”- (QL); the reliability of 3 variables (GD1 - GD3) of the factor “Student education”- (GD); reliability of 5 variables (SV1 – SV5) belonging to “Factors belonging to students themselves”- (SV); reliability of 3 variables (TP1- TP3) belonging to the group of factors “Harassment”- (TP).

- The group performed two times of EFA exploratory factor analysis for the independent variables and one time of EFA exploratory factor analysis for the dependent variable.

- The group tested the correlation between variables through Pearson correlation analysis, multivariate regression. From there, the equations of unnormalized regression coefficient and normalized regression coefficient are given.

- Finally, the group tested the regression hypothesis through the residual normal distribution test and the linear relationship between the dependent variable and the independent variable.

4. Results

4.1. Exploratory factor analysis

Through Cronbach' alpha test, the group removed a number of variables that were not reliable enough and left 15 variables of 6 factors for further analysis. The results of testing the reliability of the scale are shown in Table 1.

Table 1. Results of testing of the factor scale

Factor symbol	Factor	Number of observed variables	Cronbach's Alpha coefficient	Research hypothesis
PL	Law – institutions	2	0.751	-
VH	Sociocultural	2	0.616	-
QL	Student Management	2	0.607	-
GD	Student Education	3	0.652	+
SV	Students themselves	3	0.600	-
TP	Harassment	3	0.683	-
HV	Sexual behavior	3	0.685	Dependent variable

Source: Compiled from analysis of survey data.

After performing EFA for the final exploratory factor analysis, the observed variables that could explain less than 0.5 variance of the factor were removed. Bartlett's test has sig. = 0.000 shows that the necessary condition to apply factor analysis is satisfactory. KMO index = 0.814 > 0.5 shows that sufficient conditions for factor analysis are appropriate. The total variance extracted is 63.443 % (greater than 50 %) and the Eigenvalues of the 6 groups of variables are all greater than 1. At the same time, the loading coefficients showing that observed variables in the same group have a good correlation. Therefore, the research team concludes that the group's model is suitable, 6 factors are kept. For the Behavior variable, the test results show that the parameters all meet EFA standards. In which, KMO coefficient is 0.556 (greater than 0.5), Bartlett test has Sig. = 0.000 (less than 0.05), the total variance extracted is 61.574% (greater than 50%) and the Eigenvalue is 1,847. The results of factor analysis (EFA) for the scale of sexual behavior behavior are shown in Table 2. Thus, after removing 3 observed variables including VH4, SV2 and TP1, the remaining 12 observed variables ensure the compatibility. condenser and discriminant.

Table 2. EFA results on sexual behavior scale

Variable	1	2	3	HV
PL2	- 0.816			
QL4	0.806			
PL4	-0.790			
TP3	0.769			
Highway 1	0.664			
GD3		0.853		
SV3		-0,700		
GD2		0.675		
GD1		0.626		
TP2			0.706	
VH3			0.672	
SV4			0.587	
HV2				0.886
HV1				0.768
HV3				0.687
Eigenvalue	3,881	2,648	1.084	1.847
Extracted Variance (%)	32,341	22,069	9,033	61,574

4.2. Multivariate regression analysis

The initial regression model has the form:

In which: HV is the dependent variable; variables: PL, VH, QL, GD, SV, TP are independent variables (explanatory).

Regression results are shown in Table 4. Specifically, the independent variable in the model explained 62.6% of the variation of the dependent variable (R squared adjusted by 0.632). Sig value. in ANOVA equal to 0.000 is less than 0.05, showing that the linear regression model is suitable for the data set. With the regression coefficient estimates, the Sig. in t-test of 6 variables (PL, VH, QL, GD, SV, TP) all < 0.05. In which, the regression coefficient of the factor GD > 0, shows that this independent variable has a covariance with the dependent variable (HV), and the 5 variables remaining has the regression coefficient < 0 shows that this independent variables has contra – variant effect on the depend variable (HV in a statistically significant way. Particularly for the harasser variable (TP), the value of VIF = 2,315 > 2 shows that this factor has multicollinearity, so the research team removed this variable from the model.

Table 3. Coefficients^a – MH1

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	REMOVE	Std. Error	Beta			Tolerance	VIF
(Constant)	5.598	0.309		18.103	0.000		
PL	-0.272	0.056	-0.214	-4.879	0.000	0.534	1,872
VH	-0.222	0.037	-0.236	-5.953	0.000	0.653	1.531
QL	-0.192	0.050	-0.172	-3.851	0.000	0.514	1,945
GD	0.496	0.042	-0.466	11,682	0.000	0.643	1.555
SV	-0.296	0.050	-0,260	-5,978	0.000	0.542	1.845
TP	-0.127	0.046	-0.135	-2.764	0.006	0.432	2.315

After removing the variable TP, the research team ran the model again and got the regression results shown in Table 4.

The normalized regression model reflecting the relationship between the dependent variable is sexual harassment behavior and the independent variables are as follows:

Table 4. Coefficients^a – MH2

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	REMOVE	Std. Error	Beta			Tolerance	VIF
(Constant)	5.698	0.310		18,380	0.000		
PL	-0.211	0.052	-0.166	-4,083	0.000	0.634	1,578
VH	-0.238	0.037	-0.253	-6.403	0.000	0.669	1.494
QL	-0.236	0.048	-0.212	-4,960	0.000	0.573	1,744
GD	0.445	0.039	0.418	11,544	0.000	0.797	1.255
SV	-0.322	0.049	-0.282	-6.548	0.000	0.562	1,781

Based on the results of regression analysis, it can be seen that, among the factors affecting sexual behavior, the factor student education is the most important factor, with an impact rate of 30.65%, next factors belonging to students themselves (22.18%), socio-cultural factors (16.39%), student management factors (16.25%) and finally legal factors – institutions (14.53%).

5. Discussion and Conclusion

5.1. Students themselves

Students need to equip themselves with sufficient knowledge and measures to prevent sexual harassment in life. In particular, students living in an advanced technological society like today need to be careful when making acquaintances, contacts and relationships with acquaintances through social networks; stay away from pervasive debauchery. Besides, each

student needs to have a suitable style of dress, a healthy lifestyle, and need to be aware of the constant threat around us so that it does not become a serious social problem. Each person, specifically students who are sexually harassed, need to have the courage to speak up, erase their own indifference, and remove the psychological barrier of the person being harassed.

5.2. School

The school needs to regularly organize seminars and talk shows on identification and prevention of sexual harassment at the school to help students expose themselves to information about sexual harassment, remove fear when being harassed. Boldly respond and denounce these acts. In addition, the school needs to perfect its regulations and rules on sexual harassment, so it should provide specific rules on words and gestures of lecturers and students; and apply appropriate penalties when such acts occur. In addition, each school needs to set out rules and regulations on sexual harassment for all staff, lecturers and students in the school to master. In addition, the school needs to build and establish a safe learning and living environment for students. In addition to building rules, installing security cameras at potential locations of potential harassment such as stair areas, corridors...; establish student groups to strengthen patrols, ensure security and order, and support students if they are harassed. Set up departments and assign personnel in charge of dealing with sexual harassment issues arising in the school. Equip staff working directly with students with the skills to handle sexual assault cases, develop online reporting tools, work closely with local authorities to provide measures to support students when they are sexually harassed.

5.3. Culture - society

Each person in today's modern society needs to join hands and work together to contribute to building an advanced culture, a civilized and better society. In order to do this, it is essential to fully equip every family with sexual harassment. Therefore, each family member, especially parents, must first understand their own roles and responsibilities; equip themselves and educate and guide their children with knowledge and skills in identifying, preventing and combating sexual harassment acts. Each family should accompany the school and local authorities to have a full awareness of sexual harassment, to transmit and provide knowledge to their children in a complete and timely manner, as well as to right actions with your children. Family members, especially parents, need to regularly care for and ask questions of their children, and share life's problems together to create a comfortable and secure mentality, so that their children can have peace of mind. Open your heart to seek help.

5.4. Laws and authorities

In order to reduce the current problem of sexual harassment, the whole society and state authorities at all levels need to clearly and specifically define concepts related to sexual harassment. A closer look and a more detailed and understandable regulation is needed so that everyone has the ability to fully understand sexual harassment. In addition, a more appropriate level of punishment should be considered for perpetrators of sexual harassment. Appropriate fines will significantly reduce the current state of sexual harassment. Competent state agencies should also develop a mechanism to deal with complaints and denunciations quickly, promptly and appropriately for cases of sexual harassment that occur. A good,

appropriate resolution mechanism will create trust for victims and be a way to support them to overcome difficult situations.

5.5. Conclusion

Through the process of conducting "Study on sexual harassment of university students in Hanoi", the group has provided the influencing factors which are also pointed out clearly, specifically, and easy to understand for readers and experts. viewers. From there, it helps readers have an overview and in-depth knowledge about this sexual harassment problem. Through the research process both at home and abroad, the group has pointed out the alarming situation of sexual harassment happening all over Vietnam in general and Hanoi in particular with students. Thereby, it can be seen that sexual harassment is happening anywhere, anytime and is a burning problem of the whole society.

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ENHANCING THE QUALITY OF VIETNAM'S HUMAN RESOURCES IN THE FOURTH INDUSTRIAL REVOLUTION

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Abstract

The world is entering the Fourth Industrial Revolution, a new manufacturing revolution associated with unprecedented technological breakthroughs related to the Internet of Things, cloud computing, 3D printing, sensor technology, virtual reality, etc. It is strongly affecting every country in the world, including Vietnam. This revolution is a great opportunity to promote industrialization and modernization. However, the shortage of a first-rate workforce is challenging for Vietnam to catch this opportunity. This paper will focus on the three main contents. The first is about the impact of Industry 4.0 on Vietnam's manpower. The second is about the current situation of the labor force. Finally, the author offers some solutions to improve the quality of Vietnam's human resources.

Keywords: *Human resources, Fourth Industrial Revolution, Vietnam.*

1. Introduction

It can be said that the three fundamental factors, namely, application of science and technology, development of infrastructure, and human resource development (HRD), contribute to the rapid and sustainable development of an economy. In which human resources play a vital role. The level of HRD is considered a measure of the development of each country. Therefore, this issue is a concern and valued by many nations worldwide. Inheriting and promoting ancestors' tradition in respecting talents and considering "they the core part of making the country's survival and development," the Party and the State of Vietnam constantly affirm that the "human is the center factor contributing to the development." Currently, in the context of accelerating industrialization, modernization, and international integration, especially the intense impacts of the Fourth Industrial Revolution (Industry 4.0), the problem of human capital is considered a breakthrough. HRD becomes the foundation for sustainable development and increases the national competitive advantage. Due to being in the golden population period, Vietnam's human resources have both the benefits and significant challenges in Industry 4.0. Based on the researched documents and the current situation of the labor force in Vietnam, the study will analyze the opportunities and challenges for the Vietnamese workforce under the impacts of Industry 4.0. Finally, the author proposes essential solutions to raise the quality of human capital in Vietnam.

2. Method

The study used basic methods such as secondary data research, primary and secondary data collection, and analytical methods.

3. Results

3.1. Impacts of Industry 4.0 on human resources in Vietnam

Up to now, the world has experienced 3 industrial revolutions. The first was Industrial Revolution 1.0 through the mechanization of production (taking place between 1760 and 1840 with the invention of the steam engine.) The second was the Industrial Revolution 2.0 with early factory electrification and the production line (from the late 19th century to the first half of the 20th century). The third was the Industrial Revolution 3.0, or Digital Revolution, characterized by the spread of automation and digitization through the use of electronics and computers, the invention of the Internet (taking place from about the 1960s to the first decade of the 21st century). Currently, we are in the first stage of Industry 4.0. Its feature is to integrate all the achievements of the previous 3 revolutions but raise it to a new level of qualitative development, associated with artificial intelligence, intelligent robots that can autonomously learn, the Internet of Things, cloud computing, and big data processing.

The four main features of the Fourth Industrial Revolution can be generalized as follows. The first is to combine new sensor technology, big data analytics, cloud computing, and the internet of things to promote the development of automated machinery and Intelligent Manufacturing Systems (IMS). The second is to use 3D printing to manufacture products completely thanks to the unification of production lines and not through the assembly of auxiliary equipment. This technology also allows users to print new products using modern methods, eliminate intermediaries, and reduce production costs as much as possible. The third is nanotechnology and new materials, creating new material structures widely applied in most sectors. The last is artificial intelligence and control, allowing people to control remotely, not be limited in space and time, and interact faster and more accurately.

Unlike previous revolutions, Industry 4.0 has a massive difference in speed, scope, and impact. It has grown and spread much faster than previous revolutions. The range of Industry 4.0 is comprehensive and covers all fields. It is forecasted to change the entire production, management, and administration system worldwide, strongly impacting life, economy, politics, society, government, businesses, organizations, individuals, etc. Therefore, to maintain a competitive advantage and catch up with advanced countries, many nations, including Vietnam, are focusing on developing and applying the technological achievements of Industry 4.0. Whether Vietnam makes good use of opportunities and overcomes challenges in the Fourth Industrial Revolution depends on many factors, especially the outstanding workforce. In this process, the staffing needs to have enough knowledge and high-level skills to master modern technology and meet the transformation of application of Industry 4.0 technologies.

Before the rapid development and impact of Industry 4.0, Vietnam's human resources have advantages and challenges.

In terms of opportunities, Industry 4.0 brings many benefits to employees by increasing labor productivity, leading to increased income. Many new products and services have been launched, improving the quality of life. In particular, opening the labor market will create many new jobs.

Besides opportunities, Vietnam also faces many new difficulties in human resource development:

Firstly, Industry 4.0 has drastically changed the labor structure and the labor market. The traditional occupations using many labors gradually disappear and be replaced by new ones. Industry 4.0 has produced automation systems and intelligent robots. These systems will replace manual labor. Thus, there will be a shift from labor-intensive production to knowledge- and technology-intensive production. According to the United Nations, about 75% of the world's workers will lose their jobs in the next few decades. Another study by the International Labor Organization (ILO) said that about 56% of workers in five Southeast Asian countries were at risk of losing their jobs because of the appearance of robots²⁰⁶. Vietnam is one of the countries most affected by Industry 4.0. Vietnam's labor force is relatively abundant but mainly low-skilled workers, so they are easily replaced by machines. In the future, modern machines will gradually replace the simple and repetitive tasks they are in charge of.

According to the forecast of the Ministry of Science and Technology, some professions in Vietnam will disappear in the future, which puts significant pressure on the labor market.²⁰⁷ According to the International Labor Organization, up to 86% of Vietnamese workers in the textile and footwear industries will be at risk of losing their jobs in the next 15 years. For the traditional agricultural sector in Vietnam, manual labor and highly repetitive jobs are likely to be replaced by automated machines and equipment. Some high-risk occupations are farming, breeding, horticulture, fishing, and aquaculture. However, Industry 4.0 will create many new industries and jobs that robots cannot fulfill, so it requires workers to have high skills and qualifications to meet the needs of society.

Secondly, many economic researchers argued that this revolution could bring about greater inequality, particularly the potential to disrupt the labor market. The labor market could be strongly differentiated. Besides, cheap labor will no longer be a competitive advantage for many countries globally. Moreover, many traditional occupations will be lost, and the international labor market will sharply distinguish between low-skilled and high-skilled groups. In addition, artificial intelligence (intelligent robots) reduces the need for a low-skilled workforce. In particular, Industry 4.0 also affects middle-skilled workers if they are not equipped with new skills, namely creative skills. With the rapid development of technology, the demand for highly qualified and skilled labor will be higher and higher in the future.

Thirdly, under the impacts of Industry 4.0, the requirement for high-quality human resources is increasingly urgent. In fact, Vietnam's economy still relies on industries that use cheap labor and exploit natural resources, and workers' qualifications are still weak. Industry 4.0 is significantly changing the production and business methods of enterprises globally. The number of jobs requiring exceptional labor is lifting. Therefore, if workers

²⁰⁶ <http://tapchitaichinh.vn/nghien-cuu-trao-doi/nhieu-thu-thach-cho-nguoi-lao-dong-thoi-40-140389.html>.

²⁰⁷ <https://www.most.gov.vn/vn/tin-tuc/14092/nguon-nhan-luc-chat-luong-cao--san-sang-truoc-cach-mang-cong-nghiep-4-0.aspx>.

have enough knowledge and skills (including hard skills in digital, technology, programming, human-robot interaction, and soft skills such as thinking ability, personal skills, social skills, etc.), they can meet the job requirements. Besides, the process of international integration will form and promote the vigorous development of regional and global labor markets. First-rate personnel must meet not only domestic requirements and standards but also those of foreign markets. It is one of the biggest challenges when Vietnam enters Industry 4.0. Therefore, it is indispensable to actively train human resources and implement vocational education to match market demand.

Besides the requirement for high-quality human capital, there is fierce competition for human resources. Firstly, competition will appear in some areas where technology is being widely applied, creating pressure to recruit and develop employees. In Vietnam, workers in artificial intelligence, the Internet of things, self-driving cars, robotics, etc., are being actively sought and paid handsomely. The most important thing is that wage expenses for this group can increase by 50 to 100% per year in a few years. An abundant human resource is no longer a competitive advantage. Thanks to technology, it's easy for companies to coordinate and execute tasks previously only done by large companies and focus on applying technology to new business models to create a distinct competitive ability.

To take advantage of opportunities and overcome challenges from the Fourth Industrial Revolution, Vietnam shall solve the problem of exploiting the workforce, especially in building and developing high-quality staff.

3.2. The current situation of human resources in Vietnam

In the face of the trend of international integration, globalization, and the impact of Industry 4.0, the requirement for a proficient labor force has become urgent for all countries. Due to being aware of the critical role of human resources, especially high-quality workers, the Party set forth a policy to implement the strategy on human resource development at the 11th National Congress of the Communist Party of Vietnam. In recent years, training and cultivating human capital to meet the development requirements of the country as well as the development trend of the world have been paid more attention by the Party and State. The Prime Minister issued a Directive on strengthening capacity to approach Industry 4.0 in 2017. Up to now, Vietnam has published many documents related to this topic. Training activities are changing to meet the labor needs of Industry 4.0 by developing training programs under output standards with knowledge, skills, and technology standards of Industry 4.0. As a result, Vietnam's human resources have positive changes, making a significant contribution to socio-economic development. The size of the workforce continues to grow. According to the report on labor and employment in 2020 of the General Statistics Office of Vietnam, the labor force aged from 15 was estimated at 54.84 million people, accounting for about 56% of the total population.²⁰⁸ This source of labor is relatively abundant. They are intelligent, hardworking, adapt quickly to modern technology, and are an important resource in the period of accelerating industrialization, modernization, and

²⁰⁸ https://www.gso.gov.vn/wp-content/uploads/2021/08/sach_laodong_2020.pdf.

integration. This factor is one of the favorable conditions for Vietnam in the Fourth Industrial Revolution. The education and professional and political qualifications of workers are increasingly improved. The number of workers with knowledge and mastery of advanced science and technology has increased. In industrial parks, enterprises in the non-state sector, and foreign investment capital, employees are exposed to advanced machinery and equipment and work with foreign experts. Therefore, they can improve their qualification and skills and be trained in the working style and advanced methods. The young workforce with education and culture trained under professional standards from the beginning stage in the modern production process will be the central workforce and positively impact industrial production and the value of industrial products, helping to increase the competitiveness of the economy in the future. High-quality human resources have also increased significantly. The most important thing is that some industries such as healthcare, mechanical engineering, technology, and construction have reached regional and international levels.

In addition to the advantages, there are many limitations in terms of human resources. Although Vietnam is in the period known as the golden population structure, we still lack employees, especially excellent ones. Besides, this workforce is limited in quality and has structural inadequacies. The report of the World Economic Forum in 2018 assessed that Vietnam's human resources were not ready for the 4IR and ranked 70 out of 100 countries. Due to low skills and the nature of labor, they are vulnerable to technological breakthroughs, lose their jobs, and are replaced by automation, robots, and artificial intelligence. We also ranked 90 out of 100 countries regarding technology and innovation. Highly qualified staff is also in the last group, ranking 81 out of 100 countries (view table). In particular, labor productivity was very low, equal to 7% of Singapore's labor productivity.²⁰⁹ According to the Ministry of Planning and Investment, with the current rate, it will not be until 2038 that our labor productivity can catch up with the Philippines' labor productivity. We will catch up with Thailand in 2069. Therefore, if we do not focus on improving the quality of workers and making training plans, we will have a severe shortage of labor if big projects are invested in Vietnam.

Table 1. Ranking of factors “Dynamics of production” of Vietnam and Asean countries

	Singapore	Malaysia	Thailand	Philippines	Vietnam	Indonesia	Cambodia
Technology and bright	6	23	41	59	90	61	83
Human resources	2	21	53	66	70	55	86
Highly skilled labor	1	45	78	50	81	83	87

Source: WEF Readiness for Future of Production Report 2018

²⁰⁹ <https://vietnamnet.vn/loi-giai-bai-toan-nguon-nhan-luc-nhan-taitrong-thoi-dai-40-713560.html>.

Human resource training in general and vocational training, in particular, has changed markedly in recent years, but it has not achieved outcomes and has not met the requirements of the economy. The number of trained and qualified workers from vocational training courses accounts for only about 24% of labor.²¹⁰ It is a low rate, adversely affecting the acquisition of science and technology, labor productivity, and product quality. Moreover, this 24% of the trained workforce has many weaknesses. Vocational training quality ranks 80 out of 100 countries, just above Cambodia (ranking 92 out of 100 countries.)



Source: WEF Readiness for Future of Production Report 2018

In the future, when we implement new-generation FTAs, and barriers in terms of economic space, goods, services, capital, science, technology, and the labor market will be removed, competition between countries will become more intense. Currently, ASEAN has an Agreement on the Movement of Natural Persons and Mutual Recognition Agreement on official practice certificates for eight professions, including audit, architect, engineer, dentist, doctor, nurse, investigator, and tour guide. The mutual recognition of vocational skills will be one of the vital conditions in implementing labor mobility between Vietnam and other countries in the region. It will also be a challenge for Vietnam because the number of our skilled workers is still limited. We have to accept the source of labor that migrates from other countries with higher qualifications. If the capabilities of our workers are not improved to meet the requirements, we will lose at home.

With the current situation of human capital, it is difficult to take advantage of the opportunities opening to our country. If the problem of improving the quality of staff cannot

²¹⁰ General Statistics Office of Vietnam (2021), *The report on labor and employment 2020*, Statistical Publishing House, p.12,15.

be solved in the future, Vietnam will be at the risk of a crisis in the quality of human resources. The result is a decrease in the economy's competitiveness, difficulty in escaping from the middle-income level, and loss of opportunities to participate in the international labor market.

3.3. Some solutions to improve the quality of human resources

The Resolution of the 5th plenum of the 12th Party Central Committee emphasized: "It is necessary to develop human resources, especially first-rate ones, to take advantage of the opportunities and achievements of the Fourth Industrial Revolution."²¹¹ It is crucial to have an overall and long-term strategy with a system of synchronous, practical, and feasible solutions. Thus, we can focus on researching and implementing the following primary duties.

Firstly, it is significant to focus on building and perfecting the overall strategy, the system of mechanisms, and policies for developing high-quality human resources. The system of mechanisms and policies has a principal role because it directly or indirectly creates a driving force to promote or hinder the growth of the economy and society in general and excellent staff in particular. Our country has had many new mechanisms and policies leaving a positive impact on the development of high-quality human resources. However, there were many limitations in the implementation process, and the achieved results were not commensurate. Therefore, to develop an excellent workforce, adjusting, supplementing, and perfecting the system of mechanisms and policies are essential, creating a legal framework and facilitating the development of high-quality workers in Industry 4.0.

Renovating and improving mechanisms and policies to motivate the development of a superior labor force must be carried out synchronously in many aspects, such as education and training, science and technology, working environment, employment policy, income, social security, insurance, social protection, health care, labor market policies, housing, living conditions, and settlement, etc. The State shall continue to renovate institutions and perfect the legal framework from central to local levels to create a favorable environment for human resource development. In addition, the development of high-quality labor markets and scientific and technological products should be encouraged toward integration. Building a legal environment for developing new business lines in Vietnam that are starting to emerge after Industry 4.0 is also an urgent task.

Secondly, it is necessary to focus on and improve the quality of short-, medium- and long-term forecasting of human resource demand, employment demand, and training demand in industries and professions affected by Industry 4.0. This content needs to be paid more attention to because the Fourth Industrial Revolution will significantly impact the economy's structure. The possibility of decline, even loss of many professions, as well as the emergence of new ones in the future, is possible, which will lead to considerable changes in the employment structure. We still lack the specific observations and assessments of each industry and their difference in the context of Industry 4.0. Therefore, it is necessary to

²¹¹<https://tulieuvankien.dangcongsan.vn/van-kien-tu-lieu-ve-dang/hoi-nghi-bch-trung-uong/khoa-xii/nghi-quyet-so-11-nqtw-ngay-362017-hoi-nghi-lan-thu-nam-ban-chap-hanh-trung-uong-dang-khoa-xii-ve-hoan-thien-the-che-kinh-561>.

forecast human resources associated with vocational training and education. In fact, in vocational education and training at colleges and universities, because there is no forecast of labor demand, as well as vocational training plans, schools often train based on their inherent capabilities and haven't linked to the actual needs of society and the market.

Thirdly, innovating and advancing the quality of education and training need to be associated with the mechanism of recruiting, using, and offering compensation to talent. It is necessary to transform the educational process from equipping knowledge to comprehensively developing learners' capabilities and qualities, from learning in the classroom to diverse forms of learning, such as online teaching and learning, social activities, extracurricular activities, and scientific research. It is required to train people to help them have ethics, discipline, awareness, social responsibility, life skills, job skills, foreign languages, creative thinking, and be familiar with information technology, digital technology, and international integration. The synchronous renovation of educational and training goals, contents, programs, and methods toward modernity, global integration, and comprehensive human development also plays an important role. Next, we shall develop high-quality technical and vocational education and training institutes, associate education and training with scientific and technological research, and form research centers and innovation groups. At the same time, improving the quality of education and training must be linked with the mechanism of recruiting, using, and giving compensation to talent. However, if there is a high-quality human resource, but there is no good recruitment, use plans, and compensation, we are not able to attract this force, leading to a "brain drain." Meanwhile, the talented are increasingly scarce because they must overcome a process of arduous learning and long training. Therefore, giving specific, practical recruitment plans and policies and creating a favorable environment to attract them are indispensable duties.

Lastly, it is compulsory to associate human resource development with promoting research, transfer, application, and development of science, technology, and innovation. To develop a workforce, especially a high-quality one, we need to link training tasks to scientific research, production, business, and the needs of the labor market. This requires us to "continue to implement the policy that is "science and technology are the top national policy and the key driving force for the development of a modern labor force, have a strategy for science and technology development in line with the general trend of the world and the country's conditions, and focus on synchronous development of natural sciences, technical and technological sciences, social sciences and humanities, and political theory."²¹² At the same time, connecting human resources development with the promotion of research, transfer, application, and development of science, technology, and innovation plays a vital part. It's significant to "strengthen the capacity of the national innovation system, restructure scientific and technological research programs towards business-centered, and consider serving the cause of national construction and defense the goal."²¹³ Moreover, domestic and foreign

²¹² The Communist Party of Vietnam (2021), *Documents of the 13th National Congress*, Volume I, Truth National Political Publishing House, p. 140.

²¹³ The Communist Party of Vietnam (2021), *Documents of the 13th National Congress*, Volume I, Truth National Political Publishing House, p. 141.

investors should be encouraged to establish prime universities and research institutes to meet development needs and promote human resources, especially an excellent workforce.

4. Discussion and Conclusion

In summary, when Vietnam is entering the Fourth Industrial Revolution with low socioeconomic status, the requirement to improve the quality of human capital is decisive for the success of the innovation career. The Vietnamese Party has determined that improving personnel quality must be the primary factor for rapid and sustainable development. Therefore, human resources shall be concerned and create favorable conditions for capacity improvement. It can be stated that high-quality human capital, rich in will and aspiration, with revolutionary ideals, in a reasonable quantity and structure, will be the driving force to turn our country into an industrialized one towards modernization and meet the requirements of Industry 4.0.

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WHAT SKILLS ARE ESSENTIAL FOR STUDENTS IN HOTEL MANAGEMENT: THE REALITY AND REQUIREMENTS FOR TRAINING AT EDUCATION INSTITUTIONS

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Abstract

The study identifies essential skill groups for Hotel Management students, including reasoning, analyzing and problem solving skills; knowledge discovery and research skills; system thinking skills; teamwork and communication skills; and occupational skills. The study surveys 161 people including: (i) officials and managers working in hotels; (ii) experts, scientists, lecturers and (iii) Hotel Management alumni. Observed variables have been tested in reliability using Cronbach's Alpha; analyzed for the differences among group means in the sample using one-way analysis of variance (ANOVA). The research results show that Skills of teamwork and communication and Occupational skills are highly appreciated in terms of necessity with average values of 4.6460/5.0 and 4.6071/5.0 respectively. Those results could be used to measure the world of work's demands for employees and to lay the groundwork for adjustments in training curriculum to meet society's needs.

Keywords: *skills, hotel management, higher education*

1. Introduction

Hotel activities are quite career-specific. For the hotel industry, workers' skills are identified as one of the most important factors determining the existence and development of a hotel. For Hotel Management students, skills taught in school are an important foundation in forming their ability to satisfy job requirements. Identifying the necessary skills that these students must possess through researching the needs of businesses, visions of training institutions and students' self-reflection provides the general desired skills output of Hotel Management training program.

In the world as well as in Vietnam, many studies have identified a set of skills expected from Hotel Management students, focusing on: communication skills, reasoning and problem solving skills, occupational skills, creative thinking skills. However, the necessity level or the required level of students for each skill has not yet been fully researched. This study used the Bloom scale to set the desired level of each skill group for Hotel Management students. Institutions could consider these findings while building their own competency scale, and from there make adjustments to their training programs.

2. Literature Review

Skills are an individual's ability or specialized ability in a certain field or aspect to meet the needs of life and work. Skills are expressed through an individual's actions in that individual's own environment. They are formed spontaneously or voluntarily, depending on the circumstances in which the skill is exercised. For the hospitality industry, employees' skills show their professionalism and act as part of the business's image to their customers. Research on essential skills in tourism and hospitality education has been done since the 1970s. James Buergermeister (1983) confirmed that students' skills and attitudes will affect the development of each business.

In Portugal, Daniela Wilks and Kevin Hemsworth (2011) analyzed and compared the needs of hotels to training institutions' ability to satisfy those needs regarding Hotel Management students. This study shows that most institutions paid very little attention to developing skills for students. Consequently, students' soft skills level did not meet the requirements of businesses. Kong Hai-yan and Tom Baum (2006) determined that, for hotel receptionists, communication skills and the ability to withstand work pressure are necessary, and proposed that these skills to be included in Chinese educational institutions' program. Ardel A. Nelson and Lea Dopson (2001) concluded that staff's knowledge and skills have been the vital factor of the hotel system in the United States since 2000. They believed that the success of institutions could be measured by the quality of its graduates and the ability to retain them of hospitality businesses. A good education system is to meet enterprises' requirements of employees' skills and attitudes.

Sousa et al (2019) analyzed leadership skills in hotel management in the context of The Fourth Industrial Revolution: adaptive ability, creative thinking skill, analytical ability, reasoning and problem-solving skill. Maria José Sousa (2019) argued that adaptive skills are a must for Hotel Management students in the context of Industry 4.0. The change of science and technology entails a change in the needs of guests, booking systems, and services in hotels. The global socio-economic scene requires hotel workers to adapt quickly. Maria José Sousa also said that skills of creative thinking, analyzing, and assessing problems are also essential for Hotel Management students. Specifically, Wang (2009) identified skills that are essential to students of Hotel Management in the context of Industry 4.0, grouped into: skills to use online platforms for hotel activities, communication skills, teamwork skills, skills to assess, analyze and solve problems. The research has also confirmed that using web platforms in hotel operations and management will enhance cooperation, improve knowledge and occupational skills, as well as other personal skills.

For the hospitality industry, employees working in the organization are not only trained workers at higher education institutions, but also workers with college and intermediate degrees due to the service industry's nature. However, Burns (1997) pointed out that hotels still need to have "unskilled labor" possessing basic requirements such as communication skills, appearance and foreign language skills and a positive working attitude. Employees' attitude, behavior, especially "the power of a smile" show their professionalism and conscientiousness. Therefore, training activities need to emphasize that

the professionalism of hotel staff is reflected from the way they communicate and behave. Samuel Adeyinka-Ojo (2018) pointed out employees' skills that were still lacking in hotels and tourism activities. The author said that human resources in hotels lack 14 basic skills and proposed a general skill framework for workers in the hotel industry. In addition to assessing the skills that are lacking in hotel workers, many studies have focused on finding skills differences between Hotel Management students and students of other majors working in the hospitality industry. The research results showed that formally trained employees have better skills in general (namely communication skills, teamwork skills, case analysis skills, information searching skills, critical thinking skills (Alhelalat, 2015)). Daniel Wood (2003) concluded that it is more effective to train and develop occupational skills in specialized education institutions than at hotel enterprises.

On the basis of analyzing the lacking skills of Hotel Management students and the needs of enterprises, comparing the need of different skills in specific hotel working environment, this research will identify skills that should be focused on in the training program of higher education institutions in Vietnam.

3. Method

3.1. Recommended measurement scale

From different researchs on learners' skills in higher education, the authors have synthesized and proposed skills to be surveyed. The proposed skill groups are shown in Table 1 below.

Table 1. Measurement variables used in the study

VARIABLES	Variables Name
<i>Skills of reasoning, analyzing and problem solving</i>	
Analyze and accurately evaluate the actual performance of each hotel department	SKILL1
Correctly detect problems in hotel management activities and propose solutions to those problem	SKILL2
<i>Skills of researching and discovering knowledge</i>	
Analyze information and data about hotel activities	SKILL3
Correctly apply scientific research methods to explain problems in hotel management activities	SKILL4
<i>Skills of system thinking</i>	
Analyze the hotel's objectives, strategies and operating policies	SKILL5
Analyze the relationship between hotel departments and between provided services in a hotel	SKILL6
Analyze the relationship between hotel resources	SKILL7
Determine the order of priorities in hotel management to ensure the goals of stakeholders	SKILL8

VARIABLES	Variables Name
<i>Skills of teamwork and communication</i>	
Build and manage an effective working group	SKILL9
Execute the assigned tasks properly	SKILL10
Smoothly share and coordinate work with team members	SKILL11
Demonstrate skills of effective listening, speaking and text composing	SKILL12
Demonstrate skills of presentation, negotiation, responding to complaints	SKILL13
Use English fluently and have basic use of another foreign language to handle work in hotel management activities	SKILL14
<i>Occupational skills</i>	
Demonstrate skills to complete basic hotel tasks	SKILL15
Demonstrate customer service skills	SKILL16
Use office software, hotel management software, applications and online tools in hotel administration	SKILL17
Demonstrate skills in planning, organizing, directing, coordinating and managing hotel activities	SKILL18

Source: Author's suggestions

3.2. Sample and survey method

This research was based on a survey research design method. It involved a self-designed questionnaire in collecting data, structured with a section about the professional context of the respondents and a set of questions about skills, focusing on assessing the important level of each skill. With respect to provided statements, a Likert scale from 1 (*Very unnecessary*) to 5 (*Very necessary*) was created, to allow respondents to indicate the level of importance of these competencies in their opinion. The study surveyed 161 people: (i) officials and managers working in hotels; (ii) experts, scientists, lecturers and (iii) Hotel Management alumni and the details are presented in Table 2.

Table 2. Descriptive statistics of survey sample

Sample characteristics	Number	Ratio (%)
Sex		
Male	81	50.3
Female	80	49.7
Age		
Under 30	84	52.2
From 30 to 60	69	42.8
Over 60	8	5.0
Academic level		

Sample characteristics	Number	Ratio (%)
Postgraduate	60	37.3
Undergraduate	97	60.2
Others	4	2.5
Respondents		
Officials and managers working in hotels	64	39.8
Experts, scientists, lecturers	35	21.7
Hotel Management alumni	62	38.5
Seniority in the field of hotel		
Under 5 years	85	52.8
From 5 to 10 years	30	18.6
Over 10 years	46	28.6
TOTAL	161	100

Source: Author's own elaboration

3.3. Data analysis method

Data from 161 questionnaires were imported then analyzed using SPSS (version 25). The implementation of descriptive statistics using SPSS software provided basic information about the survey sample (as described above in Table 1). Observed variables were tested in reliability using Cronbach's Alpha. In each scale, the Corrected Item - Total Correlation was tested to find the correlation between an observed variable with all other variables in the scale. After examining the reliability of the scale, descriptive statistics analyzed the assessments of respondents about the necessity of each Hotel Management students' skill. One-way analysis of variance (ANOVA) was used to see if there were differences in the assessment of each target group.

4. Data analysis

4.1. Reliability Analysis

The reliability analysis allows to analyze the internal consistency and Cronbach's Alpha is the best test to measure data reliability. Test results showed that Cronbach's Alpha values are all greater than 0.6. The highest Cronbach's Alpha coefficient is 0.835 for Skills of reasoning, analyzing and problem solving (2 observed variables). The lowest Cronbach's Alpha coefficient is 0.757 for Skills of researching and discovering knowledge. In addition, the relationship coefficients between observed variables and the total variable in each scale are all greater than 0.3. Thus, it could be concluded that the built scale system of five scales ensured a very good internal consistency with 18 observed variables. The research then could proceed with further analysis.

Table 3. Reliability Statistics

Variables	Cronbach's Alpha	Number of variables
Skills of reasoning, analyzing and problem solving	0.835	2
Skills of researching and discovering knowledge	0.757	2
Skills of system thinking	0.820	4
Skills of teamwork and communication	0.828	6
Occupational skills	0.813	4
TOTAL		18

Source: Author's own elaboration

4.2. Assessments on the need for each skill for Hotel Management students

To analyze the need of each skill groups, the authors performed descriptive statistics using the collected data to calculate the average value and determine the standard deviation of all five proposed scales (details in Table 4). Regarding the volatility, dispersion of the data, the deviation from the average value of all five variables are low (ranging from 0.3903 to 0.6710), showing that the mean is representative in statistics. Respondents considered initially proposed skills are all essential for Hotel Management students. Skills of teamwork and communication are arguably the most essential with an average score of 4.6460, followed by Occupational skills with an average value of 4.6071. Skills of system thinking and Skills of reasoning, analyzing and problem solving have average values of 4.4596 and 4.4720 respectively. Skills of researching and discovering knowledge have the lowest average value of 4.3292.

The results reflected the professional characteristics of working positions of Hotel Management students. Skills of teamwork and communication as well as Occupational skills are highly appreciated due to the nature of their working environment which consists of regular contact with guests. Employees meet a wide range of customers everyday thus are required to be able to adapt to all requirements in the most effective way. The Likert scale first is used to determine the desired level of each skill, then the Bloom scale is used to determine the required outcome after training at higher education institutions.

The difference in the necessity of skill groups is not significant. With 161 samples surveyed, Skills of teamwork and communication and Occupational skills have the highest average value (around 4.6), Skills of reasoning, analyzing and problem solving and Skills of system thinking have an average value of around 4.4; Skills of researching and discovering knowledge averages at 4.3. The value of standard deviation ranges from 0.3 to 0.6 which is still within the acceptable range. This showed that the necessary skill groups of Hotel Management students are quite comprehensive, requiring flexibility in thinking, career skills and the ability to adapt to changes in the context of the hotel industry.

Table 4. Mean and Standard Deviation Measures

Variables	Observations	Min value	Max value	Mean	St Dev
Skills of reasoning, analyzing and problem solving	161	2.00	5.00	4.4720	0.5949
Skills of researching and discovering knowledge	161	1.50	5.00	4.3292	0.6710
Skills of system thinking	161	2.75	5.00	4.4596	0.5324
Skills of teamwork and communication	161	3.33	5.00	4.6460	0.3903
Occupational skills	161	2.50	5.00	4.6071	0.4683

Source: Author's own elaboration, 2020

4.3. Analysis of the differences between groups of respondents

One-way ANOVA test was used to determine if there were differences of opinion between groups of respondents. The results are presented in Table 5. ANOVA (at 95% confidence interval) has shown that there is no statistically significant difference between surveyed groups. The assessment of the necessity of skill groups has a high uniformity of Officials and managers working in hotels, Experts, scientists, lecturers and Hotel Management alumni.

For Skills of reasoning, analyzing and problem solving, Officials and managers rated the importance of these skills at 4.5078, while Experts, scientists, lecturers and Alumni gave them the score of 4.4143 and 4.4677 respectively. There was not much difference but it showed how much businesses expect students to be well equipped in analyzing and solving problems. For Skills of researching and discovering knowledge, the level of desire and determination of the need does not differ, but there is a small difference between evaluation groups (0.1). For Skills of system thinking and Skills of teamwork and communication, there is almost no difference. Enterprises and experts and scientists shared the same view regarding Occupational skills while alumni responded with higher levels of desire and necessity (0.1).

Generally, the necessary level of skill groups for Hotel Management students are agreed between related parties: employers, training institutions and learners.

Table 5. Mean for the need of each skill of Hotel Management students divided by respondent groups

Variables	Mean	F value	Sig.
Skills of reasoning, analyzing and problem solving		0.280	0.756
Officials and managers working in hotels	4.5078		
Experts, scientists, lecturers	4.4143		
Hotel Management alumni	4.4677		

Variables	Mean	F value	Sig.
Skills of researching and discovering knowledge		0.259	0.772
Officials and managers working in hotels	4.3672		
Experts, scientists, lecturers	4.3429		
Hotel Management alumni	4.2823		
Skills of system thinking		0.153	0.859
Officials and managers working in hotels	4.4883		
Experts, scientists, lecturers	4.4429		
Hotel Management alumni	4.4395		
Skills of teamwork and communication		0.110	0.896
Officials and managers working in hotels	4.6328		
Experts, scientists, lecturers	4.6714		
Hotel Management alumni	4.6452		
Occupational skills		0.587	0.557
Officials and managers working in hotels	4.5703		
Experts, scientists, lecturers	4.5857		
Hotel Management alumni	4.6573		

Source: Author's own elaboration

5. Discussion and Conclusion

The need for each skill group of Hotel Management students has been confirmed through specific parameters based on assessments of related parties: Representatives of businesses, Researchers, and Alumni. All mentioned skills play important roles in building employees' ability to satisfy their job responsibilities.

On the basis of those research results, the authors propose some suggestions to institutions in developing their Hotel Management programs: i) With regard to characteristics of the hospitality industry, students need time to practice and actively participate in hotel activities while studying. Therefore, training programs need to *increase students' practice time*. Hotel Management programs should comply with Ministry of Education and Training's guidelines in setting a minimum practice time of 50% of total student learning time. Practical activities could be executed at institutions if their facilities for practice are similar to those of hotels; or operated in accommodation establishments as part of the cooperation between training institutions and enterprises. This helps students get exposed to the professional environment, practice occupational skills, communicate, work in groups and adapt to the ever changing business world. ii) Training programs should *clearly define the outcome standards for each skill*, the desired level of achievement of students based on the assessments of businesses. Prioritize specific skill groups students are expected to be proficient at: for Hotel Management students, the most important one is Skills of teamwork and communication, the second in line is Occupational skills. Additionally, the

skills to adapt to change and manage risk are also required in the hospitality industry. iii) Encourage students to participate in *scientific research*, form start-up ideas, focus on training skills related to digital technology (applied informatics, specialized informatics); social activities, soft skills clubs.

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FACTORS AFFECTING JOB SATISFACTION OF TEACHERS OF HANOI COLLEGE OF INDUSTRIAL ECONOMICS

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Abstract

The job satisfaction of lecturers is an important factor to contribute to improve the effectiveness of the education system. The number of research on job satisfaction in colleges is very limited in developing countries which include Vietnam. This article aims to identify several factors and their influences on job satisfaction of college lecturers. The study conducted a survey of 125 lecturers at Hanoi College of Industrial Economics. The results show that the satisfaction of lecturers is influenced by personal factors, co-worker relationships, working conditions and managers' attention.

Keywords: *Job satisfaction, influencing factors, lecturers.*

1. Introduction

Job satisfaction refers to an employee's emotional state which covers the complete range of emotions from positive to negative (Zhang, Yao, & Cheong, 2011). Thus, job satisfaction can also be defined as pleasantness or unpleasantness of employees during their work. Besides, job satisfaction can also be described as a positive feeling about a job or job experience (Tutuncu & Kozak, 2007). On the other hand, Fisher (2000) claimed that job satisfaction is a kind of attitude and attitudes generally contain two components which are affective components (feeling and emotional) and cognitive components (comparison, judgment and belief). Job satisfaction can be seen as the result of a chain reaction involving the motivation to satisfy a need. This chain combines several factors or motivators which will influence or induce an individual to perform (Marzuki, Permadi, & Sunaryo, 2012).

An important factor that determines the success of the college and university education system is the quality of lecturers who teach and research. Job satisfaction of lecturers is an important factor in improving the quality of researching and teaching as well as the quality of the education system. According to the theory of management science, employees' job satisfaction is based on the expectations of work results and these expectations depend on factors such as the nature of work, salary, benefits, promotion opportunities, management strategy (Duong Minh Quang, 2018). If employees perceive these factors as positive, employees have a tendency to do better work results. In addition, job satisfaction directly affects the productivity, attitude and working spirit of lecturers. When lecturers are satisfied with their work, they will be more engaged and devoted to their work (Spector, 1997).

The job satisfaction amongst the lectures is determined by the presence of job pleasure and absence of job dissatisfaction. Job dissatisfaction and job pleasure are regarded

to be important constituents of job satisfaction. The behavior of a lecturer is influenced by attitude and values. A lecturer, who is pleased and cheerful at the workplace, is always satisfied with work and this improves the quality of work. Job satisfaction benefits the organization in numerous ways. It results in the decline in complaints and grievances, absenteeism, turnover, and termination; it improves punctuality and employee morale. It is also a good sign of longevity; the individuals who are satisfied with their jobs, remain within the workplace for a long period of time (Grover, & Wahee, 2013).

This article aims to evaluate the factors to the job satisfaction of lecturers at Hanoi College of Industrial Economics.

2. Method

The study used survey questionnaires to collect data from 130 lecturers of Hanoi College of Industrial Economics. From 130 survey questionnaires, 125 valid answers were collected (accounting for 96.2%). This result shows that the percentage of questionnaires collected is acceptable to analyze the number of valid votes collected after being distributed from 30% to satisfy the condition (Malaney, 2002).

In this study, the results of factor analysis, extracted variance and Cronbach's alpha coefficient were performed to assess the reliability of 8 factors on job satisfaction of lecturers. According to Hair, the selection criteria to satisfy the requirements include: factor analysis values ≥ 0.5 ; extracted variance $\geq 60\%$, and Cronbach's alpha coefficient (Cronbach's α) ≥ 0.6 (Hair, 2009).

3. Results

3.1. Research models

According to Hoppock (1935), job satisfaction is a combination of psychology, physiological circumstances and working environment, affecting employees during job performance. Spector (1997), job satisfaction is demonstrated as employees feel like the work they are doing and they understand all aspects of their work. Job satisfaction is generally considered to be an emotional state caused by the employee's evaluation and attitude in the process of performing work or the returns from the job (Cantele, 2018).

Henry et al. (2013) investigated the relationship and impact of internal and external job satisfaction on the intention to quit their job as lecturers in three universities in Tanzania. Internal job satisfaction is measured by 12 variables including ability utilization, achievement, activities, authority, creativity, independence, moral values, responsibility, security, social services, social status and diversity. External job satisfaction is measured by 6 variables including: advancement, policies, compensation, recognition, supervision - human relations and supervision - technical. The results indicated that internal satisfaction is a determinant affecting the decision to quit the teaching. Mussie (2012) conducted a study to examine job satisfaction of university lecturers' and pointed out 5 factors affecting job satisfaction: salary and fringe benefits, supervisors, relationship with colleagues, working environment and job characteristics. In Particular, the working environment has the highest impact.

Facilities may greatly affect job satisfaction of lecturers in universities as good facilities allow lecturers to develop their capacity, creativity at work as well as avoiding occupational diseases, ensuring physical and mental health in the long term. Facilities examined by Smith (2007), Spector (1997), Locke (1969) include lecture halls, classrooms, libraries, laboratories, office, teaching and learning equipment; health care and insurance, fire system.

Work relationship is the relationship between the worker and his or her superiors, subordinates and peers. This includes both job related interactions and social interactions within the work environment. In order to build an effective working relationship, employees must be able to engage with others in a positive and productive way. Building the working relationship offers individuals a rich variety of tools and processes to prevent, manage and resolve work conflict and to build strong and lasting agreement (Barnes & Conti Associates, 2009). Having friendly and supportive colleagues lead to increased job satisfaction because working with a group serves as a source of support, comfort, advice and assistance to the individual worker. Individuals who perceive to have better interpersonal friendships with their co-workers and immediate supervisor lead higher levels of job satisfaction (Oshagbemi, 2001).

The criteria for measuring and assessing salary and fringe benefits are examined by Smith (2007), De Witte (2005), Spector (1997), Griffeth (2000), Henry et al. (2013), Sharma et al. (2009), Mussie (2012), Hughes (2006) including: policy regime, calculation method of salary, amount of salary received by employees, pay periods, pay rise policy, bonuses and other benefits that workers receive.

Development opportunities related to the working environment is a broad concept covering what is relevant and directly affecting the activities and capacity development of each lecturer. Lecturers who are given many development opportunities are more likely to commit to their universities. Therefore, it is an important factor affecting the development, quality and performance of a university. Research of Smith (2007), De Witte (2005), Locke (1969) Rounds et al. (1987), Henry et al. (2013), Mussie (2012).

In Vietnam, the topic of job satisfaction is also mentioned in researchers and conducted studies. Specifically, Tran Kim Dung (2005) uses the job description index (JDI) proposed by Smith et al. in 1969 to measure job satisfaction in Vietnamese conditions. The study points out factors affecting job satisfaction such as the nature of work, relationship with leaders, training and career path opportunities, relationships with colleagues, salary and benefits. In South Africa, George et al. (2012) also showed similar factors affecting the satisfaction of teachers such as working conditions, colleagues, salary and professional qualifications.

Based on the research objectives, the author proposes a research model that inherits the models of previous studies and adjusts the scales to suit the characteristics of the research location. Factors included in the research model: facilities, quality of lecturers, relationship with superiors, college reputation, career path opportunities, job stability, salary and bonus, organization culture.

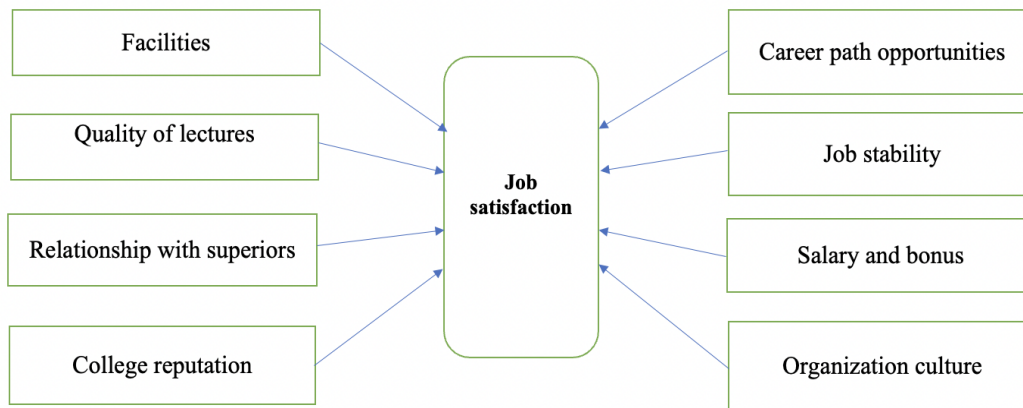


Figure 1. Job Satisfaction Model

Source: Compiled from the author's research

3.2. Research results

3.2.1. Level of job satisfaction of lecturers at Hanoi College of Industrial Economics

The results of descriptive statistics to answer the research question are shown in Table 1. This study used a 5-point Likert scale with 1 "strongly disagree" to 5 "strongly agree" respectively. Scale Likert 5 levels, we have a score of 3 as middle, if it's from 3 to 5 (3-5), it means that the respondents agree with the point of view of the given variable. Conversely, if the answer is from 1 to 3 (1-3), respondents disagree with the view of the variable.

Table 1. Results of factor analysis, mean and standard deviation on job satisfaction of lecturers

Factors	Mean	Standard deviation
1. Facilities	3.85	0.770
2. Quality of lectures	3.60	0.871
3. Relationship with superiors	3.75	0.870
4. College reputation	3.85	0.770
5. Career path opportunities	3.03	1.121
6. Job Stability	3.88	0.686
7. Salary and bonus	3.93	0.656
8. Organization culture	3.45	0.723

Source: Compiled from the author's research

As the table results, we can see that all variables have the mean value in the range 3-4, so the lecturers agree with the point of view of the given variable. This means that these factors all affect the job satisfaction of lecturers at Hanoi College of Industrial Economics.

3.2.2. Evaluation of the reliability of the scale and exploratory factor analysis (EFA)

After collecting the required number of answers, the author cleans up the survey with 125 answers included in the analysis, determining the reliability of the measures by using Cronbach's alpha.

Table 2. Evaluation of the reliability of the scale

Describe	Total variable correlation	Cronbach's alpha coefficient
1. Facilities	0.671	0.856
2. Quality of lectures	0.711	
3. Relationship with superiors	0.555	
4. College reputation	0.666	
5. Career path opportunities	0.677	
6. Job Stability	0.724	
7. Salary and bonus	0.645	
8. Organization culture	0.445	

Source: Compiled from the author's research

Table 2 shows that all observed variables have an appropriate correlation coefficient (≥ 0.3) and Cronbach's Alpha coefficient is $0.856 > 0.6$. Thus, the data meets the requirements of reliability.

** EFA Exploratory Factor Analysis*

The purpose of Exploratory Factor Analysis (EFA) is to test the convergence of the component variables on its concept by the convergence validity, and at the same time to measure the discriminant validity to help ensure differences and no correlation between factors used. In this process, observed variables that do not meet the load factor requirements (<0.5) will be removed. The analysis is used by SPSS software version 20 and here are results:

Table 3. KMO and Bartlett's Test Table

KMO and Bartlett's Test		
→	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.853
	Bartlett's Test of Sphericity	180.454
	Approx. Chi-Square	df
	Sig.	.000

Source: Compiled from the author's research

Table 4. Total Variance Explained Table

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.562	57.028	57.028	4.562	57.028	57.028	4.313	53.911	53.911
2	1.148	14.356	71.384	1.148	14.356	71.384	1.398	17.473	71.384
3	.778	9.729	81.113						
4	.524	6.549	87.661						
5	.364	4.550	92.211						
6	.291	3.633	95.844						
7	.181	2.257	98.101						
8	.152	1.899	100.000						

Extraction Method: Principal Component Analysis.

Source: Compiled from the author's research

- Load coefficients of all variables are bigger than 0.5 which meet the requirement
- KMO coefficient reaches 0.853 and it is bigger than 0.5, so EFA is appropriate for the data.
- Bartlett's Test has a Sig significance level of 0.000. So, the observed variables are correlated.
- Eigenvalues is 1.1480 bigger than 1 which represents the variation explained by each factor, the results of factor analysis are appropriate.
- The result also shows that the cumulative variance is 71.384% (>50%), which explains 71.384% of the variation of the data.

3.2.3. *Testing the influence of factors to job satisfaction of lecturers at Hanoi College of Industrial Economics*

The author uses multiple linear regression analysis on SPSS to evaluate the influence of factors to job satisfaction of lecturers.

Table 5. Normalized regression coefficients table

Describe	Normalized regression coefficient
1. Facilities	0.370
2. Quality of lectures	0.368
3. Relationship with superiors	0.352
4. College reputation	0.327
5. Career path opportunities	0.372
6. Job stability	0.328
7. Salary and bonus	0.395
8. Organization culture	0.302

Source: Compiled from the author's research

From Table 5, we can perform the normalized regression equation as follows:

$$\text{Job satisfaction} = 0.395 \times \text{salary and bonus} + 0.372 \times \text{career path opportunities} + 0.37 \times \text{facilities} + 0.368 \times \text{quality of lectures} + 0.352 \times \text{relationship with superiors} + 0.328 \times \text{job stability} + 0.327 \times \text{college reputation} + 0.302 \times \text{organization culture} + e$$

It can be seen that the salary and bonus factors have the greatest influence on job satisfaction of lecturers. The next factors are career path opportunities and facilities. The organization culture has the least influence on job satisfaction. Specifically, when the variable salary and bonus increase by 1 unit (in the condition that the remaining variables do not change), the variable of job satisfaction increases by 0.395 units. Similarly, we can perform changes of remaining variables via job satisfaction.

The result shows similarities with previous studies. From a relationship with superiors and organization culture perspective, Záborská's group study (2014) shows that the job satisfaction of lecturers is influenced by the respect of lecturer's opinions. According

to this group, this is an important factor for managers to encourage lecturers to have necessary information in order to provide the appropriate policies. Other studies show that salary and bonus are positive factors that increase job satisfaction. In addition, the limited number of facilities has a negative influence on job satisfaction (Jiang, 2011).

4. Discussion and Conclusion

The job satisfaction of lecturers plays a very important role in improving the quality of the college and university education systems. The result shows that most of the lecturers have a high level of job satisfaction. However, each factor has a different influence on job satisfaction. The biggest influencing factor is salary and bonus, followed by career path opportunities. To better understand the factors which influence job satisfaction is very crucial for all organizations. Through the understanding of the factors, organizations can be aware of the symptoms beforehand and take precaution to support and increase the job satisfaction level of employees. In order for an organization to sustain and grow its business, job satisfaction is the long-term solution for talent retention and increased performance and productivity.

Managers need to pay more attention to policies on salary and bonus, creating conditions for lecturers to succeed in their work. In addition, managers need to develop factors that have a positive influence and overcome negative effects on job satisfaction when managing colleges.

Job satisfaction will motivate lecturers to improve the effectiveness of teaching and scientific research activities. The study on factors affecting lecturer job satisfaction helps college to develop appropriate policies to retain and develop employees, making them more satisfied.

This research was only conducted within one college. In the next step, the author will expand the research to colleges and universities in Hanoi city.

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ONLINE DISCUSSIONS ON TRAFFIC SAFETY POLICY: APPROACHED BY THE MULTISTEP FLOW THEORY AND ACTOR-NETWORK THEORY

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Abstract

Traffic safety violations caused by alcohol use are causing serious consequences to the social life and environment in Vietnam. In 2020 alone, 6,700 people died in traffic accidents, with alcohol use being the leading reason. The Government has issued Decree No. 100/2019/ND-CP stipulating the increase of penalties for traffic safety violations related to alcohol concentration, which has attracted public participation in discussion on online newspapers and social media. Applying the multistep flow theory and actor-network theory, the study aims to describe the role and influence of the public in shaping public opinion, as well as identify their position and influence in the network and their ability to activate information steps on online newspapers and social media. Through content analysis and in-depth interviews, the results show that public groups have actively used the media in their own ways to express their opinions, attitudes, and behaviours that influence discussion flows on traffic safety policies, contributing to the dissemination of regulations, creating positive effects on people's awareness, as well as advising on the socio-economic policy development towards the sustainable development of Vietnam's social environment.

Keywords: *public participation, policy communication, traffic environment, online newspapers, social media.*

1. Introduction

Technological development has changed human behaviour and interaction, making them more actively involved in the online discussion environment to occupy a central position in shaping public opinion. Using online accounts, users can call on other members to participate in movements and campaigns, as well as contribute influential policy-making ideas. Millions of people around the world today are spending a large part of their life in an online world called a “second life” (Tom Boellstorff, 2008). Besides the real life, there exists a virtual world built by the public, with its own online identity and culture. In this world, netizens form their own communities and participate in expressing their opinions and discussing issues of common interest, including socio-economic ones, contributing to shaping public opinion in the common space. The online space provides an opportunity for

public groups within the network to voice their views on socio-political discourse, and to discuss and share information on issues of common interest. Studying human behaviours in cyberspace is associated with the concept of participation. From the perspective of political science and media journalism, “Public participation” has been emphasized as a process by which the community’s concerns, needs, interests, etc. is communicated, and the public contributes openly to the government’s decision-making, based on dialogue, two-way communication and interaction with the common aim of better policy-making” (Creighton, 2005; Bleiker, 1994; Susskind, 1999). In addition, “participation” is a “public” process, in which the public uses various forms of communication to access information, express opinions, and participate in interactive discussions about socio-economic policies, thus shaping public opinion in the common space. The sharing relationship and human behaviour in cyberspace when participating in discussions have an active and positive position and influence in the network of public opinion, which has recreated a virtual social environment that shares many similarities with the real world. Also, people’s participation in the media has made positive impacts on policy changes, contributing to building a more democratic and civilized social environment.

The public participation in policy discussion on the Regulation on penalties for traffic safety violations related to alcohol use in Decree 100 is one of such cases. Owing to the fact that many serious accidents had involved drivers violating the regulations on alcohol concentration in road traffic, which caused much public anger in April 2019, on June 14, 2019, the National Assembly passed the Law on Prevention and Control of Harmful Effects of Alcoholic Beverages, which notably prohibits acts of driving vehicles in road traffic with alcohol content in the blood or breath. At the end of that year, the Government continued to issue Decree No. 100/2019/ND-CP stipulating the administrative sanctioning of violations in road and railway traffic, particularly raising the penalties for acts that violate the alcohol content regulation to a much higher level than those of other traffic violations. When Decree 100 officially took effect on January 1, 2021, public discussions became livelier with mixed opinions. Apart from favourable responses of many organisations and individuals who strictly comply and contribute their opinions, there were also questions, doubts, and arguments against the implementation of the Regulation, some of which involve the alcohol concentration level, alcohol advertising on the internet, and group interests, at the same time created many discussions among people. Public groups initiate discussion topics in the media to promote the responsibility of each citizen, creating a positive effect in shaping people’s views and behaviours to contribute to the common interest of society. By listening to people’s opinions, policy-promulgating agencies have made adjustments to policies accordingly and offered more practical solutions. By March 2020, the public discussion in the media had subsided, as the public had come to agree and support Decree 100, feeling its usefulness to life.

We find this to be a new and meaningful research direction when focusing on applying communication theories such as the multistep flow theory and the actor-network theory in understanding the role of public participation, how their opinions and behaviours affect flows of policy discussion on traffic safety in online newspapers and social media in

relation to major impacts on building a safe and civilized social environment. The study seeks to help advise media/policy makers to develop the best strategies to use new media to promote public participation in policy contributions.

2. Literature Review

2.1. The role and influence of the public on shaping public opinion from the perspective of the multistep flow theory

We applied the multistep flow theory to understand public participation in relation to the influence model of public groups in the network according to the multistep effect, as well as the opinion, the formation of discussion topics/contents, the characteristics and behaviours of public groups in cyberspace. While previous works mainly focus on one-way communication model, for example, Harold Laswell (1948) noted the direct influence of mass media on public perception, considering the public as easily led, recent studies have emphasized the public's initiative and assertiveness in the media environment. For example, the multistep flow theory considers the public as actors that interact, modify content, spread information, and shape public opinion, instead of being passive and socially isolated as described in previous theories. Moreover, the multistep flow theory does not assume that messages only start from a single source, which are then transferred through the mass media and have an equal impact on each individual.

The multistep flow theory is extended from the two-step flow theory originally developed by Paul Lazarsfeld, Berelson and Gaudet (1948) in the book "The people's choice: How the voter makes up his mind in a presidential campaign". Research by Lazarsfeld et al (1948) shows that personal relations have seemed to be more frequent and effective than the mass media in influencing participants' voting. According to the two-step flow theory, the effects of direct communication are hindered by social interactions and audience selectivity in exposing to, perceiving, and transforming messages. Instead of directly reaching the public, ideas broadcast by news agencies are conveyed through special actors known as key opinion leaders (KOLs). The research confirms the decisive importance of KOLs in the network to the shaping of personal opinion. Then, Katz and Lazarsfeld (1955) further studied the influence on the communication relationship between individuals and the mass media, especially the role of key individuals KOLs in receiving, interpreting and disseminating media messages to the general public.

However, after a few decades, the two-step flow theory had to be adapted to the context. Bennett & Manheim (2006) showed that the internet and mobile devices have made it easier for the public to directly access and disseminate media content. As a result, scholars pointed out that the top-down linear model proposed by Lazarsfeld and Katz is oversimplifying interpersonal influence, as well as underestimating the influence of the mass media. According to Weimann (1982), the flow of ideas from the mass media to individuals is found to be more complex than the theory predicts. Key drivers missing in the original model include the information exchange between KOLs and exchange between the "minority" public groups with less participation. Also, the influences do not disappear after two steps, as opinion leaders can communicate ideas to followers, who will spread these ideas to other individuals. Brosius

and Weimann (1996) also show new models that calculate complex patterns of the multi-step flow, which allow the audience to act from the bottom up, supporting the delivery of news topics and the dissemination of information for the media.

Based on previous studies, Ognyanova and Monge (2013) conducted a study on the relationship and influence between public groups in a multiperspective network using a multi-step communication approach. Then, Ognyanova (2017) described the position and influence of public groups on the media flow according to the multistep flow paradigm. The findings motivated us to focus on studying the participation and the influence of different public groups, including news editorial boards, administrators of social media pages/groups, KOLs, and the general public, on discussion flows, such as the formation of topic/discussion content, the shaping of public opinion, and opinions of other members in cyberspace.

2.2. The position and relationship between members in the social environment from the perspective of the actor-network theory

To understand the sharing relationships between actors in the public opinion network as well as to determine the strategic positions, relationships and influence of public groups, we applied the Actor-Network Theory (ANT) in the study of public participation. ANT was derived from the work of French scholar Bruno Latour (1987), then, a more complete theoretical framework applied in sociological and communication research was developed by researchers in the same field, typically Michel Callon (1986), John Law and John Hassard (1999). Teurlings (2013) explained the concept of Actor-network derives from the core idea that all existing phenomena are composed of actors operating in the network. These actors can be humans (individuals, groups, or communities) or non-humans (technology, knowledge, etc.) that have a dialectical relationship with each other. ANT has been applied in many communication studies such as the network centrality (Freeman, 1979) and media from an ANT perspective (Teurlings, 2013). Developing from this perspective, Freeman (1979) shows how to measure the influence of certain public groups (referred to as special actors) on other members of the network based on their favourable central position as well as their connection relationship in the network with respect to three factors: (1) Degree centrality; (2) Closeness centrality, and (3) Betweenness centrality. Also, Granovetter (1973), Freeman (1979) và Teurlings (2013) analyse the influence of actors in a network based not only on position but also on the relationship between actors according to the cohesion of the relationship, bond and power. It can be seen that stemming from public interests, recent approaches to communication research view the audience as active participants, promote active interaction of the public as actors that motivate and control the communication process, having a more equal role in the power position in relation to the media.

Based on the above-mentioned theoretical basis of communication, we chose to survey the public discussion on the Regulation on increasing penalties for traffic safety violations related to alcohol concentration in Decree No. 100/ 2019/ND-CP, taking place between April 23, 2019 and March 16, 2020 on a number of typical online newspapers and Facebook pages to examine the relationship and influence of some special public groups in promoting discussion flows, spreading information, and shaping public opinion and members' viewpoints in the social environment, thereby proposing solutions to improve the effectiveness of public participation in the media in socio-economic policy consultancy.

Based on the framework of the multistep flow theory and ANT, this study applies content analysis and in-depth interviews to understand the position, role, and influence of actors in shaping public opinion during the discussion. We identified three main actors, including: the media administrator (online news editors of VnExpress, Tuoi Tre Online, Vietnamnet, and their respective Facebook pages; admins of the Facebook group of Vietnam's automobile and motorcycle community (Otofun); Experts/KOLs (their personal pages that attract the most interaction and comments), and the general public actors (readers, social media users, and members of online pages/groups).

3. Method

Specifically, the study applies the in-depth interview method with online news editorial boards and Facebook page administrators, together with content analysis of news articles, posts, and comments about Decree 100 on the surveyed online newspapers and social media (including 303 new articles and 18,600 comments posted on VnExpress, Tuoi Tre Online, Vietnamnet and their respective pages, and 190 posts and 12,424 comments on Otofun social page), observed from April 23, 2019 to March 16, 2020, using framing criteria (Entman, 1991; Olasunkanmi Arowolo, 2017) to identify prominent topics discussed by the public and understand the role and influence of these public groups on the flow of discussion in the media network. We also inherit the results of content analysis published in our previous studies (Huyen & Anh, 2018) to classify the messages in 31,024 comments posted by online news readers and social media users in order to understand the contributions of the general public to shaping public opinion, using the constant comparative method (Glaser & Strauss, 1967). This method involves collecting comments, encoding each sentence, label themes to describe the encoded content and compare with other sentences, thus identifying themes that emerge from the text (Cho & De Moya, 2014). Specifically, we divided the samples into two separate parts and assigned the coding task to two programmers. They then encode the comments according to the topic list and determine their tone. After the encoding was completed, we analysed the collected comments, categorised them into a list of 11 topics, and grouped into seven types of message.

Finally, the study uses the method of observing the information spread by individuals/groups and in-depth interviews with seven people, including five managing editors in charge of readers of VnExpress, Tuoi Tre Online, and Vietnamnet, one administrator of 'Otofun', and one KOL who is a politician. In-depth interviews with these public groups with 8 questions were conducted to find out the following key issues: 1) The roles, attitudes, initiative, behaviours and influence of different public groups on discussion flows through the way they manage communication channels, organise discussion content for the public on online newspapers and social media to bring about policy changes to reach consensus from the people; 2) The reasons why they actively participate in calling on people to discuss traffic safety policies and respond to the "No drink driving" campaign, thereby supporting to answer questions and form opinions in discussions on online newspapers and social media. All these interviews are recorded in audio or written form.

4. Results

Applying the above communication theories, we have come to describe the position and influence of public groups on discussion flows in a multi-perspective network on online newspapers and social media, regarding the regulation on increasing the penalties for alcohol content violations in the Decree 100/2019/ND-CP. The results show that public groups have their own roles, views, active participation and influence levels, contributing to policy consultancy, creating positive effects on members' perception in the social environment as follows:

The position and influence of the online newspaper editorial board/ Facebook page administrator

In-depth interviews with the surveyed online newspaper editorial boards and Facebook page administrators show that this group is always interested in finding and methodically updating information flows about the anti-drink-driving movement from public opinion flows and people's opinions on the Regulation on penalties for traffic safety violations related to alcohol use to attract the public to participate in the discussion:

“Readers’ comments about the series of published articles on Decree 100 sent to the editorial office are collected and categorised into two versions per day. A portion of valuable readers’ opinions will be processed, edited and approved for publication in all online publications. Taking advantage of data sources from readers’ discussion and opinion flows, the editorial board enrich the content of news topics, initiate life-related discussion topics by selectively publishing hot issues of public concern, promoting public participation in discussion, thereby creating positive effects in policy communication”

(the representatives of the online Newspaper's managing editor)

Combining in-depth interviews and content analysis, encoding and categorising 303 news articles and 18,600 comments published on newspapers and their fanpages, 190 posts and 12,424 comments on the 'Otofun' page according to Entman's framing criteria (1991), the results show that these posts and comments are divided into five prominent topic groups in relation to the surveyed issue as follows:

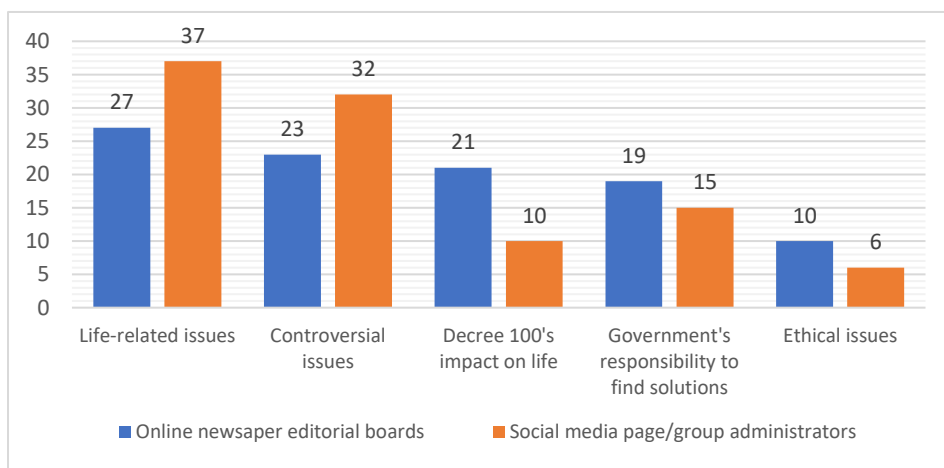


Figure 1. The rate of readers' discussion initiated by administrators of VnExpress, Vietnamnet, Tuoi Tre Online, and their respective pages, and Otofun page between April 23, 2019 and March 16, 2020 (per cent)

Source: Author Field survey

Figure 1 shows that, in the surveyed online newspapers, the topic group “life-related issues” accounts for most of the discussion content (27%), illustrating aspects such as drinking culture, the penalty’s economical level, or people’s stories, such as the difficult background of a poor female worker who was fatally hit by a drunk driver on Lang Street, or an unfortunate victim killed by a Mercedes in Kim Lien tunnel (Hanoi). Next are controversial topics during the sanctioning of traffic safety violations related to alcohol use (23%), such as alcohol advertising on the internet, eating fruit or drinking syrups containing alcohol, or whether people walking drunk could be fined. Topics on the impact of Decree 100 on people’s lives attract public participation in discussion at the third position (21%). Articles on this topic show their effectiveness that follows the official implementation of Decree 100 and the Law on prevention and control of harmful effects of alcoholic beverages (focusing on issues of public concern such as the declining number of people hospitalized due to alcohol-related traffic accidents, a more peaceful Tet holiday thanks to alcohol concentration fines, deserted pubs with lost revenue following Decree 100, etc.). The online newspaper public is also interested in the topic of the government’s responsibility to find solutions (19%), in which the government and ministries coordinated with relevant parties to listen and exchange information through media channels, clarify and resolve people’s concerns, provide strong and timely measures and actions so that people trust, support and abide by the Regulation. Ethical issues also account for 10% of the public’s discussion on online newspapers, involving conflicts, violations of law and ethics while implementing the Regulation, for example, a driver with ‘blue’ license plate cursing and slapping a traffic police officer when being asked for an alcohol test, setting up groups revealing alcohol concentration measuring spots, “Head of the Traffic Police Department: Stopping drivers violating the alcohol concentration next to the beer pub is very offensive”, and many drivers calling for help when violating the alcohol concentration.

Regarding social media pages, the in-depth interview with the administrator of the automobile and motorcycle community “Otofun” shows that they have their own way of organising and leading the public’s discussion flows, with indirect, accessible messages close to the public interest:

“Instead of just informing the laws, Otofun focuses on indirect communication, giving factual information about accidents or penalties related to alcohol violations, helping readers see the consequences of traffic violations. This method is quite effective, as forum members participate more in discussions, thereby making the content more diverse and attractive, allowing the message of Decree 100 to be integrated naturally and practically to the community and helping them find the forum helpful.”

(Representative of Otofun forum administrator)

According to the results of the survey on news topics on the social media pages of the 91-94 high school group and the Otofun community, it can be seen that the administrators had initiated and published articles that attract and call on people to actively respond to the ‘No Drink Driving’ Movement, as well as to express contributive opinions to Decree 100. The topic group that social media users are most interested in are life-related issues (37%),

similar to the level of discussion among online newspaper readers. After Decree 100 officially took effect on January 1, 2019, common news topics related to the alcohol culture, levels of fines, post-drinking shuttle service, etc. were discussed more by Otofun members than other topic groups. Novel information and prominent discussion topics on this page were re-published by the press such as a driver receiving a 7 million VND fine for ‘drinking a cup of medicinal liquor’ on VnExpress, or the first wedding in Binh Phuoc serving 40 tables without a bottle of beer and alcohol on Vietnamnet. Controversial issues also attract discussion among social media users on Otofun (32%), similar to that of online newspapers. These issues include people’s questions about the absurdity of the regulation on fines of zero alcohol concentration, or whether those driving a bicycle could be fined for alcohol level. The next topics that interest users to discuss are the government’s responsibility (15%), the impact of Decree 100 on people’s lives (10%), and ethical issues (6%).

Upon comparing survey results on online newspapers and social networks, there are similarities in the news topics that attract the participation in discussion of readers and social media users. In particular, it can be seen that novel topics that are heavily discussed and shared by users on many social media pages/groups have been used by the news editorial board to expand the source of news topics on major online newspapers. Especially, the online news editorial board and social media administrators focus on exploiting the articles showing the conflict between the old and new beliefs, between the deeply rooted alcohol culture into Vietnamese people’s lives and safe traffic practices, in order to stimulate interaction and engage the public in discussion on the Regulation on penalties for traffic safety violations related to alcohol use. Therefore, topics showing the consequences caused by alcohol on the lives of innocent victims of accidents have caused discontent, sympathy and compassion among many people. The survey results also show that the online news editorial board and the social media administrators have demonstrated their role and influence on the public’s discussion flows about traffic safety policy by initiating topics, consulting experts and managers, participating in publishing and solving public problems, and receiving great support from the people.

The position and influence of KOLs

In communicating traffic safety policy, the participation of key opinion leaders (KOLs) plays an important role, influencing discussion flows of members in the social environment. Key opinion leaders are special actors located in a strategic position that acts as the necessary bridge in the process of transmitting information between online newspaper administrators, social media and the general public. They are influential individuals in a particular field, and because of their special positions, they are often separated to examine and decode messages and how ideas are disseminated and shared. The participation in discussions of KOLs who are politicians, national assembly deputies, journalists, lawyers, medical experts, etc., has the ability to initiate, lead, form opinions and direct public opinion.

For example, during the peak period of critique (June 1, 2019 - January 1, 2020), the draft regulation continuously encountered the public’s mixed opinions due to information insufficiently reported in online newspapers. Some controversial topics published in

newspapers, such as “206 deputies opposed the “no drink driving” regulation”, “businesses lobbying historians to lobby for alcohol businesses”, caused misunderstanding, creating a wave of fierce criticism from the public. On June 4, 2019, the press headline “The National Assembly does not agree with the “no drink driving” option” without a clear and thorough explanation, encountered strong criticisms from social media users. Many people suspected that the deputies had been bribed by group interests. On the same day, Assoc. Prof. Dr., and National Assembly deputy, Nguyen Lan Hieu, spoke up by posting the article “The National Assembly and alcohol” in the ‘Perspectives’ section of VnExpress, in which he explained that all delegates supported ‘no drink driving’, but they were still concerned about the permissible limit of alcohol concentration in a driver’s breath of 0 milligram per litre of air. Previously, lawyer Le Nguyen Duy Hau published an article that shared the same opinion with Mr. Nguyen Lan Hieu, titled “Not true – the National Assembly does not support drink driving”, which shows clear arguments about legislative activities, so that the people could understand and stay calm instead of criticising the National Assembly. These articles were shared and discussed enthusiastically, as well as became the prominent news topic of many major newspapers. Applying the multistep flow theory and the actor-network theory, it can be seen that National Assembly member Nguyen Lan Hieu and lawyer Le Nguyen Duy Hau promoted their influence in persuading and forming the public views because they are reputable and representative experts with in-depth medical and legal expertise. Because of their central position in the network, they become special actors with sufficient scientific and practical background to clear up the public’s doubts and misunderstandings, somewhat changing the public opinion at that time.

At the same time, on social media, many KOLs showed their influence on the public’s discussion flows about the Regulation by simultaneously speaking out and creating communication networks on online newspapers. In particular, content analysis results show that the representative of the National Traffic Safety Committee, is one of the KOLs who actively participated in the Otofun forum, shared views and answered questions, easing public controversy surrounding this new Decree. These posts on social media attracted discussion and support from a large number of people. For example, on January 23, 2020, the post with answers related to alcohol concentration violations attracted the highest interaction on the Otofun group (568 comments, 852 likes). The representative of the National Traffic Safety Committee’s post was shared and commented by many social media users, contributing to forming the right opinion in them, emphasizing that “Decree 100 neither penalizes the sober nor does the drunk! It only penalises the driver with “alcohol found in the breath or blood”.

Although many support that Decree 100 is “civilized”, “progressive”, “brings many benefits to society”, many argue that the current level of fines for alcohol concentration of zero is absurd, compared with the minimum applicable in many countries around the world.

On the “Otofun” social page, the representative of the National Traffic Safety Committee listened to opinions and explained to people clearly the purpose of the Regulation on penalties for traffic safety violations related to alcohol use, that “*the blood alcohol level*

of zero acts as a deterrent, a form of education. Decree 100 issued by the government is not only to fine people, but seeks to raise people's awareness of not using alcohol when participating in traffic, for the safety of themselves and the social community."

The results of our in-depth interview with the representative of the National Traffic Safety Committee, explain why the statements and discussion contents contributed to directing public opinion, created support, and spread strongly among the public. *"When speaking in the press and on social media, I do not think of myself as a person who directs public opinion or has great influence, rather I am just a civil servant working in the traffic field, a citizen who believes in correct regulations that benefits everyone. The statements I make are based on accuracy, accessibility, friendliness, and the message must be sufficient, not sensational or shock the public, so that anyone when reading my posts can properly understand the thoughts and goals I want to convey"*

(The representative of the National Traffic Safety Committee)

The results of in-depth interview also suggest that the representative of the National Traffic Safety Committee is selective in the contents of the messages this person shares on online newspapers and social media, making them accessible, focusing on protecting safety and lives for road users in particular and the whole society in general, which have a sufficiently strong warning effect, acting as a deterrent, while remaining humane, determined to help people adjust their behaviour and avoid violations, thereby gaining consensus and contributing to shaping the general public opinion, correctly comprehending the Regulations on penalties for traffic safety violations related to alcohol use.

Through analysing the aforementioned cases as well as analysing research findings, we find that KOLs, such as the representative of the National Traffic Safety Committee, lawyer Le Nguyen Duy Hau, and National Assembly deputy, Doctor Nguyen Lan Hieu, are special actors with the function of influencing and mediating in spreading powerful messages in the network. The reason is that they represent elite groups and relevant parties that have the ability to connect and mobilize a large network of participants to support. Also, these KOLs have the ability to interpret messages and opinions and have their own behavioural culture to shape public perception and opinion around them.

The position and influence of the general public

In the network structure, the general public is affected by messages from online newspaper editorial boards and social media administrators, but they themselves actively participate in discussions and play an important role, holding central positions in spreading information, promoting interaction, and shaping public opinion. The general public can actively participate in discussions in groups of topics, contribute ideas, and contribute to spreading information quickly and strongly to actors closely connected to them in the network.

Using content analysis of the posts and comments on Decree 100 by the surveyed online newspaper readers and social media users, we found seven common types of comments made by the general public as follows:

Table 2. The proportion of comments in relation to type among readers of three online newspaper, and “Otofun” social page from April 23, 2019 to March 16,2020 (Dimensions refer from Cho & De Moya, 2014; Huyen & Anh, 2018)

No	Comment type	Online newspapers (%)	Social media (%)
1	Advocacy	30	16
2	Advisory	14	13
3	Grievance	11	10
4	Inquiries	10	12
5	Call to action	9	5
6	Emotion	6	19
7	Information provision	5	23
8	Others	15	2

The survey results show that online newspaper readers expressing ‘advocacy’ comments account for the highest percentage (30%). However, quite a few comments discuss “other issues” (15%), apart from topics aimed by the press, such as food safety, environmental sanitation, or attacking and judgemental comments found in the discussion. ‘Advisory’ comments rank third at 14%, which share suggestions and advice, or propose solutions to managing alcohol use for the government. A considerable 11% of ‘grievance’ comments criticized the government’s actions, doubting their purpose and the authenticity of the information published by the press. ‘Inquiries’ comments make up 10%, asking for answers from the government. ‘Call to action’ comments constitute 9%, aiming at connecting other members to act together to reduce traffic accidents through behavior change, while 6% is for the ‘emotion’ category, which shows concern and painful feelings in tragic accidents, and care about community interests. Only 5% of comments ‘provide information’, which update information about other countries’ laws, and the pros and cons of alcohol use.

In contrast to online newspapers, comments of ‘information provision’ account for the largest proportion on social media (23%). Similarly, many ‘emotional’ comments are given by social media users (19%). At the same time, up to 16% of public comments express agreement with Decree 100 and acknowledge its practical benefits and impact on life. Next are ‘advisory’ (13%), ‘Inquiries’ (12%), ‘grievance’ ones (10%) which include personal attacks and questions about Decree 100, and ‘call to action’ (5%). There are few comments on ‘other issues’ (2%) which are not related to the contents aimed by the social media administrator.

The survey results also show that many opinions in discussions have become a source of news for the press, shaping public opinion, as well as advising the government how to implement Decree 100 seriously and effectively, for example, the articles “Is sweeping the road or dredging channels as the penalty for drunk drivers strong enough as a deterrent?” (May 11, 2019) on Tuoi Tre Online, “Considering alcohol and beer as a national cultural trait is a fallacy” published on VnExpress (June 4, 2019), or a summary of opinions showing “101 word-of-mouth ways to ‘dodge’ the alcohol concentration test” on Vietnamnet (January

5, 2020). In addition, some online newspaper reader groups and social media users always want to dissociate and discuss issues other than the topics the press directs them to. Readers/audience are easily dispersed and expand their network to other groups on social media. In private groups on social media, some social media users become bridges, easily transferring information from one group to another, from personal accounts to groups and vice versa, and from the fanpage to groups and vice versa. To find out which user actors have the ability to spread and promote other group members' participation, we conducted a survey on the posts that attracted the most discussion and interaction in the Otofun group.

One notable finding of the study is that some active social media users in the marginal group play the role of transferring “strange” information between groups. For example, the account N.T.V.A. - a member of the Otofun group who played the role of intermediary when transferring information from ‘Hóng Express’ to the Otofun group, with the content “Male student sobs over a 7 million dong fine: This Tet, I’ll come home with no money”, and a further commentary titled “That’s it for Tet”. The post attracted discussion of many group members, with 490 comments, 51 shares and 2,300 likes. This social media user also becomes a bridging point of information transfer between different independent network clusters. It can be seen that social media have created favourable conditions for actors to create their own networks, and also to be able to interpret and transfer information inside and outside the network.

From the results of content analysis, we also found that some social media users have the function of navigating information and forming opinions as special actors. For example, during the adjustment period (January 4, 2020 - February 15, 2020), after the Law on Prevention of the Harmful Effects of Alcohol and Decree 100 was put into effect, apart from the support of organizations and individuals who strictly abide by the law and spread good messages, there were acts of defiance, cynicism, and doubts about the implementation of the laws, and questions from the public about the penalty level, populists and group interests to increase budget revenue and income for traffic police officers. Some opposing groups set up their own closed groups and networks, for example, in Da Nang, some Facebook groups were created under the name “Updates on the alcohol concentration checkpoints in Da Nang”, which provide 24/7 updates on traffic police checkpoints sanctioning traffic safety violations, or “Da Nang alcohol concentration checkpoints”. Although these groups had only been established for two days, some already attracted more than 3,000 members. Updated schedules and locations of traffic police’s checkpoints were continuously informed in detail. Many “drinkers” even asked in advance where the checkpoints were before going to drink, and received enthusiastic responses from members. It can be seen that some traffic participants’ ways to solve the problem in Vietnam have become more creative, formed by the sharing of the online community. However, this is the act of abetting violations because pointing out checkpoints is similar to cheating the laws when drink-driving people avoid being checked. According to the ANT theory, when a series of “strange” information was transferred between groups and pages, account V.T.T. on Otofun immediately called for the need to immediately stop the act of avoiding alcohol concentration check and sharing how

to do it. V.T.T called for “*being civilized by not drink driving. In the city, take a taxi, motorbike taxi, or someone in the group accepts not to drink to drive others home.*” This is one of our findings showing that shows that the technological development has changed the general public’s interaction behaviours to be more proactive in the media environment. People can participate in online discussions and hold central positions that positively influencing the dissemination of information and the shaping of public opinion.

5. Discussion and Conclusion

5.1. Discussion

When assessing the role, opinion and active participation in discussion among public groups on online newspapers and social media presented in the findings, we find that each public group has its own position, role, participatory behaviour and level of influence level to make positive contributions to promoting members’ discussion flows on policy-making to build a better social environment. Of these groups, (1) *The online news editorial board and the social media administrator* hold a powerful central position in disseminating information, thus having the advantage in leading and organising the content and creating multi-perspective discussion topics that attract public interaction. The relationship between online newspapers and social media is a symbiotic relationship of cooperation and mutual complementarity. While social media administrators have the advantage of a large network of followers and the ability to spread information quickly, the online news editorial board, thanks to its legitimacy, has the advantage in leading public opinion through the opinions of experts, managers, and elected deputies. The results of in-depth interviews show that journalists and Otofun social media administrators realise the importance of policy communication, which requires attention to the discussion contents of the public. However, upon comparing the public’s comments on online newspapers and social media, it is shown that the public are easily dispersed when discussing many issues other than the topics aimed by the newspaper, and easily splits up to form their own network in other spaces such as closed groups on social media.. For this reason, journalists and social media administrators tend to focus on updating discussion threads and valuable opinions from the public and KOLs in gaining attention, creating discussion environments and directing public opinion in order to disseminate policies more clearly and accessibly, as well as gain public consensus. (2) *Key opinion leaders (KOLs)* hold a prominent central position, convenient in creating, disseminating, guiding information, answering questions, which has significant influence on shaping public opinion. Special actors such as the representative of the National Traffic Safety Committee, lawyer Le Nguyen Duy Hau, and National Assembly deputy - Doctor Nguyen Lan Hieu, play important roles in guiding and answering readers’ questions, and at the same time forming views and shaping public opinion in the networks they create. In particular, KOLs initiated discussion topics on social media that promote each citizen’s responsibility and a sense of belonging to a broader community, in which each person’s behaviour will contribute to the common interests of society. However, from the results of content analysis of topics that attract discussion published in the press, we realise that some state authority representatives made unclear and incomplete statements in the press and

social media, which created conflicting opinions from the public, causing controversy surrounding the policy. (3) *The general public* has an important position in providing information, especially influencing the formation of public opinion through sharing ideas, spreading information quickly and strongly to other members in the network.

Nevertheless, through the results of content analysis and observation of online discussion on online newspapers and social media, we find that sometimes, some discussions in online newspapers were led by the crowd psychology, ran after the trend under the pulling power of some public groups in the network. For example, “initiative” groups set up groups that locate alcohol concentration checkpoints; drinking people show how to “co-exist” with Decree 100, which attracted a portion of people with limited information and insufficient knowledge to participate. In addition, there existed personal attacks or sophistry, isolation and defeat of different opinions and views. At the climax when the press made headlines without clearly explaining the draft law on prevention and control of harmful effects of alcohol, the online community accused many National Assembly deputies of not supporting the plan to ban drink driving and of having “group interests”. In subsequent stages, such keywords as “alcohol enterprises lobbying for policies” or “traffic police not transparent in sanctioning” created mixed public opinions on traffic safety policy. Also, the general public and KOLs had not yet been effectively utilised by the online news editorial board.

Based on the analysed results, the study’s main findings show that media management agencies and newsrooms have not developed the most effective public engagement strategies. Therefore, to motivate members in the social environment to participate in contributing to better policy-making, media management agencies and online newspapers, *firstly*, need to create an environment that encourages them to participate in discussion on the newspapers’ pages and their social media channels. To be specific, the online newspaper and social media administrator needs to grasp hot issues of public concern to create articles and connect other actors such as KOLs and the general public to participate in discussions. Online newspapers also need to determine the position and influence of KOLs with good expertise, opinions, and communication capacity to hold a key position in expressing opinions in order to shape and lead discussion flows of the general public. *Secondly*, build a multi-channel, multi-relationship approach strategy to enhance information spread and promote interaction with the public. *Thirdly*, online newspapers can select and use quality posts and discussions of engaging readers or social media users to develop into multi-perspective discussion articles on online newspapers and social networks in order to expand the communication network through the set of followers of those whose comments are posted. At the same time, develop a strategy for selecting and sharing message contents on the media based on the issues of individual people associated with the interests of the community and society. *Fourthly*, online newspapers should build a culture of discussion in newspapers and publish these principles of participation based on criteria such as lawfulness, civility, openness, friendliness, equality, and respect. In particular, it is necessary to strengthen research on actors in the media network on online newspapers and social media in order to promote their advantages and influence in the discussion flows of policy and social issues.

5.2. Conclusion

The research findings show that using the multistep flow theory and actor-network flow theory has clarified public groups' discussion flows in the network regarding policies on online newspapers and social media, as well as existing problems in order to build a safer traffic environment. The highlight of this study shows the position, role, contribution and influence of different public groups on promoting discussion flows on online newspapers and social media, with the final result being the people's consensus in favour of Decree 100, as they feel that the traffic safety policy is really necessary and meaningful in life. This research direction suggests agencies and organizations to gain a deeper understanding of people's behaviour when participating in consulting and contributing to policy-making in the social environment, thereby proposing better media management strategies when promulgating policies and decisions that can affect the socio-economic development, gaining people's understanding and consensus. In addition, the findings suggest future research directions on human behaviour and interaction with the social environment through communication in cyberspace based on deep understanding of human behaviour and influence from the multistep flow theory approach according to the network effect. As for these factors, more extensive studies on participation are necessary to propose effective strategies to improve public participation, not only contributing to good social governance, building a more lawful, civilized, open and friendly social environment, but also enhancing the promotion of a culture of responsible behaviour and participation in cyberspace.

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BUILDING A WEBSITE SUPPORTING THE DEVELOPMENT OF GEOGRAPHY STUDIES STUDENTS' SPECIALISED ENGLISH PROFICIENCY, GEOGRAPHY DEPARTMENT, HO CHI MINH CITY UNIVERSITY OF EDUCATION

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Abstract

In the era of globalisation, English proficiency is becoming more and more important to students in many aspects. To study and research in a major effectively, students should develop their own specialised English proficiency. In the Department of Geography, Ho Chi Minh City University of Education, Geography Studies students major in tourism. With survey methodology, the author collected primary data on students' specialised English proficiency. Furthermore, the author collected the opinions of students and experts on a suitable means to support. From the survey results, the author built a website supporting the development of students' specialised English proficiency. The website's data is specialised in tourism, includes vocabulary, sentences, news and videos in English. The survey results about usage effectiveness of the website show that the majority of students and experts agree with the website's ability to support the development of specialised English proficiency.

Keywords: *Geography Department, Geography Studies, specialised English, website.*

1. Introduction

In the era of globalisation, English proficiency is becoming more and more important in many aspects to students. English proficiency not only provides students with open study and research opportunities, helps students to read and understand foreign documents, but also gives students greater job opportunities after graduation. In the world, there are 204 countries, in which, the number of English-speaking countries is up to 101. It is the wide distribution of English in the world that has made it one of the main languages used in the United Nations, in the process of trade between countries, businesses, exchange of working experience, production technology, manufacturing, cultural exchange activities, translation, tourism, etc. Knowing and being able to use a foreign language (especially English) can raise an individual's income, therefore, it can be affirmed that in the era of integration, English ability is extremely important.

English includes general English (GE) and English for specific purposes (ESP). While GE serves the general and basic requirements in communication of any foreign

language learners, ESP serves the clear and specific purposes of learners in working and researching. In the Department of Geography, Ho Chi Minh City University of Education, Geography Studies students major in tourism.

In the new era, the development of technology has made online teaching and learning (E-learning) popular. This is a form of distance learning and training based on modern technological devices and Internet connection. The tools to support learning English today are also very diverse, including the accompanying dictionaries such as Cambridge, Oxford, Longman, etc; English-Vietnamese bilingual flashcard; English learning apps like Duolingo, Memrise, Cake, etc. and English learning websites like BBC learning English, Go4English, American Stories for English learners, etc.

However, the above tools only support GE learning, not ESP. As for the websites that only support learning English for tourism, it can be seen that the number of websites is quite a lot, such as Hospitality, Condé Nast Traveler, Tnooz, etc. However, the above websites are only written in English, which can cause difficulties for students who do not have enough English proficiency to be able to read and understand documents. On the other hand, the author found that the above websites are mainly divided into topics and news, but there are no specialised vocabulary and sentences used in tourism. As for the websites that support learning English for tourism written in Vietnamese, the number of these is modest. When the author searched with Google, the results only show GE teaching websites with articles on ESP. For example, we have "English vocabulary about geographical features and terms" (Website English4you, 2017). The learning materials in the above paper are general vocabulary, not vocabulary for specific purposes and they are not even complete.

From the above reasons, the author supposed that building an ESP website in tourism to support the development of specialised English proficiency of Geography Studies students in Geography Department is necessary. The website of this research will support students to develop specialised English proficiency with more sufficient information and materials.

2. Method

- Document analysis method

The analysis method of secondary documents is important and necessary for any scientific researches. When using this method, the author collected and synthesizes documents from many different sources such as textbooks, scientific journals, scientific research works, statistics of agencies, etc. about the specialised vocabulary and sentences used in tourism. The author also researched the training program of Geography Studies in University of Education in order to have a basis to build suitable vocabulary in tourism for the students. The main reference of this research is the textbook used to teach 2 modules of study about tourism for Geography Studies students. Its name is "English for International Tourism - Pre-intermediate".

PRE-INTERMEDIATE COURSEBOOK

ENGLISH FOR INTERNATIONAL TOURISM

NEW EDITION

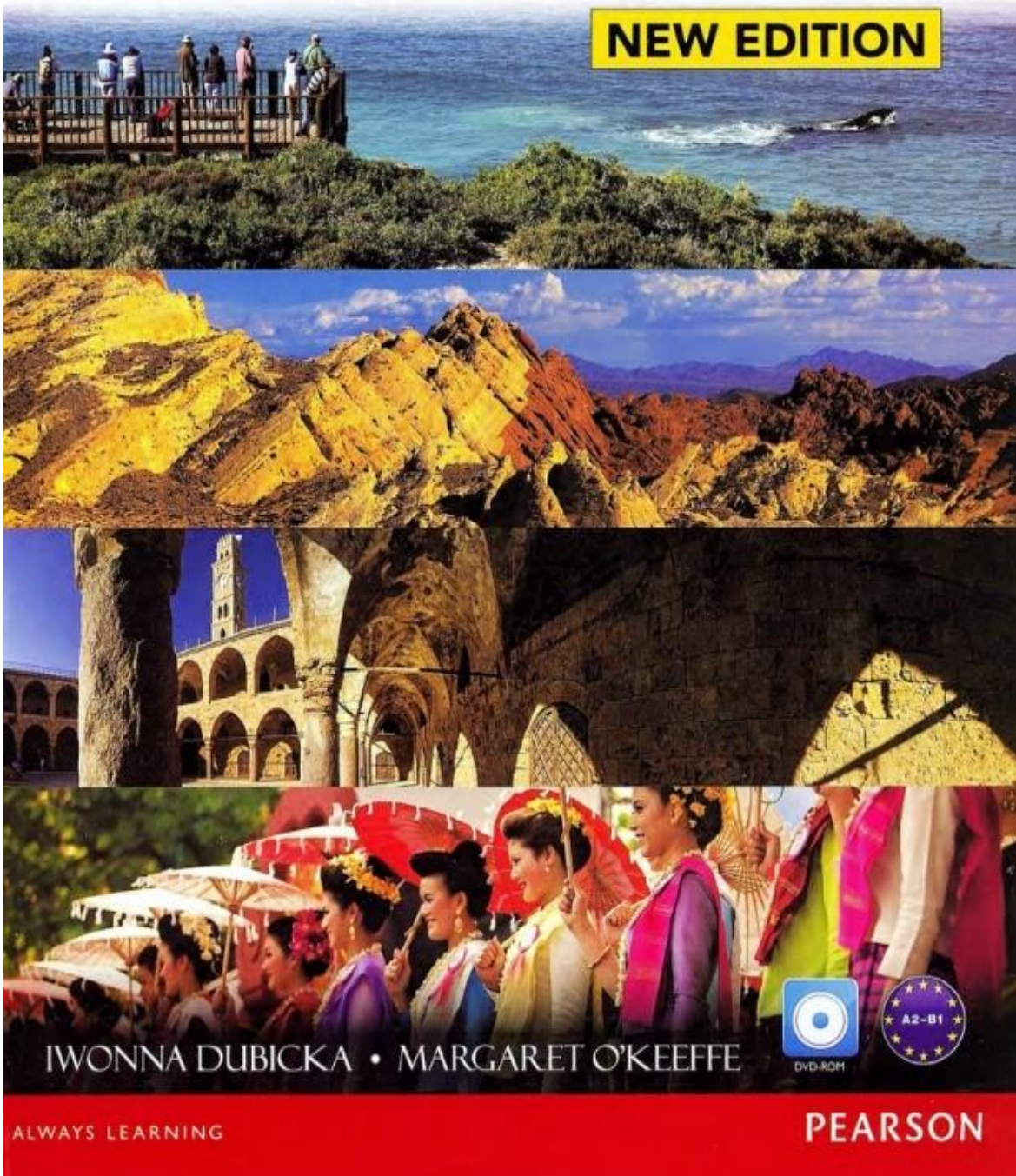


Figure 1. "English for International Tourism - Pre-intermediate"
Textbook (Coursebook)

- Survey method

In this research, the author carried out two surveys. In the first survey, the author collected opinions of Geography Studies students about their own specialised English proficiency and the means of supporting they think is the most suitable. In the second survey, the author collected opinions of Geography Studies students about the look and the content of the website (the means which is chosen the most). Therefrom, the author can learn, collect and process data in a logical and scientific way, ensuring the objectivity of the survey results.

The author collected the number of Geography Studies students of the 43rd, 44th, 45th and 46th courses, respectively, 29, 46, 26 and 32 (excluding students who have dropped out or been forced to drop out). The total number of students as of the school year 2021-2022 is 133. After the survey, the number of students participating in the first survey reached 101. The second survey reached 95, accounting for more than 70% of the total number of students in the major. The number of students of the courses and the number of students participating in the survey are shown in the table below.

Table 1. The number of Geography Studies students joining the surveys

Course	Number of students	Number of students joining the 1st survey	Number of students joining the 2nd survey
43	29 (100%)	21 (72,4%)	19 (65,5%)
44	46 (100%)	31 (67,4%)	27 (58,7%)
45	26 (100%)	22 (84,6%)	24 (92,3%)
46	32 (100%)	27 (84,4%)	25 (78,1%)
Total	133 (100%)	101 (75,9%)	95 (71,4%)

Due to the complicated situation of the COVID-19 epidemic, the author sent a survey and collected the results online. Specifically, the author sent the Google Form link to university students through online communication applications such as Facebook, Zalo, etc.

The first survey form (The current situation of learning ESP of Geography Studies students) includes 2 main contents:

- ESP proficiency of students.
- Means of supporting the development of Geography Studies students' specialised English proficiency.

The second survey (Website usage effectiveness) includes 2 main contents:

- The look of the website.
- The content of the website.

- Expert interview method:

In order to find the correct source of information, increase the reliability of the topic, as well as have more orientation to build the website, the author applied the expert interview method by sending a survey to the teachers participating in training Geography Studies students. Besides, the author also sent survey questionnaires to a number of employers in tourism such as directors of travel companies, hotels, etc. The survey results will be a reference source and a direction for building as well as completing the website.

3. Results

- The first survey's results

Table 2. Geography Students' grades in the 2 modules of study about tourism (n=101)

Course	Number of students and their grades in 2 modules of study									
		A	B+	B	C+	C	D+	D	F	Not study yet
43	Module 1	1	6	10	1	1	-	-	-	2
	Module 2	2	6	9	2	-	-	-	-	2
		A	B+	B	C+	C	D+	D	F	Not study yet
44	Module 1	1	4	12	10	2	1	1	-	-
	Module 2	1	7	10	5	6	-	-	-	2
		A	B+	B	C+	C	D+	D	F	Not study yet
45	Module 1	2	3	3	9	1	-	2	-	2
	Module 2	1	-	1	-	2	-	-	-	18
		A	B+	B	C+	C	D+	D	F	Not study yet
46	Module 1	-	-	2	3	-	-	-	-	22
	Module 2	-	2	-	3	-	-	-	-	22
		A	B+	B	C+	C	D+	D	F	Not study yet

The grades of 2 modules of study of Geography Studies students range mainly from C to B+, in which, grades C + and B have the highest number of students achieved. It can be seen that the grades of the students are mostly average - good.

Table 3. Means of supporting chosen by Geography Studies students (n=101)

Means of supporting	Number of students choosing
Website	65 (64,4%)
Fanpage	25 (24,8%)
Blog	11 (10,9%)

The survey results show that 68.8% of the students participating in the survey think that the means of supporting should have various specialised vocabulary, specialised sentences with correct pronunciation. 71.4% of students think that the supporting means should have tourism knowledge videos and tourism news in English. To meet the above requirements, students think that "website" is the most suitable support with 64.4% of the students' votes, followed by "fanpage" and "blog" with 24.8% and 10.9% respectively.

- *The website supporting Geography Studies students' specialised English proficiency (<http://geoet.info/>)*

* Vocabulary

Based on the content of the textbook "English for International Tourism - Pre-intermediate", the author builds a specialised vocabulary section consisting of 15 subsections, of which the first 10 subsections have names corresponding to 10 lessons of the

curriculum. The remaining 5 subsections include extended tourism vocabulary words outside the textbook, respectively, on 5 topics:

- Transportation
- Sports (Sports)
- Festivals (Festivals)
- Currency (Currency)
- Countries & Nationalities

The specialised vocabulary is taken directly from the textbook by the author, and added from other websites and travel English books. Each word has a meaning explanation in Vietnamese and definition in English. The 15 subsections of specialised vocabulary with specific topics and number of words are shown in the table below.

Table 4. Specialised vocabulary of the website

No.	Subsection	Number of words
1	World tourism	34
2	Jobs in tourism	21
3	Visitor centres	56
4	Package tours	37
5	Hotels	90
6	Food & Beverage	214
7	Nature tourism	66
8	Air travel	23
9	Hotel operations	33
10	Marketing	35
11	Transportation	68
12	Sports	36
13	Festivals	50
14	Countries & Nationalities	113
15	Currency	18
Total		894

***Sentences**

In order to develop students' specialised sentences, the author built specialised sentences section with subsections corresponding to the skills of the textbook "English for International Tourism - Pre-intermediate". The content of the specialised sentences section is built by the author through the learning process and practical experience in the environment of restaurants, hotels, contact with customers, etc. Each sentence on the website has a sound file recorded by the author.

The subsections' names are:

- Checking and confirming details.
- Covering letters.

- Dealing with enquiries.
- Leading city tours.
- Dealing with complaints and difficult passengers.
- Meeting customers' needs.
- Structuring a presentation.
- Checking out.
- Negotiating.

The name of each subsection and the corresponding number of sentences are shown in the table below.

Table 5. Specialised sentences of the website

No	Subsection	Number of sentences
1	Checking and confirming details	5
2	Covering letters	14
3	Dealing with enquiries	7
4	City tours	7
5	Dealing with complaints and difficult passengers	7
6	Meeting customers' needs	8
7	Structuring a presentation	12
8	Checking out	14
9	Negotiating	6
Total		80

***News**

In news section, the author defines the following:

- Purpose: Increase students' ability to read and understand specialised English.
- Source material: Articles in Vietnamese are from the website of Vietnam National

Administration of Tourism <https://vietnamtourism.gov.vn/> (with citations for each article, the author is responsible for the content translated into English); Articles in English are from the UNWTO World Tourism Organisation website <https://www.unwto.org/> (with citations for each article).

Because the website was built in the last period of March 2022, the author selected the news from the first half of March 2022 to January 2022 to post. In the period from December 2021 and earlier due to the raging Covid-19 pandemic, there were almost no articles on tourism activities, the information mainly revolved around recovery solutions, post-pandemic situation forecasts, etc. Criteria for choosing news is that the number of words is about 400, not too short or too long, the content is easy to grasp and close to students. The news section includes 2 subsections: "News in the world" and "News in Vietnam". The author collected 13 articles. There are 5 articles in the "News in the world" subsection and 8 articles in the "News in Vietnam" subsection.

***Videos**

In videos section, the author designed 10 videos in the subsection "Tourism knowledge videos". These videos can help students learn specialised English and provide knowledge about tourism for students.

- The second survey's results

Table 6. Geography Studies students' opinions about the look of the website (n=95)

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Website's structure is appropriate	0 (0%)	0 (0%)	3 (3,2%)	64 (67,4%)	28 (29,5%)
Website's texts are easy to read	0 (0%)	1 (1,1%)	3 (3,2%)	63 (66,3%)	28 (29,5%)
Website's images are easy to watch	0 (0%)	0 (0%)	3 (3,2%)	66 (69,5%)	26 (27,4%)

As for the look of the website, at each statement about the structure, text and image, more than 95% of the students participating in the survey agree and strongly agree. Only a few students did not have opinions or disagree with the comments about the website's appearance. There were not any students strongly disagreed.

Table 7. Geography Studies students' opinions about the content of the website (n=95)

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Specialised Vocabulary section has a variety of words	0 (0%)	0 (0%)	3 (3,2%)	53 (55,8%)	39 (41,1%)
Specialised Vocabulary section is closely related to the textbook	0 (0%)	0 (0%)	3 (3,2%)	57 (60%)	35 (36,8%)
Specialised Sentences section has a variety of samples	0 (0%)	0 (0%)	4 (4,2%)	55 (57,9%)	36 (37,9%)
Specialised Sentences section is closely related to the textbook	0 (0%)	0 (0%)	3 (3,2%)	57 (60%)	35 (36,8%)
Specialised Sentences section has clear pronunciation	0 (0%)	1 (1,1%)	5 (5,3%)	45 (47,4%)	44 (46,3%)
News section is closely related to your major	0 (0%)	0 (0%)	2 (2,1%)	60 (63,2%)	33 (34,7%)
News section supports the development of reading-comprehension in ESP	0 (0%)	0 (0%)	5 (5,3%)	54 (56,8%)	36 (37,9%)
Videos section is closely related to your major	0 (0%)	0 (0%)	4 (4,2%)	60 (63,2%)	31 (32,6%)

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
News section supports the development of listening-comprehension in ESP	0 (0%)	0 (0%)	4 (4,2%)	60 (63,2%)	31 (32,6%)
Website supports the development of your specialised vocabulary	0 (0%)	0 (0%)	4 (4,2%)	64 (67,4%)	27 (28,4%)
Website supports the development of your specialised sentences	0 (0%)	0 (0%)	4 (4,2%)	63 (66,3%)	28 (29,5%)
Website supports the development of your pronunciation to learn ESP	0 (0%)	1 (1,1%)	3 (3,2%)	62 (65,3%)	29 (30,5%)
Website supports the development of your specialised English proficiency	0 (0%)	0 (0%)	3 (3,2%)	50 (52,6%)	42 (44,2%)

As for the content of the website, more than 95% of the students participating in the survey agree and strongly agree that the specialised vocabulary section has a variety of words and they are closely related to the textbook "English for International Tourism - Pre-intermediate". More than 95% of the students participating in the survey agree and strongly agree that the specialised sentences section has a variety of sentence patterns and they are closely related to the textbook "English for International Tourism - Pre-intermediate", of which more than 93 % of students think that the specialised sentences section has clear pronunciation. About the news section, more than 92% of the students who participated in the survey agreed and strongly agreed that this section is closely related to their major, which can support the development of reading-comprehension in specialised English. In videos section, more than 94% of the students participating in the survey agree and strongly agree that this section is closely related to their major and can support the development of specialised English listening and comprehension skills.

In general, more than 95% of the students participating in the survey think that the website is capable of supporting the development of specialised vocabulary, specialised sentences and pronunciation when learning ESP. There are 52.6% of students participating in the survey agree and 44.2% strongly agree that the website supports students to develop specialised English proficiency.

4. Discussion and Conclusion

The topic "Building A Website Supporting the Development Of Geography Studies Students' Specialised English Proficiency, Geography Department, Ho Chi Minh City University Of Education" is the author's enthusiasm in supporting the development of specialised English proficiency of Geography Studies students. After the first survey, the topic has determined the type of support means should be the website because the rate of voting for the website next to the blog and fanpage reaches from 60-70%.

Website of the research is built with 5 main sections: specialised vocabulary, specialised sentences, news and videos. The specialised vocabulary section has 15 vocabulary topics corresponding to 10 lessons of the "English for International Tourism - Pre-intermediate" curriculum and 5 additional topics for students. The specialised sentences

section has 9 topics corresponding to 10 skills that students learn in the curriculum "English for International Tourism - Pre-intermediate" (there is 1 topic for the 2 skills included in the textbook because of their similarity). The section "News in the world and "News in Vietnam" aims to help students update information and increase their ability to read and understand ESP. The videos section is intended to help students review basic knowledge about tourism and increase their ability to listen and understand ESP.

The results of the second survey show that the majority of students participating in the survey agree and strongly agree with the ability to support the development of specialised English proficiency of the website in general and the sections of the website in particular.

Although the website has been built, to be able to support Geography Studies students in developing their specialised English proficiency, it must have efforts from the students themselves and the orientations from Geography Department teachers combined with the website, then the website will maximize its effectiveness. As for the students, they should be proactive in learning ESP with website through self-study, group study, full review before going to class and exams and exams. As for the teachers of Geography Department, they can orient and encourage the students to do exercises in a bilingual form. At the same time, they should design exercises to encourage students to look up the terms of tourism in English so that ESP becomes familiar and close to students.

In the future, another direction related to the topic that the author intends to research is the effectiveness of the website, which is reflected in the scores of the ESP modules. Thereby, it is possible to determine the ability of the website to support in practice, reflected in the learning results of students.

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THE FOURTH INDUSTRIAL REVOLUTION AND THE GENDER GAP IN VIETNAM CONSIDERING EMPLOYMENT

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Abstract

Ensuring gender equality in the field of employment for employees in the process of accelerating industrialization and modernization of the country and international integration is one of the important goals contributing to the improvement of the position of the labor force individuals in the family and society, and at the same time contributing to social stability, gradual improvement of the quality of life. However, reality shows that, in countries around the world as well as in Vietnam, the gap in gender equality in the field of labor still exists. This issue greatly affects women's employment opportunities and the realization of gender equality. Especially, in the stand of the impacts of the fourth industrial revolution, the jobs for simple laborers like female workers, will be pushed at high risk of being replaced by machines and robots, which makes the gap between genders even larger. Therefore, analyzing the effects of the fourth industrial revolution, the issue of the gender gap, and from this proposing measures to promote gender equality to narrow the gender gap in employment is a meaningfully important issue, which ensures gender equality in such a substantive manner.

Keywords: *Employment, female workers, gender equality, the fourth industrial revolution.*

1. Introduction

According to the 2017 Global Gender Gap Report of the World Economic Forum: "Vietnam ranks 69th out of 144 countries in terms of gender equality, in which the criterion of economic participation and opportunity is ranked first 33/144" (Ngoc Tien Pham, 2022). Vietnamese women "account for nearly 50% of the workforce, and they operate and manage more than 60% among the total number of more than 4 million rural economic households and 28% among the total number of enterprises" (Ngoc Tien Pham, 2022). However, under the impact of the fourth industrial revolution, female workers will be pushed under high pressure as the employment trend will change from manual skills to thinking skills, from workers to machines and tools, or as robots will replace most of the simple jobs. Meanwhile, in Vietnam, female workers are most often concentrated in agriculture, textiles, footwear, and electrical and electronic assembly. These working fields are replaced by robots at the most.

In fact, despite the application of high technology and intelligent machines, especially the appearance of robots with artificial intelligence and robotics are and will create many new jobs, typically jobs relating to human-machine interaction, which creates new waves of business and new jobs. Besides, the fourth industrial revolution can also cause the

risk of disrupting the labor market, which makes the advantage of cheap labor fade away, and the risk of falling further behind is present. Many types of jobs, like those requiring precise manual labor, have been automated and continuously increased as computers have been continuously developed overhead. Most of the work of professionals such as lawyers, financial analysts, doctors, reporters, accountants, insurance, or librarian will likely be partially or fully automated. Many traditional production and business lines will also be at the risk of disappearing. According to research by the McKinsey Global Institute, “it is estimated that by 2030, between about 400 and 800 million jobs worldwide will be replaced by automation technologies. The birth of smart factories, in which machines play a leading role, can operate the entire production process by themselves, which gradually replaces previous production lines” (Nam Hai Nguyen, 2021)

Furthermore, developed countries having technological advantages and capital will invest back in their own countries based on applying "smart factory" technology, rather than investing in profitable country's labor force as before. According to the International Labor Organization (ILO), “about 56% of workers in five Southeast Asian countries are at risk of losing their jobs because of robots” (Central Institute for Economic Management Information - Document Center, 2019). Which, Vietnam is one of the countries most affected by the fourth industrial revolution. According to the forecast of the International Labor Organization (2019), “in the next 10 years, Vietnam will face the replacement of labor when applying digital technology, leading to a change in the production model, culture, etc. Up to 70% of jobs are at high risk (with a probability of being replaced over 70%), 18% have a medium risk (with a probability of being replaced from 30- 70%) and 12% are low risk (with less than 30% probability of being replaced)” (Nam Hai Nguyen, 2021).

Not only in the field of production but also the field of commerce, service, and entertainment, robots, there are jobs to be irreplaceable such as hotel receptionists, offices, restaurants, call centers, traffic, healthcare, education, and agriculture. Not only the risk of losing jobs due to being replaced by machines, female workers in developing countries, including Vietnam, also face a series of other problems such as: not having rights protected according to a change like the labor relationship between people and machines. They also are treated unequally between high-skilled workers and low-skilled workers, who are not equipped with sufficient expertise and techniques to adapt to the new requirements of modern machinery and equipment, leading to self-elimination from enterprises...

In addition, the impact of automation on the labor market is different as well as specific for each industry, each job, and also gender. In particular, workers in the textile and garment, and footwear industries will be most at risk of being replaced by machines because they are mostly low-skilled and unskilled workers, the majority being female workers. Meanwhile, industries such as automobile manufacturing, transportation, electricity – electronics, and infrastructure will have an increased job demand for skilled workers, which is usually for men.

All of the above factors have also had a strong impact on the gender gap, especially the role of women in employment in the digital, physical, technological, and biological

world. Men often dominate in computer science, math, engineering, manufacturing, construction, and installation, industries that are in high demand, which means more careers in which women are playing. Key roles such as switchboard operator, administrative work, retail... will face the risk of job loss.

Thus, the fourth industrial revolution has had a strong impact on the employment of many workers, in many occupations, for both male and female workers, especially female workers. This requires taking active measures to reduce the gender gap in receiving the achievements of the fourth industrial revolution in the field of employment, thereby creating favorable conditions for laborers. Women workers have more opportunities to choose and develop careers in this digital era.

2. Method

The article uses historical, logical, analytical, and synthetic methods to clarify the impacts of the fourth industrial revolution on the gender gap in terms of employment, thereby offering some solutions and measures to increase opportunities for female workers in adapting to the transformational requirements of the labor market 4.0, towards ensuring gender equality in all fields.

3. Results

3.1. The effects of the fourth industrial revolution on the gender gap in employment

3.1.1. Positive impact

Firstly, the fourth industrial revolution has brought many job opportunities for female workers to access new occupations and new jobs.

Although the fourth industrial revolution will make many professions at risk of disappearing because of the trend of automation, it is also an opportunity for other occupations to develop, especially in information technology and digital applications. The transformation will be an opportunity for the birth and development of new business models, new markets, and job opportunities, thereby creating more conditions for female workers to access new occupations and new jobs.

This favorable condition is firstly explained by the relatively high number of female workers, the proportion of female workers in age groups is always higher than that of male workers. “The total number of working employees is over 5.5 million, of which the percentage of female employees is over 50.30%. The majority of female employees are working in industries, accounting for 51.3%, and the proportion of female employees working in commercial services accounts for 40.7%” (Anh Tuan Tran, 2021).

Besides, the Party and the State of Vietnam also have many policies to support employment for female workers. That is the Law on Supporting Small and Medium Enterprises, which prioritizes the development of women-owned small and medium-sized enterprises, and was promulgated on June 12, 2017. Programs to support women entrepreneurs have also been implemented at all levels and sectors to raise women's awareness of the Party and State's guidelines and policies on entrepreneurship, contributing to the realization of the national goals on business development and the National Strategy for Gender Equality. In

particular, on June 30, 2017, the Prime Minister also issued a Decision approving the project "Supporting women to start a business for the period 2017-2025" to support 20,000 women to start businesses and start businesses, helping to realize creative ideas stemming from needs and solving current problems of women" (Ngoc Tien Pham, 2022).

Second, the fourth industrial revolution creates conditions for Vietnamese female workers to have more opportunities to access science and technology, thereby gradually improving their professional and technical qualifications and changing careers industry to adapt to the changes of this revolution.

When having access to high science and technology, and improving professional and technical qualifications, female workers have more opportunities to work in developed industry groups at enterprises or start-ups or create their own. jobs in many flexible forms including part-time jobs such as food processing technology, packaging paper, printing technology, information technology - electronics, mechanical automation, plastic technology, yarn, weaving, sewing, fashion design - prototyping, high-tech agricultural and aquatic product processing, seafood...

Besides, the combination with new professions, changing modern techniques such as building materials, food processing, ceramics, production of high-class sports equipment, high-class fine arts, cosmetics applied arts, travel services, catering, entertainment, cosmetology - beauty care, business administration, marketing - brand development, e-commerce, logistics, financial management - accounting, audit, etc will also attract more and more female workers and there will be almost no occupational boundaries between men and women in the labor market trend towards technology, science, and technology.

On the other hand, the fourth industrial revolution also makes an increasing number of creative women appear in the fields of science and technology, design, art, culture, entertainment, media, education, training construction, healthcare, law... These are also occupations where women will dominate over men.

Third, the fourth industrial revolution also created many new occupational groups that are more suitable for women than for men

One of the opportunities for women in the digital transformation labor market is the maintenance and necessity of women-specific occupations and jobs that machines cannot perform or replace. Those are jobs requiring natural human abilities, capacities, and qualities related to emotional and psychological issues. This often belongs to women such as psychologists, therapists, coaches, event planning, nursing, and other healthcare professionals. Therefore, it is necessary to seize and take advantage of the opportunities of the transforming economy to redesign labor policies and business practices to ensure that both men and women are fully empowered.

Fourth, contribution to increasing income for female workers

New technological breakthroughs in the fields of artificial intelligence, the Internet, 3D printing, nanotechnology, biotechnology, and the rapid and far-reaching change of the entire value chain from R&D to production, customer service, a significant reduction in

transaction costs, transportation, and 4th industrial revolution applications in agriculture, fisheries, medicine, food processing, environmental protection, energy Renewable energy, chemistry, have led to miracles in production and efficiency. As a result, labor productivity increases, and the income of female workers increases also, helping them to stabilize and increasingly improve their quality of life.

3.1.2. Negative impact

In addition to new opportunities opening up for workers in many fields and industries, it also increases gender inequality in the ability to access and apply new technologies.

Firstly, female workers have a higher risk of losing their jobs than men

One of the biggest impacts of this revolution on employment is unpredictable effects on the nature of traditional jobs, causing the risk of disrupting the labor market, redundant labor according to machines replacing people, and an increase of pressure due to the shift of labor resources. In particular, this challenge is even greater for developing countries and especially in occupations employing a lot of manual and unskilled labor where women reach a high rate. One of the main reasons is that they are under-represented for the jobs with the highest growth in the coming years in the STEM (science, technology, engineering, and math) industries. “According to UNESCO estimation, only 3 in 10 researchers in science, technology, and innovation globally are women” (Ngoc Tien Pham, 2022).

On the other hand, like in many other parts of the world, Vietnamese female workers are also under high pressure and face the risk of losing their jobs in labor-intensive industries. The following table shows that the rate of jobs being replaced by machines in the following sectors: agriculture, forestry, fishery, processing industry, manufacturing, wholesale and retail, textile and electronics industry is very high.

Table 1. Industries with a high rate of job displacement in Vietnam

Industry	Rate of substitution
Processing and manufacturing industry	74,4%
Textile industry	83%
Electronics industry	75%
Agriculture, forestry, and fishery	83,3%
Wholesale and retail	84,1%

Source: Forecast of the International Labor Organization, 2019

(Nam Hai Nguyen, 2022)

In the above occupational groups, female workers in Vietnam will face more risks and challenges than men because they often focus on fields that require low professional qualifications or jobs with sustainability and low stability. Specifically: “70% of female workers usually work in industries and fields such as services, textiles, leather, and footwear; 62.4% of female employees work in the family without pay and are self-employed; 41.1% of female workers do simple jobs; 43.6% of female employees work in the agricultural sector” (Ngoc Tien Pham, 2022). For example, in the textile industry, operations such as

cutting and sewing can be replaced by machines. Technology 4.0 can work continuously 24/24h, robots can replace for electronic assembly industry, and consulting, and customer care will be answered by automatic robots. This will have unpredictable consequences for the economy and other social security issues, including an increase in the gender gap.

At the APEC Women and Economic Forum held in Thua Thien Hue in September 2017, it was also pointed out that the fourth industrial revolution is having unpredictable effects on the nature of work in general and participation in the workforce empowering women in the economic field in particular. The majority of female-owned enterprises are small and micro enterprises; access to support programs and policies is limited. In addition, they also have more difficulty than men in realizing business ideas, and fewer opportunities to participate in trade promotion activities, or opportunities for training and learning...

The second is the imbalance in the industry structure

The fourth industrial revolution will increase the segregation of the roles of men and women at work. This is a negative consequence of this industrial revolution because it increases inequality in general and the gender gap in particular, making it more difficult for women to develop their capacity in the labor force's future motion.

In which, the majority of female workers are still concentrated in industries that use mainly labor, or jobs with specific and repetitive characteristics, which are easily changed by robots and automated production processes such as textile, garment, footwear, agricultural product processing, non-agricultural sectors... Moreover, many women in difficult circumstances can only do unstable jobs, precarious work, etc. low income, easy job loss or unimproved working conditions, long working hours, precarious jobs, and high risks.

Meanwhile, it is because men tend to dominate in computer science, math and engineering, it is likely that gender inequality will be exacerbated. At the top is the information technology industry, considered the core industry of this industrial revolution, which is immune to the economic crisis, followed by the electrical engineering, robotic,s and intelligence industries artificial - the focus of the fourth industrial revolution will also develop very strongly. In addition, the following industries: Biotechnology - creating high labor productivity and generating output for businesses; development of mobile Internet, cloud computing... and service industries also tend to increase strongly such as 3D printing development and construction, investment financial services, design, healthcare, auto repair, etc. refrigeration...

In addition, the process of automation, development of artificial intelligence, and the ability to digitize jobs in service industries also mean that many occupations that female workers are undertaking are also at risk of unemployment. Traditional occupations are often the source of livelihood for many young women, many of whom are the first women in their families to work, or occupations that are popular among low-skilled middle-class women such as staff, call center, administrative and retail jobs will also gradually disappear or be replaced. This "will hurt many families, especially will put their families with single income from low-skilled women in danger, reducing the total income of families with two workers." and widen the gender gap that already afflicts the world" (Klaus Schwab, 2016, p.78-79)

This can be seen very clearly when Vietnam as well as other countries in the world are directly affected by the Covid-19 epidemic, the service sector, as well as several industries and occupations in which female workers predominate, are under pressure great force from the consequences of the epidemic. Therefore, digital transformation plays an increasingly important role for all industries to adapt to life during the pandemic, leading to job loss, reduced income, and increased pressure on workers female.

Third, the difference in qualifications between male and female workers

While jobs in the fourth industrial revolution are highly intellectual, those hardest hit will be the medium- or low-skilled workforce because the rise of super-automation and hyper-connectivity, combined with artificial intelligence, will dramatically impact nature of all types of work. Any field of manual labor or profession with a repetitive nature can be replaced by robots. Even jobs that require skillful human hands can also be replaced by robots such as sewing the winding curves of clothes and shoes... According to a forecast by the World Economic Forum, “50% of jobs doing today will be replaced by robots in the next 30 years; 65% of children in primary school today who graduate from school will find a new job that has never existed before” (Thi Thu Lan Pham, 2021). Accordingly, a portion of the low-skilled workforce that was already heavily impacted by automation during the 3rd industrial revolution may now be further affected. An economy with a high degree of automation and creativity requires workers to quickly adapt to changes in production, otherwise, they will be redundant and unemployed.

Meanwhile, the current professional and technical qualifications of the majority of female workers are lower than that of men, especially in technical skills, digital skills, and information technology in the traditional direction (textile, sewing, service, sales...). Although vocational training and capacity building for female workers have been focused on, it has not yet met the actual needs, especially in the context that the fourth industrial revolution is having a profound impact on women employers’ recruitment requirements. “According to a report of the Ministry of Labor, War Invalids and Social Affairs, although the number of female workers participating in vocational training increases every year, it mainly only increases in primary training and under three months, focusing mainly in the fields of vocational training and education garment, footwear, electronic assembly, tourism, service, seafood processing, and agricultural production sectors; the percentage of female employees participating in vocational training does not meet the set target, the percentage of female workers who have undergone vocational training is still lower than that of men” (Thi Mung Bui, 2022). Therefore, when the fourth industrial revolution develops, the replacement of production lines with modern machines and equipment will increasingly require a highly-skilled workforce to control production lines with modern equipment and machines.

3.2. Some solutions

Firstly, regulate the percentage of men and women recruited to ensure the implementation of gender equality in the development and implementation of legal documents

The regulation of the percentage of men and women employed is one of the important measures to ensure equal employment opportunities for men or women to close the gender

gap and towards the realization of substantive gender equality. The 2006 Law on Gender Equality stipulates specific measures to promote gender equality in the field of labor, including regulations on the percentage of men and women who are recruited; training and retraining to improve the capacity of female employees and the employer to create occupational hygiene and safety conditions for female employees working in several heavy and dangerous industries or occupations or contact with toxic substances (Clause 3, Article 13). (Law on Gender Equality, 2006).

However, eliminating the large gap between men and women in terms of employment opportunities has not yet achieved the expected results, because in fact, discrimination against women is reflected in the Job advertisements that are still available. According to a report by the International Labor Organization (ILO) conducted in 2015: “Job advertisements from mid-November 2014 to mid-January 2015 showed that the majority of job advertisements mentioned gender requirements. Of the job postings with a gender factor, 70% require only men, while only 30% expect female candidates to apply” (Thi Mung Bui, 2022). Moreover, in the recruitment posting needs of many companies, agencies or businesses, gender requirements are often stated. For example, male recruitment is often preferred for jobs of a technical nature, advanced engineering, technology, or jobs that require more mobility such as architects, engineers, information technology ..., and women are often required for support and office jobs such as receptionists, secretaries and assistants, accountants, human resources and administration...

Moreover, stemming from gender stereotypes, employers do not want to hire female employees because women often have to give birth and take care of the family, so they will have to take more rest than men or other important employers think that men will do better than women for that job, so they will prioritize choosing men and ignore opportunities for women. As a result, women are still more disadvantaged than men in terms of employment opportunities. In particular, before the changes of many professions under the impact of the fourth industrial revolution, the jobs that women take on often tend to be replaced by robots and automation, or the jobs that women do with low or moderate-income. This also means that jobs with high incomes and opportunities for career advancement are still jobs that tend to go to male candidates more than women, thereby creating inequality in employment opportunities for female workers, leading to inequalities between men and women in many other areas of social and family life.

Therefore, besides ensuring job opportunities for female workers in general and female workers in particular with ethnic minorities, women with disabilities, etc., more policies are needed to work. Women workers are allowed to work in groups of occupations that apply modern technology and techniques to better solve the problem of gender inequality in employment opportunities.

Second, training and fostering to improve the knowledge and skills of female workers

Before the effects of the fourth industrial revolution, women are often more disadvantaged in accessing employment opportunities than men. Therefore, measures to promote gender equality in the labor sector should focus on training and capacity-building measures for female employees. This is the most urgent measure at present and is meant as

a leverage solution to ensure gender equality in the field of employment to realize the goal of the National Strategy on Equality Gender in the period 2021 - 2030. These are the goals: (1) Increase the proportion of female wage workers to 50% by 2025 and about 60% by 2030. (2) Reduce the proportion of female employees working in the agricultural sector in the total number of female employees with employment to less than 30% by 2025 and less than 25% by 2030. (3) The ratio of female directors/owners of businesses and cooperatives are at least 27% by 2025 and 30% by 2030” (Resolution No. 28/NQ-CP, 2021).

Prioritizing training and capacity building for female workers will create more conditions for women to have equal employment opportunities. Once they receive vocational training and have a solid professional qualification, they will have more opportunities to choose jobs, have stable jobs, better incomes, and therefore also have the opportunity to assert their position in the family and society. Practice shows that, in recent years, many projects on capacity building for female employees have been implemented, which has contributed to increasing job opportunities for many female workers. However, before the requirements of the fourth industrial revolution, female workers still face a lot of pressure in finding decent jobs as well as jobs with high income and good prospects in the profession Karma.

Therefore, the job training policy for female workers, if it stops at primary training and focuses on several occupations where female workers currently play the main role, will not solve the problem thoroughly the problem of creating equal employment opportunities for female workers. Therefore, female workers need to actively raise awareness about the fourth industrial revolution, and actively participate in training courses to improve their qualifications and skills in their occupations and jobs to meet the needs of the workforce meet the requirements of digital technology. Each female employee must be aware of the change, feel the pressure and challenges from this industry, actively learn the necessary information, make efforts, and overcome herself to respond appropriately fit herself.

Female workers also need to proactively equip skills, especially technology skills, develop soft skills, creativity, adaptability, flexibility in work and communication, and improve foreign language skills and information technology to be able to adapt and meet the requirements of high-quality jobs and labor mobility in the digital age. In addition, to overcome the unemployment of a part of female workers with low professional qualifications and skills, especially in occupational groups at high risk of being automated and replaced by robots, attention should be paid to retraining, and training to improve professional knowledge and skills in enterprises, production, business and service establishments to meet the requirements of technical, technological and service innovation, production, the ability to adapt to changes in technology and organization and management.

On the other hand, it is necessary to increase and promote access to information and communication technology and women's participation in the training of careers in high growth fields, new careers brought about by the digital age, are better paid like science, technology, engineering, art, and math. At the same time, promote creative entrepreneurship among young women and female entrepreneurs.

In addition, women need to focus on training and working in a group of professions that need creativity in the fields of design, art, culture, entertainment, media, education,

training, healthcare, law... or groups of professions that require ingenuity, sophistication, perseverance, jobs that cannot be performed by machines and or jobs that require natural human abilities and qualities such as problems emotional and psychological issues.

Third, strengthen support policies for female workers

In addition to preferential policies for start-up programs, production projects of female workers should focus on supporting technical research for women's associations, enterprises, and cooperatives led by women masters to have access to advanced scientific and technical achievements, step by step mastering technology.

In addition, businesses and employers also need to create occupational hygiene and safety conditions for female employees working in several heavy and dangerous industries or occupations or exposed to hazardous substances. This is one of the measures to show the progressive trend in approaching and solving the gender equality issue specified in Clause 3, Article 13 of the Law on Gender Equality in 2006 to ensure that female worker are not excluded from job opportunities. Because, if the priority is not to select women to work in a toxic and dangerous environment that priority will remove female workers from some job opportunities. Therefore, creating hygienic and safe conditions for female workers so that women can still work in some dangerous industries and occupations, and come into contact with toxic substances without affecting their health is the key to ensuring their health ensure substantive gender equality in employment opportunities for both men and women.

To do this well, it is necessary to promote the implementation of many solutions to create conditions for female workers to work in several dangerous industries or occupations or to be exposed to toxic substances, to which special attention must be paid: It is important to propagate for female workers to raise their awareness of preventing dangerous impacts from the working environment on their health and reproductive health. At the same time, the employer must strengthen additional measures to ensure the safety of female employees when they work in several dangerous industries and occupations and are exposed to hazardous substances. Because ensuring safety and hygiene for female workers must be done in all working environments. That is also the clearest expression of the nature of measures to promote gender equality.

4. Conclusion

Thus, the fourth industrial revolution has been opening up many opportunities for women to develop their capacities, and grasp the development trend of science and technology, but also poses many challenges in terms of employment for them. In particular, changes in the structure of the labor market, machines, and robots gradually replacing humans have impacted many industries, which will lead to a large number of female workers being affected. Therefore, female employees themselves need to be aware of the opportunities and challenges for their work and profession to innovate their working ways and thinking, learn and improve their capacity, and step by step adapt to the fourth industrial revolution. In addition, the State's policies also need to focus on vocational training for female workers according to the gender approach, improving professional qualifications, technology skills, and soft skills to meet the needs of female workers employed in the

enterprise or the labor market. This training is not only to serve the livelihood but also to increase the participation and contribution of women, create new impetus to promote sustainable, innovative, and inclusive growth, create a favorable environment benefits for women to promote their talents, to gradually narrow the gender gap, and to realize gender equality substantively and effectively.

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THE RETURNEE OF MARRIAGE MIGRATION: A CASE STUDY IN MEKONG DELTA, VIETNAM

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Abstract

This paper focuses on the adversity circumstances of Vietnamese marriage migrants who return to their hometowns. The paper starts with analyzing the context of marriage migration in Vietnam last three decades. Then, the returning of Vietnamese marriage migrants will be discussed. Finally, by examining specific returned cases in Mekong Delta, the paper demonstrates that the returnees face with lots of difficulties in their hometown; and their returning also creates many problems to the sending communities. Overall, it is hard for the returnees to re-settle down and continue their life in the hometown due to various reasons, including social constraints, institutional and legal structures. This urges many returnees jump into forced migration. Though, they are not recognized and documented as forced migration. Therefore, transnational framework for legal support is urgently needed to solve problems faced by many marriage returnees in their homeland.

Keywords: *marriage migration, returnee, Vietnam, Mekong Delta*

1. Introduction

The Marriage Migration Trend

In recent decades, marriage migration has become an important form of migration for women in many developing countries in contemporary Asia. Marriage migration has become an important form of mobility for women in many developing countries (Charsley, 2008). In 2007, 44.7% of the total number of migrants in Asia is female. Noteworthy, marriage migrants from developing to developed countries are predominantly female (Belanger et al. 2010). A great number of marriage migrants are from Southeast Asian countries. For instance, the Vietnamese women got married to Taiwanese men and Korean men. The Pakistan women moved to Britain. Thai women marry Germany, Filipina women to Germany [9], to the United States, Japan, Australia and Sweden, etc. The main reason Asian women migrate for marriage is to improve the economic situation. That is to find a better life as Vietnamese women in Taiwan and Korea (Kim, 2017; Kim, 2007; Lee, 2008), to obtain money as foreign brides in Korea (Kamiya & Lee, 2008) and Pakistani brides in Britain (Charsley, 2008), to help natal family by sending remittances; to escape from bad situations in the homeland as Thai women and Filipinas in Germany or Filipina in the US, Japan, Australia, and Sweden (Ishikawa, 2010).

Researches on marriage migration have been done in different fields. However, not many studies concern about the returnees in the sending sides. They seem to be neglected in

migration studies. In reality, the cause and effect of the returnees will create many problems to both sides, especially to sending countries. Although, the returning of these marriage migrants would not be as big wave as the out-migration, it needs to be placed in the marriage migration studies theory to fully understand the forced marriage or “*circular marriage migration phenomena*”.

After migration, the marriage migrant women might get along with the foreign husbands in the destination. Or their journey might end up with a divorce (worse cases are killed or died) and they need to make other choices: 1-continue to live in foreign countries legally in case they have acquired the resident alien; 2- return their home countries. The most miserable cases are the returnees with empty-handed, even without their personal documents. Some return with their small child who cannot speak the mother’s language. Facing with the difficulties in the sending sides, some will force to re-migrate for marriage.

Conceptually, this paper discusses three important points. Firstly, this article provides evidences on the difficulties that the returnees faced with. By analyzing specific interviewed cases in the sending communities, we clarify the dual stigma of failure on the returnees, that is, failed wives (aim for marriage) and failed migrants (aim for economic). Secondly, at macro level, our findings support the viewpoint on the legal precarity of the poor returned marriage migrants in their home countries. They are in complicated and ambiguous status due to social constraints, institutional barriers, and legal structures. These limit them from re-settling down in their hometowns. And, due to the difficulties to re-settle down, many returnees seek for another chance to migrate for international marriage. Thirdly, since the mixed child accompanied with the returnees has been increasing overtime and will soon be big problems to the sending communities, the support from countries of mother and father needs to be seriously considered and clarified.

The Context of Marriage Migration In Vietnam

According to the Ministry of Justice of Vietnam (MJOV), between 1995 and 2019, a total 393,570 Vietnamese women got married to foreigners, 90% of them were from rural areas, and 83% married via brokers. Their main destinations were Korea and Taiwan, the US, China, Singapore, Malaysia, etc. From 2010 to 2019, the number of Vietnamese women married to Korean men increase remarkably. Until 2018, Vietnamese brides in Korea is about 120,000, account for 38,16%, the largest foreign brides’ group in this country.

Before 1986, some Vietnamese women, especially those from Mekong delta region, got married to US nationals via relatives and friends. Most of them got married to the Vietnamese American men called Vietkieu. International marriage migration in Vietnam has become a great concern due to the increasing volume of women choosing marriage to improve their economic situation. This trend has started just after the Government of Vietnam adapted the “*open policy*” in 1986. The number of Vietnamese women got married to foreign husbands via brokers has increased remarkably. Their two main destinations are Taiwan (since 1987) and Korea (since 2000). The destination of migration for marriage of Vietnamese women changes from Taiwan to Korea in the last two decades due to social, economic and policy factors (see, Pham & Kamiya (2013).

In Vietnam, in comparison to labor migration, the migration for marriage of women is considered one way to reduce the poverty and unemployment rate in rural areas. Thus, the marriage migrants take dual roles as a wife and worker, with high economic expectations from natal families. Previous research showed that, the living standard of Vietnamese brides' families in Vietnam improved considerably after their migration. They assumed that even though, most of the Vietnamese brides move to the rural areas in Korea and Taiwan, their marriages are still hypergamy in economic condition (Pham & Kamiya, 2013). According to the Ministry of Gender Equality and Family of Korea, 59.7% multicultural families live on less than 2 million won per month. Most of them got married to the lowest socio-economic husbands (Park et al., 2012). Therefore, many Vietnamese brides face with economic difficulty in foreign countries. Moreover, the life of the Vietnamese brides in the destination become harder since they are also faced with other difficulties such as, language barrier, cultural differences, social exclusion, discrimination, and so on. And, the disappointed about the real economic condition in destination countries is the one of the main reason leading to breakup of such international marriages. These explain why the numbers of international divorces have been increasing overtime in Korea (Park et al., 2012).

After migrating to foreign countries for marriage, not all the Vietnamese women can settle down. Many of them must return their hometown with the feeling of failure. They failed to achieve their goal, that is, to bear children, to integrate, to settle down and assume lifelong in the destination countries. Divorce does happen due to different reasons. After getting divorce, some marriage migrant women continue to live in the destination countries, both legal and illegally, while many must return their hometown.

Kim (2017) mentioned that, according to Korean Center of United Nation Human Right Policy (KOCUN) survey on 100 Vietnamese marriage migrant women in 2014, 92 out of 100 women got divorce with official papers, 58 voluntarily returned Vietnam, 32 women became illegal aliens after divorce and were deported Vietnam, 5 were repatriated by the husbands. This means, nearly half of the returnees do not want to go back Vietnam. It is compatible with some interviewed cases in Mekong Delta that will be analyzed in the following section.

Some women returned alone, leaving their small children in the destinations. Some come back with their child who cannot speak Vietnamese, even without personal documents.

Though, the returning does happen, the returnees' data and information are not officially documented in Vietnam. Thus, the data in this paper is collected by making interviews through personal approaches. So, the sample size is so limited. Besides, since the returning of those women, still, is not a concerned topic in the marriage migration studies, we have limited secondary data for analysis and references, too.

2. Method

Research Methodology and Collected Data

The study aims to demonstrate that transnational framework for legal support between countries of origin and destination is urgently required to solve problems faced by the returned marriage migrant women. By documenting and clarifying the Vietnamese returnees' problems, including what they are suffered, faced with after returning; in their homeland to re-settle down; and, also what are the influences of their returning to the sending communities, etc.

Research place is Can Tho and An Giang provinces, in Mekong Delta, Vietnam. We collected the data in November 2019. Primary data collected by in-depth interview.

We chose these areas because a very large numbers of marriage migrants had left the regions last three decades. Of more than 50,000 international marriages that took place in the two provinces last three decades, a majority were to Taiwanese husband (50%), Korean (40%) and other countries (10%). Most of the Vietnamese marriage migrants are young, aged 18-25, low education level. Their husbands are often twenty-four years (even more) older.

After migration, some marriage migrants can help their parents to build new houses, to buy modern equipments. In sending communities, those marriage migrants are considered successful and embedded good image. In contrast, there are also many unsuccessful cases, returning with empty-handed. It is not the natal families' expectations. They are embedded failure cases, or bad images.

Actually, those women returned Vietnam for different reasons, such as getting divorce or escaping from the violent husbands, etc. Thus, the returnees' plight in Mekong Delta should be recognized and deeply sympathized.

The main methodology we used to collect data is in – depth interview. The total numbers of returnees we interviewed are only twenty-one. Actually, it is not easy for us to reach these returnees since they are not willing to join in the interview.

There is no official data about the returnees in the two provinces. As the commune officer said that the returnees do not want to present themselves due to the feeling of a shame (as failure), the stigma of useless women (as difficult or nearly unable to remarry a Vietnamese man). Besides, it is difficult for us to meet some returnees because they do not want to share anything. They thought that their stories are unsuccessful, or not worth mentioning. Since we could not reach the returnees, we also conducted interview with their relatives and some villagers to collect data. We present the research results in the next part.

3. Results

Table 1. General information of 21 cases

Indicator		Person/ (%)
Education	primary	2 (9.5%)
	junior	10 (47.6%)
	senior	8 (38.1%)
	tertiary	1 (4.8%)
Marriage age	17-19	6 (28.9%)
	20-24	8 (38.1%)
	25-29	5 (23.8%)
	30-34	2 (9.5%)
Occupations before migrating for marriage	maid servant	9 (42.9%)
	worker	3 (14.3%)

Indicator		Person/ (%)
	farmer	6 (28.6%)
	selling	3 (14.3%)
	others	1 (4.8%)
Occupations after returning	maid servant	7 (33.3%)
	Selling	14 (66.7%)
Number of children	one	10 (47.6%)
	two	2 (9.5)
	no	9 (43%)
Expect to re-migrate for marriage	yes	18 (86%)
	no	3 (14%)
Destination countries	Taiwan	11 (52%)
	China	1 (4.8%)
	Korea	7 (33%)
	Malaysia	2 (9.5%)

Source: Survey in 2019

Table 1 show that, all the returnees are young and have little education, just finish primary and secondary school. Eleven out of twenty-one returnees married to Taiwanese; seven returnees married to Korean, two to Malaysian, and one to Chinese. Most of them have children and expect to re-migrate for marriage.

Studying the 21 returned cases, we recognized that, the difficulties of the returnees accompanied with and without children are different. Thus, we classified them into two groups, *group 1*- returnees without children; *group 2*- returnees accompanied with children. Then, we selected three cases from the two groups for analysis in the next section.

Case Study Analysis

In this part, we will analyze three returned cases. Case A and B come back Vietnam, accompanied with children. Case C returned Vietnam without children. Besides, destinations countries of the three cases are Taiwan, Korea, and China. We documented their information in the following table.

Table 2. Information of the three cases

Information	A	B	C
Marriage age	19	21	23
Education	primary	high school	secondary
Language ability	poor	rather good	average
Occupation before migration	farmer	nothing	maid servant
Occupation after returning	selling	maid servant	maid servant
Length of stay	6 years	5 years	3 years
Number of children	2	1	0

Source: survey 2019

Note:

Language ability

Poor: know a few words, can't make conversation in the husband's language.

Average: can make basic/daily conversations, but with lots of errors.

Good: can make conversation properly, with less serious errors

The three cases above have similar motives of migration, seeking for higher economic betterment. All the three cases married via marriage brokers and do not know about the husband's job and income in the destination.

Case A

A's hometown is CanTho (Tan Loc island). A got married to a Taiwanese man at the age of 19 via brokers in 2008. She quickly migrated to Taiwan three months after a mass wedding in Ky Hoa park. Coming to Taiwan, she continued to work as a farmer, the job she used to do in Vietnam. Her husband is a farmer and must work hard, too. After one year, she gave birth to a daughter. Her husband was not very happy. He wanted a son, and so did his parents. Her husband often easily got angry with her. A had to do all the housework and taking care of the old parents-in law. Luckily, the third year in Taiwan, she delivered the second child, a son.

A said: "I had to work hard before going to Taiwan. And, it does not change when I came to Taiwan. I cannot speak Taiwanese. I have no friends. My husband did not allow me to meet others Vietnamese women. I worked as a machine. At first, I dare not tell my mom in Vietnam anything. I dare not (because my mom is also a single mom with two daughters. She is sad enough - crying). When my parents- in law got sick and died, my husband became a crazy man. He only wanted my son. He beat me any time. One time, my head was seriously hurt. The neighbors took me to hospital. Then, we got divorce. And I returned Vietnam with my daughter because my husband refused to raise up my daughter".

To A, visiting the son seems impossible for her. It is difficult for her to apply for visa to Taiwan again because she does not have money, and no one guarantees her. Also, she has not received any help or information from her ex-husband since she left Taiwan. After returning Vietnam, A cannot find a stable job. She sells lottery ticket and fruits in a small market.

Case B

B's hometown is An Giang province. B got married to a Korean man at the age of 21 via brokers in 2012. She migrated to Korea six months after the wedding in her hometown. Coming to Korea, she is a housewife. The couple lived with the parents-in law, over 80 years old. Her husband is a constructed worker. After one year and a half, she gave birth to a daughter. Six months after the daughter's birth, her husband got an accident. Then, he was unable to work again. B had to find a job outside the home to earn money. She worked for a cleaning company. Her job is washing the drape from the hotels or hospitals. Since she worked outside, her husband was unhappy and easily getting angry.

B said: "Now, I have no chance to go back Korea. I still cannot make the identification. Before coming back Vietnam, I had applied all the related documents to

acquire Korean citizenship. The process has not finished. At present, I also cannot remarry with anyone else because I am officially married”.

Case B shows that due to the lack of personal documents and the refusal of the Korean husband, she cannot go back Korea. Though, she does not want to be stuck in Vietnam. She does not know what to do. She is not acknowledged as single women in Vietnam.

Case C

C’s hometown is Can Tho, in Tan Loc island. C got married to a Chinese man at the age of 23 via brokers in 2013. She migrated to China one month after the wedding in her home. In China, she worked as a housewife. It is really a hard job since she had to do serve a big family, with twelve members. Her husband is a worker. After three years in China, she still did not have any children though her husband tried to find different ways. Then, C was considered as real maidservant in the family. She became the wife of other men in the big family, not only the wife of her husband. It was terrible to her. She tried to escape several times. Finally, she was lucky to go back Vietnam in a cold winter night, leaving all her personal papers in China.

Sadly, C said: “*It was terrible time in China. I was dying. I am not good at Chinese. I had no right. I even do not have to work hard like that in Vietnam. However, I never tell my parents about my terrible time in China. My parents encouraged me to marry a foreigner. I made a wrong choice. I hope to take other chances. I think, Korean men is better*”.

C suffered a terrible life in China. This case also shows that the Vietnamese women are very enduring. They dare gamble their life. They accept to bear any degree of misery such as economic difficulty, and hard-working condition. And, the game has not finished after they returned Vietnam.

Returning Vietnam, the three cases face with different difficulties, both objective and subjective. The reaction from the relatives and neighbors as well as their own problems are documented in the table 3.

Table 3. Problem faced by the returnees

Indicators	Case A	Case B	Case C
<i>Feeling after returning and re-settling down</i>	- Tangible: empty, failed, ashamed, faulty to parents, and lucky feelings	<i>Disappointed (Cannot stand the neighbor’s attitude)</i>	- happy (successfully escaped)
<i>Difficulties</i>	- Daughter (6 years old): cannot attend primary school, not good at Vietnamese, suffering from other kids (mixed-blood) - sufferings from relative and neighbors’ opinions/ attitudes.	- no money - no job	- no money for daily life - no job

Indicators	Case A	Case B	Case C
	- difficult to find a job (no degree, and no money).		
<i>Support from the local community</i>	- daughter is allowed to enter the primary school.	- <i>nothing</i>	- nothing
<i>Relatives/ neighbors' reaction</i>	- look down on me.	- look down on me.	- pity for me
<i>earning a living</i>	- selling lottery ticket and fruits at a small market.	- <i>working in a small restaurant in HCM City</i>	- working in HCM City as a cleaner
Expectation	- stay in Vietnam - get a stable job. - visit her son in Taiwan	- <i>go back Korea.</i> - <i>get divorce.</i> - <i>migrate for marriage again.</i>	- migrate for marriage again. (considering)

Source: In- depth interview, 2019

4. Discussion and Conclusion

4.1. Discussion

4.1.1. The problems in receiving sides

The differences of marriage law in the destination countries and countries of origin. The foreign wives do not have legal rights to live or to leave the destination. For example, the foreign wives need the husband's guarantee for entering the destination (in both Korea and Taiwan), for applying resident card, for submitting the documents to get divorce. This also means that, from the beginning of migration, the foreign wives are in imbalanced position.

Firstly, the foreign wives are easily accused as run away, or to be deported from the destination countries. Their husband has the power to abandon them, simply by reporting to the immigration office that they were suddenly disappeared, even when the foreign wives are still in Korea [8],[10]. That is why case B does not have the chance to come back Korea when her husband reported that she was disappeared without any reason. Thus, B was considered as run-away case in Korea. While in Vietnam, she cannot become full citizen since she did not get a legal divorce. Moreover, the foreign wives' have no right after getting marriage. Case C demonstrates that she loses her basic human rights. Her husband did not consider C as his wife. In the destination, C also did not get any support from the local government. Finally, she ran away to rescue herself.

These finding support the conclusion in Kim study [6] i.e., the foreign wives need more legal support in the destination, especially before getting divorce.

Secondly, the ideology of maintain bloodline to the father and the marriage Law in destination countries force the foreign wife in disadvantages condition, especially after divorce. In specific, even getting divorce legally, the foreign wives often do not have the

rights to custody their child because they are economic dependent; they have no job, no money. It is different from the Law on Marriage and Family stipulates of Vietnam. In Vietnam, the priority of child custody after divorce belongs to the wife, even when the wife does not have a stable job. The husband must take the duty to support the child until their children get to the age of eighteen. This difference makes most of Vietnamese wives in foreign countries dare not think of getting divorce because they want to take care of the children. They sacrifice for their children.

Among the three cases we analyze in this paper; case A is an example. A's ex-husband has no connection with his daughter and does not support anything after divorce. It is unfair to the foreign wives, and especially it is not compatible with the Vietnamese Law on marriage and Family. Case A certifies that after getting divorce officially and return the home countries legally, the returnees need more supports from the local government; and the support from the husbands' government to visit their children left behind in the receiving sides.

Thirdly, the husbands have the right to get divorce without the foreign wife's agreement while the wives do not. Thus, the foreign wife is in disadvantage position and their voice is weaker. For example, although case B does not economically depend on the husband. She found a job and earned money by herself in Korea. However, her husband still has the power to abandon her by reporting her disappearance. So, even B is economic independent, she cannot go back to Korea.

In sum, in the destination countries, the foreign wives are in disadvantage position. Especially, the laws of destination countries are impartial, unfair, inequitable, and unjust to the foreign wives. This makes the husbands have more power to control and dominate the wives. And the wives are in inferior positions. Thus, the imbalances in daily life and legal powers will lead to many problems in such multicultural families. Especially, in the some first few years of the marriage, the wives' language ability is not good enough to report the problem. From these findings, we completely agree and support the claim of Kim [6] that, a new transnational framework for legal assistance is urgently required to find solution for the problem faced by such international marriage as well as to protect the human right for these migrant women and their children.

4.1.2. The problem in sending sides

To the sending sides, primary data collected on the returning of these marriage migrant women also raises many problems.

Firstly, because the aim of these women is clearly to migrate for a better economic condition and to settle down in foreign countries [12]. Therefore, the viewpoint and reactions of their relatives/communities on their returning means a failure. This reinforce the returnees' ashamed and useless feelings

Secondly, the social constraints in the hometown heavily influence on the returnees' thinking. These constraints become the burden on the returnees and urge them to think of re-migrate for marriage, escaping from the impassable reality.

Thirdly, there is not much support from the local government, maybe no support except when the returnees ask for help. In fact, due to the social constraints and the thinking of failure, ashamed feelings; the returnees tend to solve their difficulties by themselves. Usually, they do not ask the local government for help. They find their way to re-migrate for marriage.

4.3. Conclusion

There have been many studies on marriage migration, focusing on the sending and receiving sides. However, research on the returnees is very limited. Especially, the push factors on forced migration of the marriage migrant women have not mentioned. The story of the returnees in Mekong Delta of Vietnam in this paper is just an example.

The paper makes a very starting glance at the life of the returnees to raise their voice for getting support not only for the returnees themselves but also for their mixed child. It is more important to give supports to the returnees' mixed child, both in the receiving and sending sides. Besides, more research needs to be done to clarify the returnees' difficulties in their hometowns in order to support them. The difficulties the returnees face with are also derived from what they suffer in the destinations, such as their disadvantage position in the husband's countries (lower and less powerful). So, before returning, they cannot get enough supported from both the destination and origin sides. Specifically, destination Governments need to give them more support and protection. Especially, the returnees and their child should have the rights to get enough personal documents to restart their life in the hometown.

We hope that this paper raises the voice for these miserable returnees, requiring transnational legal assistances before and after returning. Thus, it is necessary to collect more data and research on the returned marriage migrants viewing both from the sending and receiving sides.

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FACTORS AFFECTING SECURITY INVESTMENT DECISION OF ECONOMICS AND NON-ECONOMICS STUDENTS - A CASE STUDY IN HANOI, VIETNAM

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Abstract

The article aims to find out the factors affecting security investment decision of students, measure the impact of those factors, and point out similarities or differences between economics and non-economics students. A survey of 178 students in both economic and non-economic sectors of universities in Hanoi showed that the factor "Available resources and decision-making bases" has the strongest influence on decision-making, the factors "The Crowd Effect" and "Self-Confidence" rank 2nd and 3rd. At the same time, the analysis results also show that there is no difference in the impact of these factors to the investment decisions of students of economics and non-economics majors.

Keywords: *stock investment, investment decision, economics student, non-economics student, available resources, decision-making basis, crowd effect, self-confidence.*

1. Introduction

Throughout more than 20 years of establishment and development, the Vietnam's stock market has truly become a medium and long-term capital mobilization channel for the economy. Together with the development of the market, Vietnam's economic structure is also being improved around 4 pillars: the organizational structure of the market, goods, investors, and security business operation. Relating to the investor factor, beside the solutions that have strongly and efficiently attracted their participation, Viet Nam would focus on strategies of investor development by expanding the scale of investment funds (State Securities Commission of Viet Nam, 2021). Nowadays, with the trend of global integration, the Vietnamese security market is becoming more and more opened with

international collaboration activities, and adds on modern, public, transparent mechanisms that protect investor's efficiency, contribute to increase credibility of the capital market and attract organizational and individual investors, both inside and outside.

Together with the development of 4.0 technology and the media like Youtube, Facebook, Tiktok..., most investors who have just joined the market are the young, since they can easily adapt to changes and update financial investment news as well. The investment scale of gen Z investors (who were born in 1996 - 2010) rose 200% from early 2010 till the end of 2021 (DBS Bank, 2021). In Viet Nam, securities companies have also recorded this trend. In the first month of deploying the "Young Investors" account package, VPS Securities Company had 15,000 new customers. At Pinetree Securities Company, in August 2021, the number of newly opened accounts increased four times, in which the group of customers born in 1996 or later accounts for the majority (VnExpress, 2021). This is a signal of more and more the Vietnamese young, especially students, interested in participating in stock investment based on approaching high technology soon. Stock investment brings a lot of benefits for student investors. For real, not only economic students but also non-economic students started to join the stock market. Student investors do not really have much experience in trading. They can choose to invest through the broker channel. The different investment methods, resources, and outside factors could lead to different investing results.

This article aims to answer the following questions: *i*, What are factors affecting students' decision to invest in securities and how much of such influence?; *ii*, Is there any difference of the factors affecting the investment decisions between economics and non-economics students?

2. Literature Review

Overconfidence is a bias that humans promote knowledge, ability and optimism about the accuracy of their information (Markus Glaser & Martin Weber, 2007). This is a psychological status of investors when they feel confident about having more knowledge, experiences... than others (Shiller, 2005). The research of Barka, S., & Y, A.N.C (2016) pointed out that investors' decisions are affected a lot by their confidence.

According to De Bondt, W. F. M & Thaler, R. (1985), investors are all influenced by the representativeness of stocks. They can also be over optimistic about the achievements and pessimistic about bad cases in the past.

Investors joining the stock market tends to follow the crowd effect (Abul, S. J., 2019). They are naturally interested in any trend on the market and believe that previous investors have a lot of reliable information.

Abhijeet Chandra (2008) explored psychological and behavioral factors of investors towards their decision making, and the relationship between the attitude when facing risk with their behavior. The result shows that individual investors do not always make rational decisions. They seek risks and avoid selling stocks in the faces of losses. They separate their investments for specific objectives. Investors' decision to allocate their portfolio is significantly affected by greed and fear. The research suggests that the emotion and behavior factors need to be collaborated in the investment strategies for individual investors. When

making decisions, investors are influenced by the risk relating to their portfolio. Specifically, their investment behavior are influenced by cognitive dissonance, greed and fear, sentiment and rationale. According to the research, these behavioral factors are considered as risk.

Chira, Adam and Thornton (2008) studied the late and emotional awareness that student investors encounter when making decisions, while clarifying the question “How are students influenced by these factors?”. In November 2007, the authors conducted a survey with a sample of 68 students at the University of Jacksonville in the US. The results of the study show that students were very optimistic and confident when being asked to rate their driving ability and work or school performance, but were less optimistic about athletic ability or investment ability. So, students are less likely to make the mistake of being overconfident and optimistic when there is more objectivity in their assessment. In other words, they are not cheated by controlling trends and emotional decisions.

Phan Thanh Hung (2012) studied the behavioral psychology such as herd mentality, fear of loss, pessimism, overconfidence, depression, cognitive inconsistency, regrets,... The results of the survey show that individual investors in Vietnam’s stock market were influenced by psychological factors which lead to irrational behavior, and this did not only happen to few individual investors. When being affected, investors will become the followers of the crowd, contributing to the overheating of the market as well as a subsequent decline, causing socio-economic impacts.

Nguyen Duc Hien (2012) focused on clarifying the theoretical framework of individual investor behavior based on the theory of financial behavior. The author indicates that the macroeconomic environment and the stock market have impact on the decision making of individual investors while inflation is not a real factor.

Pham Ngoc Toan and Pham Thanh Long (2018) conducted a survey of 192 individual investors in Ho Chi Minh City security market. The research results show that there are 5 determinants of individual investment decision, i.e. herding, overconfidence in financial capability, company’s image, consultants’ advice, and the quality of information in financial statements. Among these, the strongest factor is herding while the least influencing factor is the quality of information in financial statements.

Research hypothesis

[H1]: Overconfidence has a positive effect on students' investment decision.

[H2]: Available resources factor have a positive effect on students' investment decision.

[H3]: Representativeness has a positive influence on students' investment decision.

[H4]: Crowd effect directly affects students' stock investment decision.

[H5]: Decision-making bases factor has a positive influence on students' investment decision.

3. Method

Along with in-depth interviews with some students, 250 online survey questionnaires were sent to 1st - 4th year students in economic and non-economic sectors (Humanities, Social Sciences, Medicine, Engineering) who are living and studying in Hanoi. These students may intend or have invested in securities. The number of qualified answers is 178.

Building a scale

a. Overconfidence

Table 1. Overconfidence

Factor	Symbol	Observed variables	Reference source
Overconfidence	TT1	I am confident that my basic knowledge/broker is enough to invest in stocks	Phan Tran Trung Dung (2020), Philmore Alleyne and Tracey Broome (2011)
	TT2	I know exactly what I need to invest in stocks	
	TT3	I am confident in my ability to search and analyze information for stock investment	
	TT4	I have completed the stock investment courses, so it's easy to join this market	
	TT5	I believe in my luck to make effective investment decisions	The authors

b. Available resources

Table 2. Available resources

Factor	Symbol	Observed variables	Reference source
Available resources	NLSC1	I am able to access official information sources (textbooks, books, newspapers...) in stock investment.	Lai, Cheng-Po (2019)
	NLSC2	I am able to access unofficial information sources (friends, relatives...) in stock investment	Cao Minh Man et al. (2020)
	NLSC3	I have more access to domestic information than foreign sources	
	NLSC4	I have enough time for stock investment	Lai, Cheng-Po (2019)
	NLSC5	I have sufficient money for stock investment	

c. Representativeness

Table 3. Representativeness

Factor	Symbol	Observed variables	Reference source
Representativeness	TDD1	I analyze the trends of representative stocks as an investment basis for all stocks in the same industry that I invest in.	Cao Minh Man et al. (2020)
	TDD2	I buy stocks that are "hot" (stocks that perform well in the short term)	
	TDD3	I prefer to buy stocks of companies with high positions in the industry (in the medium and long term).	

d. Crowd Effect

Table 4. Crowd Effect

Factor	Symbol	Observed variables	Reference source
Crowd Effect	HUDD1	I decide to invest in stocks because my colleagues do.	Lai, Cheng-Po (2019)
	HUDD2	I decide to invest due to the media promotions.	
	HUDD3	I decide to invest in high capitalized stocks.	Luu Thi Bich Ngoc (2014)
	HUDD4	I am affected by other investors' portfolios.	

e. Decision-making bases

Table 5. Decision-making bases

Factor	Symbol	Observed variables	Reference source
Decision-making bases	CSQD1	I rely on the theories and rules of investment.	The authors
	CSQD2	I rely on my experience for the next investments.	Cao Minh Man et al. (2020)
	CSQS03	I rely on the experience of people who have made previous investment decisions.	Phan Tran Trung Dung (2020), Philmore Alleyne và Tracey Broome (2011)

Estimation methods

Quantitative analysis is employed in this research, using the SPSS software through the following steps: sample descriptive statistics, analysis and reliability testing of the scale by Cronbach's Alpha, ANOVA analysis, exploratory factor analysis (EFA), regression analysis, and recommendations.

4. Results

Among 178 students participating in the survey, 61 respondents did not intend to participate in stock trading, accounting for 25.5%. 52.7% of students intended to invest in stocks and the number of students who have been and are investing in stocks contribute to 21.8%.

According to gender, men account for 41%, women make up 59%. According to intake, 57.9% were in the group of 3rd year students, 18% were in the 2nd year, 11.8% in the 1st year, 8.4% in the 4th year, and 3.9% in other intakes. Refer to income, students who have income of less than 2 million VND/month account for 53.4%, followed by 2-5 million VND/month (32%), and over 10 million VND/month (5.1%). Most of the respondents are majoring in economics (73%). By the investment channel, the number of students choosing a self-investment channel accounts for 70.8%, the rest of 29.2% choose to invest through a broker.

The average value of the *overconfidence* factor ranges from 2.51 to 3.14. In which, the variable "I know exactly what I need to invest in stocks" has the highest value of 3.14.

The average value of the *available resources* factor ranges from 2.92 - 3.52. In which, the variable "I have the ability to access official information sources (textbooks, books, newspapers...) in stock investment" has the highest average value of 3.52.

The average value of the *representativeness* factor ranges from 2.82 - 3.24. In which, the variable “I prefer to buy stocks of companies with high positions in the industry (medium, long term)” has the highest average value of 3.24.

The average value of the *crowd effect* factor ranges from 2.67 to 2.91. In which, the variables “I decide to invest in stocks because my colleagues do” and “I am affected by other investors' portfolios” have the highest average value of agreement of 2.91.

The average value of the scales of the *decision-making bases* factor ranges from 3.20 to 3.34. In which, the variable “I rely on my experience for the next investments” has the highest average value of 3.34.

Sample linear regression equation showing the relationship of factors to students' investment decision-making is as follows:

$$Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + U$$

In which:

Y: Investment decision.

X1: Overconfidence, X2: Available resources and decision-making bases, and X3: Crowd effect.

The tests show that: The regression model does not violate the hypothesis of multicollinearity, heterogeneity of variance, and autocorrelation. The model is statistically significant.

Table 6. Testing the significance of regression coefficients

Correlation coefficients								
Model		Unnormalized correlation coefficient		Normalized correlation coefficient	t	Sig.	Multicollinear Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.888	.176		5.039	.000		
	HUDD	.187	.049	.238	3.786	.000	.700	1.428
	TT	.179	.060	.214	3.013	.003	.547	1.827
	NLSC_CSQD	.373	.068	.400	5.481	.000	.519	1.928

a. Dependent variable: QDDT (Investment decision)

The regression model on investment decision is determined as follows:

$$QDDT = 0.187 *HUDD + 0.179 *TT + 0.373 *NLSC_CSQD + 0.888$$

It can be seen that the Available Resources and Decision-Making Bases factors have the strongest impact on the dependent variable Stock Investment Intention (0.373), followed by the Crowd Effect factor (0.187) and Overconfidence (0.179).

Hence, after the analytical methods and the final empirical model have been carried out, the final survival factors include Overconfidence, Available Resources, Crowd Effect and Decision-Making Bases. Accordingly, the following hypotheses are accepted:

[H1]: Overconfidence has a positive effect on students' investment decision

The regression analysis results show that “Overconfidence” has a positive influence on students' investment decision. This result is different from the study of Luu Thi Bich Ngoc (2014) in which overconfidence has little influence on investment decisions of stock investors. This, however, is consistent with the research of Phan Tran Trung Dung (2020) which was concluded that potential investors are strongly influenced by their self-confidence. This result partly shows that student investors are confident in their ability to look for information, knowledge, and experience, both by themselves and through the broker.

[H2]: Available Resources factor has a positive effect on students' investment decision

According to the results of the regression analysis, there is a positive influence of the variable " Available Resources " on the student's decision to invest in securities. This result is consistent with the research results of Cao Minh Man (2020) and Lai Cheng Po (2019). Available Resources is an important factor, positively affecting students' decision to participate in stock investment. With enough knowledge, capital, and time, students will be more willing to participate in stock investment.

[H4]: The Crowd Effect directly affects students' stock investment decision

The results of the regression analysis show that the "Crowd Effect" has a positive impact on students' decisions to invest in securities. The impact of this variable is consistent with the research results of Luu Thi Bich Ngoc (2014) and Cao Minh Man (2020). The direct influence of this factor can be explained by the fact that students have access to a variety of sources of information: from friends, other investors, and the media.

[H5]: Decision-Making Bases has a positive influence on students' investment decisions

The obtained results show that the factor "Decision-Making Bases" positively affects the decision to invest in securities. This result has no difference with the research results of Cao Minh Man (2020), Phan Tran Trung Dung (2020), and Vo Thi Hieu, Bui Huu Phuoc, Bui Nhat Vuong (2020), contributing to demonstrate the importance of the decision-making bases for student investors. In particular, their own experiences and those of other investors have certain impacts, leading to reasonable investment decisions.

Implications

Based on the data collected, the authors found that a majority of students surveyed intend to invest in securities, accounting for 52.7% and 21.8% of the students who have been investing in stocks. This implies that securities investment has been gradually becoming popular to the young. However, a majority of students agree with the hypothesis that the intention to invest in securities comes from the crowd effect, meaning that since everyone around them invests, they decide to invest by themselves. The results through questionnaires and face-to-face interviews contain the following implications, and it is hopefully to contribute to the improvement of students' effectiveness in stock investment.

● ***Actively setting goals when making investment***

Before you want to do something, it is necessary to clearly define what your goals are. If the initial investment decision is made only based on the thought of following friends, it will never have results. According to T..., a third-year student majoring in Corporate

Finance: "I think students have much time but limited financial resources, so it would be better for them to study while participating in. Besides, you should have a plan of what is your own investment purpose". Setting goals for investment represents the student's vision of what and when they want to achieve. When you have clear goals and are able to clearly understand what you are about to do, students will put themselves in a position of being ready to face obstacles and difficulties. It takes time to fully understand the stock market and learn how to invest effectively, and students will certainly face many difficulties with specialized terminologies and language. However, investing or understanding and analyzing the stock market is very essential for students. Therefore, setting goals when intending to invest in securities will help students have more confidence in the journey of stock investment.

- ***Invest only in what you really understand***

According to Le Anh T..., a third-year student majoring in Mathematics-Informatics at Hanoi University of Science and Technology: "Sometimes, when I expect which industry is rising, I will buy hot codes of that industry". Students should broaden their views about the market, they need to do researches on industries and stocks that have not yet appeared in their portfolio. Investors should not buy new and even potential stocks if the shares are listed on the stock exchange by new companies that they themselves have not had time to learn carefully.

- ***Practice perseverance without fear of failure***

For an investment to be profitable, it takes long time. According to Nguyen Minh H., a fourth-year student majoring in Pharmacy, Hanoi University of Medicine and Pharmacy: "My advice for those who have just started investing in the stock market is that you should be patient. There are stocks that are long-term investments, they will not be profitable at the moment, and you have to wait for months or even longer". If students themselves cannot wait patiently, it will lead to wrong decisions. Moreover, if student investors can maintain calm attitude and perseverance, practice their observatory ability and sensitivity to market fluctuations, this will be an effective backup step in the risky investment process.

5. Conclusion

This study has contributed to confirming the factors affecting the decision to invest in securities of student investors in Hanoi, including demographic and other behavioral characteristics.

The research has added and diversified the factors affecting the students' intention to invest in securities, thereby showing the degree of influence of those factors on the investment decision. The investment intention has been mentioned in previous studies, however, student investors have not been deeply taken into account by other research groups. The results show the impact of 5 factors: Overconfidence, Available Resources, Representativeness, Crowd Effect, and Decision - Making Bases on stock investment decisions of economics and non-economics students. In conclusion, there are four factors affecting the student's decision to invest in securities, in which the Available Resources and Decision - Making Bases are the most influential factors, followed by the Crowd Effect and Overconfidence respectively. In addition, the study also shows that in general, there is no difference in the influence of the above factors on investment decisions between economic

students and non-economic students. On the basis of research results, some recommendations have been proposed to contribute to improving the investment efficiency of young investors in general and student investors in particular.

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A STUDY OF TIKTOK USAGE BEHAVIOR OF YOUNG PEOPLE IN HA NOI CITY

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Abstract

Along with the development of science and technology as well as the need to connect and share information with people, social networking sites such as Facebook, Youtube and most recently, the TikTok app was launched. The development of information technology, especially the Internet, has had the impact of changing the way of thinking, even behavior of young people. This article presents the behavior of using TikTok by young people in Ha Noi city. Research results show the extent of usage and factors affecting the behavior of young people using TikTok - people in the age group from 15 to 24 in Ha Noi city, including Subjective norms, Technological development, Perceived usefulness, Perceived ease of use, COVID-19 and some other factors relating to risks such as Time, Information, Psychological and Functional risks.

Keywords: *TikTok, Social Media, Usage Behavior, Decision Tree*

1. Introduction

In the process of formation and development through various stages, social networks have become increasingly popular and have become an integral part of the general public and young people in particular. However, in addition to the benefits offered by social networks such as the speed of information transmission and remote connectivity, there are still major challenges in the process of content management as well as control of the form of communication faced by specialized agencies.

Social networks started to appear from platforms like Yahoo, Facebook, and Google to the growth of some apps with the advent of Youtube, Twitter, and Instagram. The appearance of TikTok has brought a new tendency to users around the world and Viet Nam

is no exception. The object that best represents the coverage of this platform is young people from the age of 14 to 16 and University students. It is undeniable that TikTok is having an impact on certain aspects of the thinking, cognition, and lifestyle of some parts of youth nowadays, whether directly or indirectly.

With an intuitive, easy-to-use interface and smartly constructed algorithms to recommend relevant content to viewers, TikTok has created a network of engaged users between viewers and content creators. This is also an intangible space created to connect, share information visually, and easily overcome time and space constraints. In addition to the above-mentioned characteristics, the content created on TikTok is extremely diverse when being spread through the areas of entertainment, learning, and news... Perhaps because of this, the number of users, especially adolescents, is increasing dramatically in the world and also in Vietnam.

However, the algorithm as well as the hashtag feature being built by TikTok can become a disturbing double-edged knife in response to malicious content. This situation has been continuing when there are young people with deviant ideas, uninformed behavior, and cognitive deficiencies when posting content that is not suitable to social norms as well as national customs.

Why do young people now have the tendency to choose TikTok as an efficient learning and entertainment tool for themselves? What was the impact on their psychology and behavior that led to this decision? Consequently, researchers hope to make suitable recommendations for the related subjects in the use of the TikTok social network.

Starting from the above-mentioned question, we decided to conduct research on the topic "TikTok usage behavior of young people in Ha Noi city".

2. Method

2.1. Study Overview

Behavioral research

Human behavior is deemed to be formed by eight factors: identity; willingness; awareness; skills; personal characteristics of the person performing the behavior; expression of the behavior including all body postures, movements, and processes relating to the behavior; the results and implications of performing the behavior.

Based on the concept of behavior, Michael T. Burn and Adrian D. Pearson studied the civilized behavior of young people and misbehavior in High School in 2003 and 2006, respectively. Besides foreign studies, in Vietnam, author Tran Van Thao (2014) also presented the thesis: "School civilization behavior of students in some universities in Ho Chi Minh City".

Focusing on research issues, the authors find some research articles on behavior relating to young people, students, and students as above. In addition, there are still several other research directions on behavior such as consumer behavior, organizational behavior, customer behavior, financial behavior, criminal behavior, etc., which are also of increasing interest.

Behavioral research using social protection

According to the results of territorial search and research, the proportion of social security users is up to 95% in developed countries such as France, Germany, Italy, etc. And this number continues to grow to 46 percent of the world's population and reach 3.5 billion people by 2020.

Under such a large number of users, there have been numerous articles on social issues in the relationship with social that the research team has conducted such as:

Education and social life:

Factors Affecting Social Network Use by Students in Indonesia (Budhi Kristiano, 2017)

Students' Attitude Towards the Use of Social Network for Learning the English Language (Elham Akbari, Soodeh Eghtesad, and Robert-Jan Simons, 2012)

Children's Facebook Usage: Parents Awareness, Attitudes and Behavior (Asnat Dor and Dana Weimann-Saks, 2012)

The Impact of Using Facebook Social Media on Students' Learning and Life Today (Nguyen Lan Nguyen, 2020)

Students and Social Media Facebook: An Analysis of Social Capital Evolution (Doan Thuy Duong, 2014)

Usage behavior:

Factors Affecting the Social Network Acceptance: An Empirical Study using PLS-SEM Approach (Muhammad Al Shurideh, Said A. Salloum, and Barween Al Kurdi, 2019)

Social media usage behavior of Hai Duong University students (Nguyen Thi Bac, 2018)

Business:

70+ Essential Social Media Statistics for 2022 (Werner Geyser, 2022)

The above studies not only elucidate the factors influencing the decision to use social networks but also provide additional research models to serve the research process in different aspects.

Behavioral studies using TikTok

Researching factors affecting TikTok usage behavior in China, Keira Shuyan Meng and Louis Leung (2021) showed that: friendliness, navigability, the interaction between users, and TikTok functions are strong predictors of the contribution and increase in TikTok usage.

The basic needs and perceived ease of use of TikTok functions are the two factors that most impact the behavior of TikTok users according to the research results of Xuedong, XianMing, and Yaqi (2021).

Bahiyah Omar and Wang Dequan (2020) in the article "Effects of Personality: Characteristics and Motivation of Users of TikTok Mobile Video" pointed out that users use TikTok to escape from reality, and social interaction and storage.

In Vietnam, TikTok only receives statistics on the number and frequency of uses.

TikTok estimates that users in Vietnam spend an average of 28 minutes per day (agency, 2022). In 2020, when the COVID-19 pandemic broke out, TikTok Vietnam recorded 16 million downloads with 160% growth on iOS, demonstrating TikTok's tremendous pull.

Considering the popular application rankings in the Vietnamese market, TikTok is also ranked in fourth place right after Facebook, Zalo, and Instagram (Appota, 2021).

In the article "The influence of video content on TikTok on the behavior and attitude of Ha Noi students", Pham Thuy Trinh et al. (2020) pointed out that: most students in both social and natural sciences tend to spend less than 1 hour per day using TikTok. In addition, the number of students using TikTok for more than 3 hours per day is only 5.3%.

Identification of Research Gaps

Although there has been in-depth research, and detailed analysis of factors affecting the behavior of some popular social organizations of young people such as Facebook, Youtube,... However, new social networking sites began to appear with many attractive features that have become increasingly popular such as TikTok, which has created a new wave in the community and had a certain impact on social life, especially among young people today. Moreover, in Vietnam, there are very few research works on TikTok Social Security. Therefore, research and in-depth analysis of the situation, and factors affecting the decision to use TikTok Social Security of users, especially young people is a topic worthy of attention.

2.2. Research Process

The research process of the research team can be divided into four basic stages: theoretical overview, development of the draft scale, preliminary study, and formal study. The contents of the four phases are described in the following model:

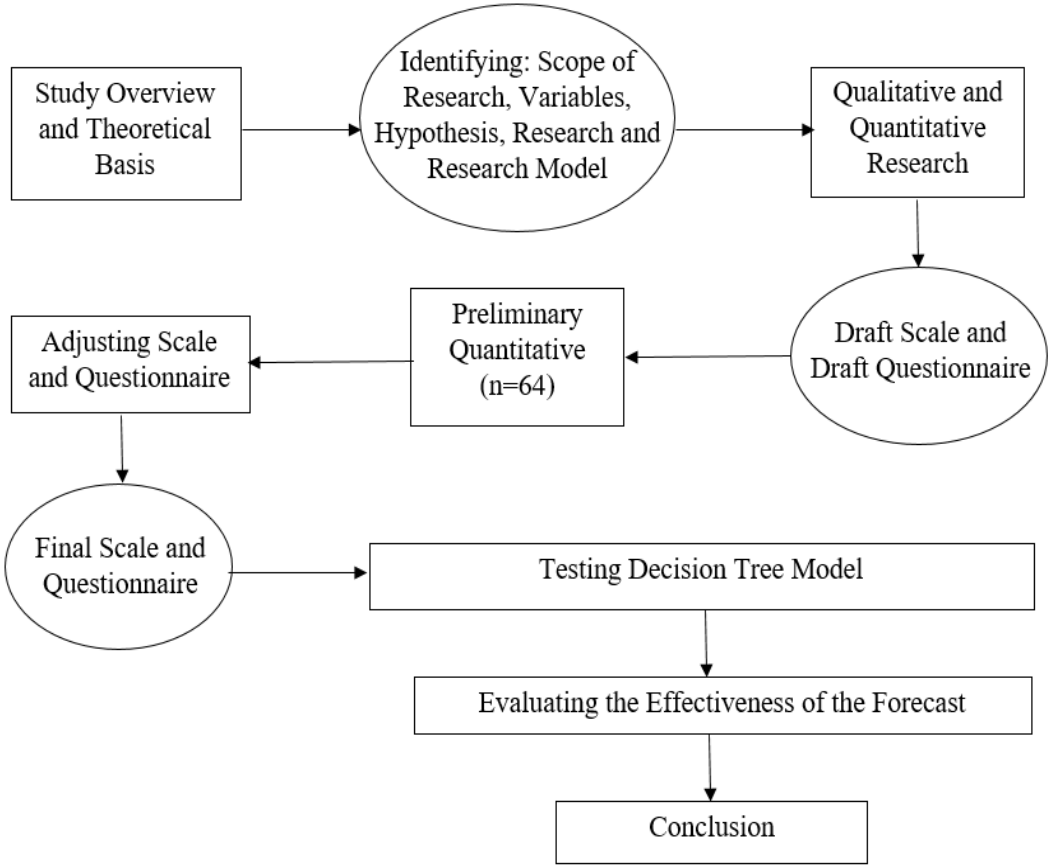


Figure 1. Research Process

2.3. Research Model

Theoretical basis

Fishbein and Ajzen (1975) proposed the Model of Reasoned Actions (TRA) which explains and predicts the intent to act in cases of acceptance of a technological product. According to the TRA, the most important factor determining human behavior is the intention to commit it. Behavioral intent is influenced by two factors: Usage Attitude and Subjective Norms relating to behavior.

Created in 1985 by Fred Davis, the Technology Acceptance Model (TAM) is a platform that is widely referenced and adopted for the purpose of assessing the impact on the behavior of choosing to use technology devices that serve primarily individual or even collective needs. In particular, two basic factors have a clear influence on the decision to accept the use of an information technology system: perceived usefulness and perceived ease of use.

The Theory of Perceived Risk (TPR) developed by Bauer in 1960, states that consumer behavior in information technology products has a risk perception, consisting of two elements: (1) Risk Perception relating to Products/Services (PRP) and (2) Risk Perception Relating to Online Trading (PRT). In the study “Components of Risk Perception” (Jacoby and Kaplan, 1974) as well as the study of Stone & Gronhaug in 1993, the scholars pointed out that there are 6 main risk perception factors that often occur in consumer thinking, including 6 factors: financial risk, functional risk, social risk, psychological risk, information risk, and time risk. This model is also recognized and used by many researchers when studying risk perception that greatly affects the intention to use a new product in the Internet environment.

Based on the above theoretical models, experimental studies have been used to test the acceptance behavior, and the intention to use a new product, service, or technology of consumers in many fields. In particular, the TAM model received a lot of consensus and wide applications. In this study, the combination of the three models of TRA, TAM, and TPR is used to forecast the intention to use one of the most prominent new products and technologies today - TikTok social network of young people in Ha Noi.

The proposed research model includes the following factors:

Subjective norms: Subjective norms are social attributes, in which the things that the individual considers whether or not to perform depend on the opinions and views of others, and the perception of social pressure acting to a certain extent on behavior. In a survey to find out the intention to use social media on mobile phones, Tan, Qin, Kim, and Hsu (2012) concluded that: “The extraneous factors of subjective norms affect people who use social media applications.”

Hypothesis H1: Subjective norms affect the intention of young people to use TikTok

Attitude toward using: Attitude toward using is defined by Davis (1989) in relation to emotions revealed by evaluating a particular object according to a tendency to be satisfied or dissatisfied. The three sides of attitudes to use include:

+ Perceived ease of use: Users will have the intention to use social media when they feel it is easy to use and has all the convenient conditions such as financial conditions, access conditions to services as it is very easy to have a social account as well as use social media anytime, anywhere,...

+ Technological development: enables applications to deliver content with a variety of modern features and modalities such as text, images, audio, and video.

+ Perceived usefulness: when a user perceives applications to be useful, they will have a positive attitude and will tend to use them more (Osama Isaac et al., 2016)

Hypothesis H2: Attitude toward using influences the intention of young people to use TikTok

Risk perception: Risk perception is subjective thinking about the determination of losses, with two implications, uncertainty and bad consequences. The proposed research model on risk perception impacts the intention to use TikTok social security: time risk, information risk, functional risk, psychological risk.

+ Time risk: the time risk of using social media is spending a lot of time using social media along with reducing the time to do other activities.

+ Information risk: is the risk that consumers' personal information is disclosed due to carelessness or illegal behavior of suppliers, third parties, or related persons.

+ Functional risk: is a type of risk when the expectations of the user at the initial time of the entertainment platform are not met due to the functional limitations of the platform.

+ Psychological risk: psychological risk refers to the ability of users to experience negative emotions such as fear, frustration, and pressure when using technological services.

Hypothesis H3: Risk perception affects the intention of young people to use TikTok

COVID-19: In October-2021, according to the report “The Change in Vietnamese User Routines During the Distance Due to the Disease” published by Q&Me, young people have increased their time using social media because they have more free time, they are spending more time watching online videos on YouTube and TikTok platforms. In particular, young people gradually tend to use TikTok more.

Hypothesis H4: COVID-19 affects the intention of young people to use TikTok

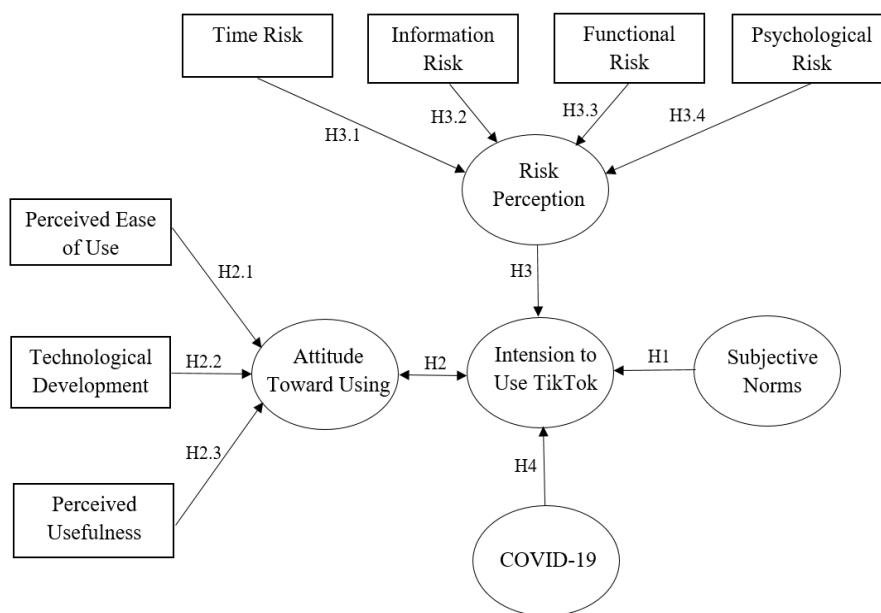


Figure 2. Proposed Research Model

2.4. Data Analytical Process

2.4.1 Methods of analysis and synthesis of secondary information

The research team collects secondary information by searching social networks, TikTok, social usage behavior, TikTok usage behavior; domestic and foreign studies relating to the topic to write a research overview. This information is analyzed and synthesized by the author group from the sources of books, newspapers, websites on the Internet, theses, as well as recent national and international scientific journals on the behavior of young people using TikTok and factors affecting their intention to use TikTok. In addition, the researcher team also considered theoretical models relating to the topic for reference and selection as the basis for the development of research models.

2.4.2 Qualitative analysis method.

The research team conducted in-depth interviews with 10 residents currently studying and working in Ha Noi who have experienced using or are using the TikTok app. Interviewers are diversified according to each criterion to provide multi-dimensional information to ensure the satisfaction of the research content. The interviews were conducted by the in-depth interview method, namely semi-structured interview, based on the list of questions mentioned. The team conducting the interview will stop until no other new factors can be found. The recorded views and opinions are combined with the evaluation of the original objectives as well as the theoretical basis to serve as a premise for the scale to develop the official survey questionnaire.

2.4.3 Quantitative analysis method.

Measurement scale building

After studying the works published nationally and internationally, the authors have developed a scale selectively.

Variables were observed in the study using the Likert scale from 1 (Completely Disagree) to 5 (Strongly Agree). This is a scale that is quite common in sociological behavior studies. In principle, the Likert 7 or 9 scale helps to measure more accurately, but with Vietnamese, using a scale that is too much of an evaluation level often confuses respondents.

Preliminary quantitative study

Adjustment of questionnaires

The authors conducted a preliminary quantitative study by interviewing online questionnaires with a small sample (64 people) to standardize the terminology and edit the questions in the questionnaires, ensuring that the respondents did not misinterpret the meaning of the questions before conducting the official survey. After completing the basic adjustment steps, the research team conducted the study sample collection to assess the reliability of the scale.

Data collection

To ensure a minimum sample of 300 observations, the research team surveyed young people from 15 to 24 years old living, studying, and working in Ha Noi city, who also have the most access to TikTok. Data is collected using a questionnaire method designed on

Google Docs tools and sent to the audience via social media sites. The time to submit the survey ran from January 31, 2022, to March 3, 2022. With this method, the research team obtained 300 responses.

Quantitative analytical procedures

After collecting, classifying, and selecting valid questionnaires, the authors conducted data encryption, updating, and processing data using the "Decision Tree" model, following the following steps:

Step 1: Encrypting research data

After identifying the factors to be used, the research team transformed the collected data into digital form (digitized data) so that the computer could process.

Step 2: Select a reasonable model

The survey's data serves to study human behavior, so the research team prioritized the use of the Decision Tree model.

Step 3: Training on the dataset

Step 4: Evaluate the effectiveness of the forecast

Step 5: Collect the ratio reflecting the influence of each factor on the model.

3. Results

Outstanding features of the research sample

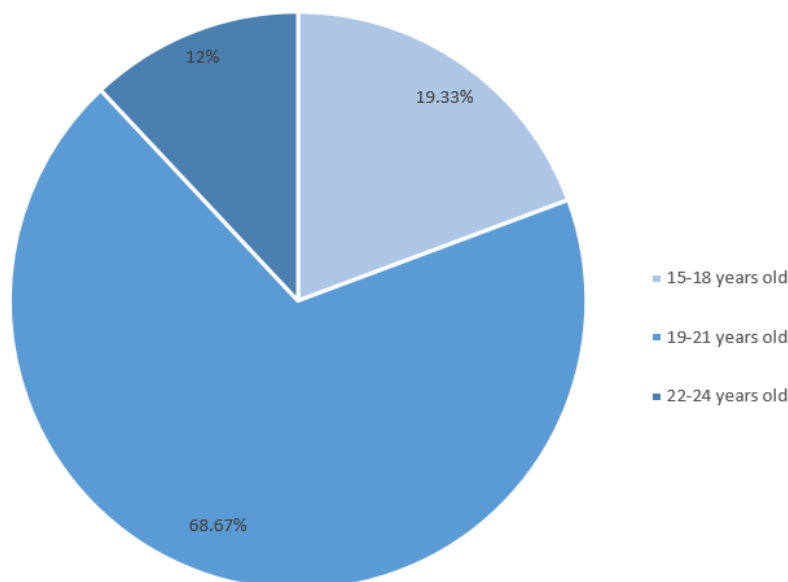


Figure 3. Age information of the surveyed subjects

The research team conducted a survey and collected a sample of 300 people. In particular, the age group accounting for the vast majority is 19 to 21 years old (68.67%), the second most involved group is from 15 to 18 years old (taking up 19.33%), the last group of 22 to 24 years of age with a data of 12%.

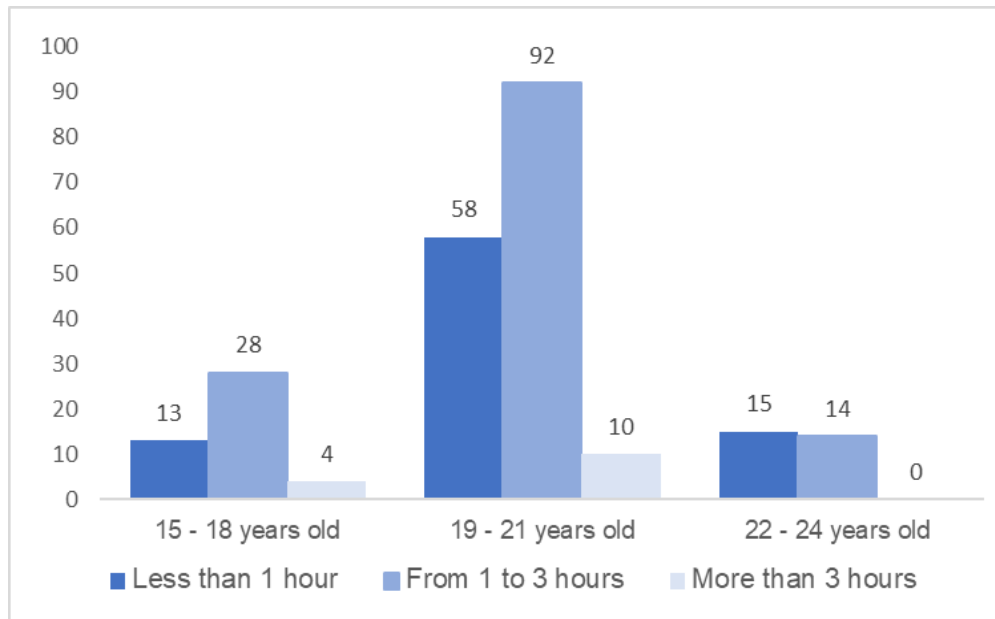


Figure 4. Information on the average time of using TikTok/day

Based on the survey, 234 out of 300 people are using the TikTok app. The average time spent in the day accounts for the highest proportion of 1 to 3 hours with 134 people (56.27%), 86 people (36.75%) spending less than 1 hour and 14 people (5.98%) spending more than 3 hours on the TikTok app.

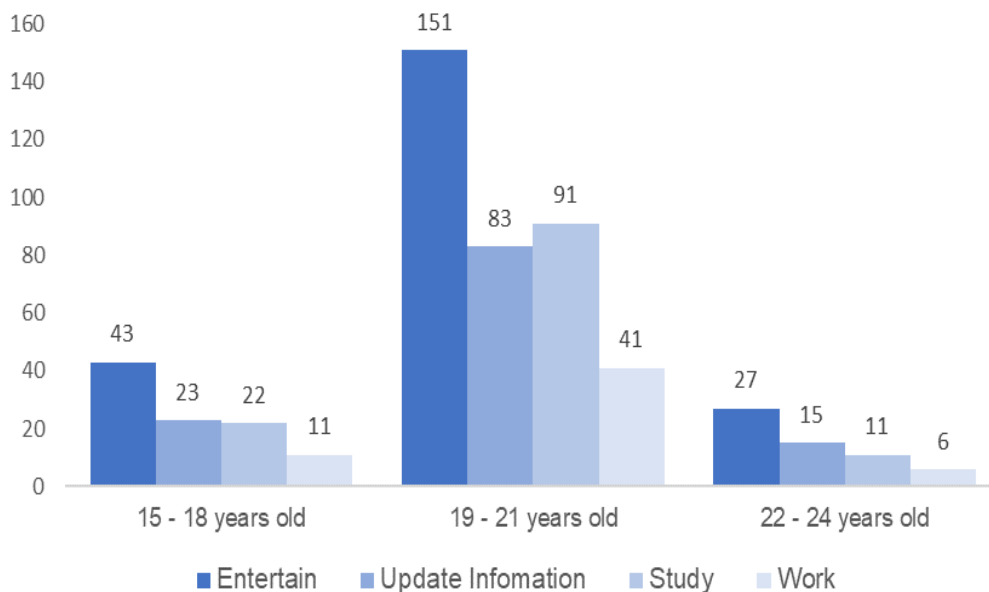


Figure 5. TikTok Intended Use Information

Of 234 users, the results of the survey showed that the majority of their TikTok use came from entertaining needs with 94.4%. Followed by are learning and updating information with 52.99% and 51.71% respectively. Work ranks last in the intended use with 24.79%.

Results of data analysis through Decision Tree algorithm

Of the 300 data samples collected, the team applied the model to 240 data samples to obtain a statistical model of influencing factors with the use of TikTok or not and used 60

samples to verify the accuracy of the model. Since the small sample of data did not meet the generalization, the group introduced a method of re-selection of samples 240 and 60 randomly (6 times) and then re-do the model application step, then averaging the results over 6 times to ensure that the model is not biased according to any subset of data. After selecting 6 times 240 samples and testing the model on 60 samples to evaluate the generalization of the statistical model, the research team collected the results on the test set and the valid set each time as follows:

Table 1. Results table on test set and valid set

Number of metric reselections	Results on the test set of 240 samples (%)	Results on the valid set of 60 samples (%)
1	92.4	88.1
2	96.3	91.0
3	98.0	90.2
4	93.6	88.7
5	94.2	91.3
6	94.9	90.5

The result on the set used to create the model has a very high average of 95% (equivalent to 228/240 samples) and the average result of the valid set is 90% (equivalent to 54/60 samples), which is quite good when the small data set that the model has generalized highly.

After completing the model testing, the research team collected the results of factors and the proportion of influence. Details are as follows:

Table 2. Results table of factors and proportion of influence

Hypotheses	Factors	Proportion of influence
H1: Subjective norms	Subjective norms	17.05
H2: Attitude toward using	Perceived ease of use	28.5
	Technological development	9.06
	Perceived usefulness	6.44
H3: Risk perception	Time risk	1.93
	Information risk	5.73
	Functional risk	4.75
	Psychological risk	5.48
H4: COVID-19	COVID-19	21.06

Hypothesis H1: Subjective norms affect the intention of young people to use TikTok

Through the testing process, the level of impact of subjective norms at 17.05%, expressed the certain influence of the surrounding people on the intention to use TikTok among young people.

Hypothesis H2: Attitude toward using influences the intention of young people to use TikTok

The obtained results show that the level of correlation between the two factors of attitude to use and intention to use is relatively large with a rate of 44%. This can be explained by the attitude of use that is also influenced by: Perceived usefulness, Perceived ease of use, and Technological development. However, these factors attract young people to use TikTok, so the attitude toward using it has a great influence and plays a key role in deciding the intention to use TikTok.

Hypothesis H3: Risk perception affects the intention of young people to use TikTok

Research results show that risk perception quite strongly affects 17.89% of young people's intention to use TikTok. As cyber criminals with increasingly sophisticated scams, users also gradually lose trust and feel frustrated about the product. Anxiety about the problem of wasting time using social security is also a cause of the intention to use social networks. When consumers become aware of this, they reduce their intent to use TikTok or regulate their usage behavior.

Hypothesis H4: COVID-19 affects the intention of young people to use TikTok

According to the results of the study, TikTok is a social media that can satisfy the needs of people in the pandemic. This factor affects 21.06 % of young people's intention to use TikTok.

4. Discussion and Conclusion

4.1. Measurement results

The proposed research model of the group includes 9 factors and 22 observation variables. During the process of launching and testing data through the algorithm of the Decision Tree model, the research team found that the variables given had a certain influence on the intention to use TikTok by young people in Ha Noi. Specifically, factors affecting the intention to use TikTok accounted for respectively: Attitude toward using (44%), Subjective norms (17.05%), Risk perception (17.89%), COVID-19 (21.06%). In which, the influence of Attitude toward using is the strongest impact and the weakest impact is Subjective norms.

4.2. Theoretical model results

The proposed research model is built based on combining the theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), the model of technology acceptance (Fred Davis, 1985, 1989), the theory of risk perception in the framework of marketing (Stone & Gronhaug, 1993). In addition, the research team also conducted reference and selection of variables consistent with the scope of research from the previous models. Although these studies exploit different topics, the results obtained from the survey still show significant similarity to the previous theoretical model. Based on the level of influence on the model, the hypotheses are:

Hypothesis H2: Attitude toward using influences the intention of young people to use TikTok

Hypothesis H4: COVID-19 affects the intention of young people to use TikTok

Hypothesis H3: Risk perception affects the intention of young people to use TikTok

Hypothesis H1: Subjective norms affect the intention of young people to use TikTok

4.3. Recommendations

4.3.1 Recommendations for TikTok users

For content creators

Firstly, content creators shouldn't let themselves get caught up in trends and post videos with malicious content. They must be aware of both positive and negative sides before publishing any videos on TikTok as these videos can affect the thinking and lifestyle of many viewers, especially adolescents.

In addition, content creators should screen the information in their videos before publishing, because at present unorthodox newspapers are writing articles with pervasive untruthful content, so sometimes content creators can inadvertently spread incorrect information and affect the reputation and image of others.

For TikTok viewers

The level of influence of attitude toward using is most clearly expressed through this group of subjects, especially with the factor of perceived usefulness. Therefore, TikTok viewers need to be selective, and aware of the benefits and harms of content transmitted through TikTok. Users should use the TikTok reporting function for videos with malicious content. Moreover, viewers can learn selectively from reputable creators such as doctors, teachers,... to expand their knowledge.

In terms of risk perception, risks related to time, psychology, or information will also directly affect young people's behavior in using TikTok. Therefore, each individual user needs to allocate reasonable time when using TikTok for personal purposes as well as refer to the TikTok usage limitation and automatic screen lock at the end of the usage period. In addition, psychological risk should also be considered to lead to usage behavior as it affects emotional correlation, namely negative emotions with agitated videos, which leads to cognitive and psychological adverse consequences for the viewer.

4.3.2 Recommendations for School

As the unit directly manages students in the learning process, the school needs to be aware of the opportunities and challenges in student management when TikTok Social Security is gaining the attention of young people.

Teachers and schools can be flexible and creative, using TikTok as a means to support teaching. In addition, the school can include TikTok in the content and form of programs, seminars, extracurricular activities... to develop soft skills and apply new technologies to students.

Subjective norms are a strong influence on the behavior of young people. Therefore, the school can completely contribute to regulating, changing awareness, and guiding the use behavior of students in a healthier and more rational way through propaganda sessions and competitions to learn about the benefits and harms of social protection. In addition, there must also be clear rules and regulations when students use mobile phones to work privately during school hours.

4.3.3 Recommendations for TikTok Application Managers

Firstly, TikTok needs to strengthen the management and security of user information on this platform. The research team suggests that TikTok application managers, in addition to requiring clear proof of identity, also pay great attention to the security of user information.

Secondly, making it easy for videos to get on-trend without being selective will result in easy exposure of viewers to malicious content. Therefore, the research team made a suggestion that TikTok needs to develop an analysis system, select videos with healthy and positive content and place limited orders, eliminate videos with malicious content from TikTok trends. Furthermore, application managers should also consider launching healthy programs and activities to raise people's awareness.

Thirdly, application managers should consider upgrading the look and features of TikTok to facilitate users' use of more utilities. In addition, upgrading the technology platform will also make it easier for managers to control the content and operation of TikTok. From there, it offers solutions to many micro-and macro-issues in particular.

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TIKTOK AND THE CONSEQUENCES IN THE WAY YOUNG PEOPLE EXPRESS THEMSELVES TODAY

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Abstract

The article aims to assess the impact factors of the TikTok social network, and the way young people express themselves on this social network. The authors used research methods: Cronbach's Alpha testing and exploratory factor analysis EFA, Pearson's correlation coefficient, and linear regression models. The main findings are the level of impact of the factors on the way young people express themselves is ranked from the strongest to the weakest: (i) Negative content on the social network TikTok, (ii) The needs for self-expression, (iii) Self-expression motivation. Since then, the article offers several proposals to help raise the awareness of young people when using the social network TikTok.

Keywords: *Self-expression needs, Self-expression motivation, TikTok, Social network, Deviant behavior.*

1. Introduction

TikTok, a music video platform and social network, is currently the number one growing app in the digital technology platform despite its age far behind Facebook or Instagram. Among the most used social networking apps in Vietnam, TikTok ranked 6th with a rate of 47.6% (about 34.2 million users) but considering the download ranking in Vietnam, Tik Tok ranked No. 1. Thus, it can be clearly seen that Tik Tok has the strongest influence on young people in Vietnam today. TikTok offers free and open space, providing young people with an ideal environment to express themselves in a variety of forms. Especially with the “virtual” nature of social media has allowed them to use many accounts and interact with many objects to create an open, multidimensional space for building personal images or identities. However, many young people are prone to over-the-top use of methods/tricks that they think are “different” or “unique” to express their outstanding personal identity/ego

in the online community, to create popularity (based on followers, views, and clicking the “like” button) causing antagonism to the online community.

Therefore, the goal of this study is to clarify “TikTok and the consequences in the way young people express themselves today”.

2. Method

2.1. Theoretical basis

2.1.1. Social Network - TikTok

Tik Tok is known as a music video platform and social network, on which users do not post statuses like Facebook but post music videos 15 seconds long which attract a lot of users.

2.1.2. Young people's ways of expressing themselves

The needs for self-expression:

As early as 1943, psychologist Abraham Maslow produced Maslow's hierarchy of needs with five floors arranged in ascending order from "basic needs" to "higher needs", of which the fifth floor is self-actualization needs: want to create, to show their abilities, to express themselves, to perform, to have and be recognized as successful.

Thus, the need to express oneself is the need to be self-aware, want to be recognized by everyone, and be affirmed their ego, this is also the highest need of people because people always want to improve themselves. The need for self-awareness includes the need to be acknowledged and the need for self-affirmation. What is important for a personality is not just the ability to express itself. For the need to fully satisfy one person, it is also necessary to receive appreciation from others. That is, for a person to materialize on their own, it is important not only to get results from their activities but also to feel the reward from others.

Self-expression Motivation:

There are many different definitions of self-expression dynamics but in general, the authors agree that the inner state of the human being guides and directs human behavior towards satisfaction is a series of needs, tendencies, and desires, that stimulate, and get the person to perform a certain behavior.

Deviant behavior of young people:

Currently, there are many different definitions of deviant behavior, but in general, the authors agree with the view that deviant behavior is behavior that is inconsistent with ethical, cultural, legal norms, and general regulations and needs to be adjusted.

2.2. Research Methodology

2.2.1. Survey form

Based on the size and sectors mentioned specifically in the scope of the study, the group focused on most young people survey subjects (16-24 years old) in Hanoi. The survey subjects are students in economics and engineering because these are two important sectors, trained by many universities, and account for an enormous number in Hanoi.

Out of a total of 288 observations, males accounted for 23.3% (67 people), females accounted for 76.4% corresponding to 220 people, and one gay case accounted for 0.3%.

2.2.2. Scale

The study's scale was referenced from previous studies by authors at home and abroad such as Nguyen Thi Ngoc Mien and Tran Phuong Thao (2015), Olivia Mellan and

Sherry Christie (2014), Webley and Nyhus (2012), Jorgensen and Savla (2010), Cliff A Robb and Anh Woodyard (2012), and added observational variables in expert opinion.

The observed variables are measured using a 5-point Likert scale, which is prescribed from 1 (Completely disagreeable) to 5 (Totally agree).

2.2.3. Data analysis and model verification

- Check the reliability of the scale: In this study, the team used Cronbach's Alpha testing and exploratory factor analysis (EFA) to identify the components of each factor and the overall factors that impacted the needs of young people on TikTok social network.

- Assess the impact of independent variables, and dependent variables through linear regression models.

2.3. Actual situation

The qualities, ethics, lifestyle, and style, of a part of young people in our country, are trending to change day by day, through trends shared at a rapid pace on social networks. Among them, there is no shortage of uncultured and reprehensible tricks such as: revealing dress, profanity, swearing, ridicule, attacks in music (rap diss), deviating from the standard "idol" (Kha Binh, Huan Hoa Hong, ...), deviations in ethics and lifestyle. In the field of music, besides musicians and singers who are interested in the profession, creating products of artistic value, there have appeared several "musical products" bearing the "font" of Vietnamese culture but the variation insults others. These are negative trends because self-expression adversely affects the spiritual and cultural life of the online community.

Social networking sites apply increasingly modern technology, to meet TikTok with the high demand of users. This application aims to support users in learning, labor, and entertainment. However, a section of the youth has made the social network TikTok go wrong with its original purpose. Deviant behaviors on social networks show a lack of respect for others, which needs to be corrected promptly.

3. Results

3.1. Describe the study sample according to demographic characteristics

Through the statistical results described by the observed variables, it is possible to see statements on highly diverse scales, there are many opinions from disagreement to consent. After surveying 288 young people (mostly students) in Hanoi, the team studied and analyzed the need to express themselves leading to the misbehavior of young people on the TikTok social network today.

Table 4.1. Sample Research Structure

Criteria	Gender	Amount	Percentage (%)
			23.3
	Female	220	76.4
	Different	1	0.3
Age	16-under 18	18	6.3
	18-under 22	220	76.9
	22-24	48	16.8

Source: Research by the authors

Out of a total of 288 quality survey samples, the group that obtained the female vote was 76.4% (220 votes) and 23.3% of the votes were male (with 67 votes). Gays were interested in this study, but the authors received only one response from this group of subjects.

3.2. Approach quantitative method

3.2.1. Results describing observed variables

To measure the group's observed variables, a 5-point Likert scale is used. This scale shows opinions from 1- Completely disagree to 5- Totally agree.

Table 4.2. Cronbach's Alpha coefficient

No	Observed Variables	Symbol	Cronbach's alpha coefficient
1	TikTok usage behavior	HP	0.819
2	The needs for self-expression	NC	0.868
3	Self-expression Motivation	DL	0.864
4	TikTok Contents	ND	0.954
5	Deviant Behavior	LC	0.954

Source: The authors' research

According to the results of the analysis, the independent variable "Behavior" has observational variables with an appropriate total variable correlation coefficient (≥ 0.3). Cronbach's Alpha coefficient = $0.819 > 0.6$ usable.

"The needs for self-expression" has a Cronbach's Alpha coefficient of $0.868 > 0.6$, matching total variable correlation coefficients (≥ 0.3). It can be concluded that the scale is used well.

For the "Motivation" variable, the test showed the appropriate total variable correlation coefficients (≥ 0.3), Cronbach's Alpha coefficient was $0.864 \geq 0.6$, concluding the scale is good.

The test for the "Contents" variable shows that the observation plates all have a suitable total variable correlation coefficient (≥ 0.3), and Cronbach's Alpha coefficient is $0.954 > 0.6$ so it can be confirmed that the scale of use is relatively good.

The test for the "Deviant Behavior" variable shows that the observed variable variables all have a suitable total variable correlation coefficient (≥ 0.3), and Cronbach's Alpha coefficient is $0.954 > 0.6$ so it can be confirmed that the scale is an effective use.

From the above results, the Cronbach's Alpha coefficients of the factor groups are mostly greater than 0.6, and the total variable correlation coefficients are greater than 0.3. Therefore, it is possible to conclude that the scales ensure reliability and can be used in the next analytical steps.

3.2.2. EFA discovery factor analysis

✚ EFA discovery factor analysis for independent variables

Table 4.3. Rotating matrix of independent variables

	Component		
	1	2	3
ND4	.915		
ND1	.901		
ND3	.894		
ND2	.892		
ND7	.887		
ND6	.859		
ND5	.838		
DL1		.862	
DL2		.860	
DL4		.827	
NC2		.758	
NC3		.732	
DL3		.699	
NC4			.845
NC5			.826
DL5			.660
NC1			.642

Source: The authors' research

As a result of the rotating matrix table, the observed variables in each element have converged and distinguished from each other. In addition, factor loading has a value greater than 0.5, the variance index is approximately 73.119%, and the Eigenvalues = 1,296. As such, the study completely satisfied the conditions for the factor analysis results to be accepted: the variance quoted $> 50\%$ and the value of the eigenvalues > 1 .

Thus, the model has 17 variables of 3 factors that explain 73,119% of the observed variables.

Model after removing inappropriate variables of 3 elements

Table 4.4. Observed variables after extraction

Factor	Observation variables
The needs for self-expression	NC1, NC2, NC3, NC4, NC5
Self-expression Motivation	DL1, DL2, DL3, DL4, DL5
Negative contents on TikTok	ND1, ND2, ND3, ND4, ND5, ND6, ND7

Source: Research by the authors

✚ EFA discovery factor analysis for intermediate variable

Based on previous studies, the team determined that the intermediate variable " Tik Tok usage behavior " impacts the dependent variable "Deviant Behavior of young people ". After conducting a Cronbach's Alpha reliability test for the intermediate variable, the authors performed an EFA exploratory factor analysis. KMO and Bartlett's inspection results for the intermediate variable show that the KMO value, in this case, reached $0.734 > 0.5$. This shows that the data is suitable for factor analysis. In addition, Sig. of Bartlett's test $= 0,000 < 0.05$ demonstrated that the observed variables were correlated. Therefore, the author group is eligible to perform EFA for intermediate variables. EFA results show that the observed variables are converging at one factor. At the same time, the variance $= 58.665\%$ and the Eigenvalues $= 2,933$ index ensure that the factor analysis results are accepted. Thus, the intermediate variable consists of 5 observed variables of 1 factor that explains 58.665% of the observed variables.

✚ EFA discovery factor analysis for dependent variables

After learning about studies related to the "Deviant Behavior" variable, the team identified five observed variables for the dependent sea. KMO and Bartlett's test results for the "Deviant Behavior" variable is $0.902 > 0.5$, so the data is perfectly suited for factor analysis. The Sig. value of Bartlett's test $= 0.000 < 0.05$ indicates that the observed variables are correlated with each other. The results of the EFA analysis showed that the observed variables converged on one factor with the variance $= 84.902\%$ and the Eigenvalues index $= 4.24 > 1$ ensuring the factor analysis results were accepted. Thus, the five observational variables of the "Deviant Behavior" factor explain 84,902% of the observed variables.

3.3. Regression analysis

3.3.1. Multiple regression analysis

The multiple regression analysis selected three independent variables: The needs for self-expression (NC), Self-expression Motivation (DL), and Negative Contents on the social network Tik Tok (ND). The value of the representative variables is selected from the average of the observed variables.

According to the results of the Anova analysis with the Sig. value of the F-Test is $0.000 < 0.05$ so that the multiple linear regression model is suitable for data files and can be used.

Table 4.5. Anova Analysis Table for Multiple Regression Analysis

Model	Sum of squares	df	Average squared	F	Sig
Multiple regression	65.403	3	21.801	25.050	0.000

Source: The authors' research

The model has an adjusted R-value of 0.201 so the independent variables in the model explain 20.1% of the fluctuations of the intermediate variable "TikTok usage behavior", the remaining 79.9% is the effect of random factors.

Table 4.6. Summary model of multiple regression analysis

R	R-squared	Adjusted R- squared	Standard errors	Durbin- Watson
0.457	0.209	0.201	0.93291	2.027

Source: The authors' research

Independent variables are significant to the model because the Sig value in T-Test the regression coefficient of each independent variable is less than 0.05, so each independent variable is meant to explain the independent variables.

Table 4.7. The effect of the above factors on the deviant behavior of young people

Model	Unstandardized Regression Coefficients		Standardized Regression Coefficients	t	Sig.	Cumulative frequency	
	Beta	Standard E	Beta			Tolerance	VIF
1 (Constant)	.589	,291		2.023	.044		
TB_ND	.091	,053	,090	1.697	.091	.988	1.013
TB_DL	.599	,079	,514	7.586	.000	.607	1.647
TB_NC	-.180	,088	-,138	-2.045	.042	.608	1.646

Source: The authors' research

The sig value of the T-Test with variables "Contents", "Motivation" and "Needs" is less than 0.1, which can be confirmed that these variables are meant to account for the change of the "Deviant Behavior" variable.

We have a standardized regression equation:

$$LC = 0.09 * ND + 0.514 * DL - 0.138 * NC + e$$

LC: Deviant behavior

ND: Negative contents on TikTok

DL: Self-expression motivation

NC: The needs for self-expression

Conclusion of research hypothesis

After performing a regression analysis of the factors affecting the deviant behavior of young people when using Tik Tok, we have the following conclusion:

- Accept the [H1] hypothesis: The needs for self-expression has a negative impact on the deviant behavior of young people on TikTok social network
- Accept the [H2] hypothesis: Self-expression motivation has a negative impact on standard behavior with children on the TikTok social network
- Accept the [H3] hypothesis: Negative contents on TikTok have a negative impact on the standard behavior of young people on TikTok social network

3.3.2. Single regression analysis

The single linear regression analysis is performed with an intermediate variable: The use of the social network TikTok (HV) and a variable that depends on the standard behavior of young people (LC) The value of the representative plates is selected equal to the average of the observed vats of the Anova analysis with the Sig value of the F test is $0.000 < 0.05$ so that the multiple linear regression model is suitable for data files and can be used.

Table 4.8. Anova Analysis Table for Multiple Regression Analysis

Model	Sum of squares	df	Mean square	F	Sig
Single regression	55.882	1	55.882	62.263	0.000

Source: The authors' research

The model has an adjusted R-value of 0.201 so the independent variables in the model explain 20.1% of the fluctuations of the intermediate variable “TikTok usage behavior”, the remaining 79.9% is the effect of random factors.

Table 4.9. Summary model of multiple regression analysis

R	R-squared	Adjusted R- squared	Standard errors	Durbin- Watson
0.423	0.179	0.176	0.94738	1.971

Source: The authors' research

Independent variables are significant to the model because the Sig value in T-Test the regression coefficient of each independent variable is less than 0.05, so each independent variable is meant to explain the independent variables.

Table 4.10. The effect of Tik Tok's use on the deviant behavior of young people

Model	Unstandardized Regression Coefficients		Standardized Regression Coefficients	t	Sig	Cumulative frequency	
	B	Std. Error	Beta			Tolerance	VIF
Constant	,590	,192		3,070	,002		
TB_HV	,497	,063	,423	7,891	,000	1,000	1,000

Source: Research by the authors

The independent standardized regression factor is greater than 0, so the HV variable acts in the same direction as the dependent variable. The magnitude of the standardized beta regression coefficient of the independent variable is 0.423.

We have a standardized regression equation:

$$LC = 0.423 * HV + e$$

Conclusion of research hypothesis

After performing a regression analysis between Tik Tok usage behavior and young people's deviant behavior, the team accepted the hypothesis.

[H4]: The use of TikTok social network has a negative effect on the deviant behavior of young people on TikTok.

4. Discussion and Conclusion

Some solutions and recommendations are made to raise awareness of young people about the need to express themselves on TikTok social network, namely:

First, families and society need to organize activities to connect young people, especially students at school age, and to avoid the risk of deviant behaviors on social networks.

Second, foster and educate young people on information security and behavior when using social networks in general and TikTok social networks.

Third, encourage and build talent-seeking programs so that young people can express themselves in front of everyone.

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THE INDUSTRIAL REVOLUTION 4.0 IMPACT ON ONLINE TRAINING IN PRIVATE UNIVERSITIES IN VIETNAM

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Abstract

Online training (E-learning) has been developing in countries, corresponding to the development of the Industrial Revolution 4.0 (4IR). Online training is gradually affirming its important role, having outstanding advantages over traditional forms of training in universities in Vietnam. However, the application of this form of training in addition to the basic advantages, there are still difficulties and obstacles in private universities in Vietnam. This article summarizes the trend of developing online training in Industry 4.0, universities have advantages and difficulties when applying this form of training. The author proposed a number of solutions to develop online training in universities in Vietnam in the coming time.

Keywords: *E-learning, industrial revolution 4.0, private university, technology.*

1. Introduction

The Industrial Revolution 4.0 (4IR) puts us on the verge of a revolution that will fundamentally change the way we live, work, and relate to each other (Klaus Schwab, 2018). It is possible to generalize the four main characteristics of the Industrial Revolution 4.0: First, based on the foundation of the combination of new sensor technology, big data analysis, cloud computing and internet of things connectivity will drive the development of automation machines and intelligent manufacturing systems. Secondly, using 3D printing technology to produce products in the most complete way by physicalizing production lines not through the assembly of auxiliary equipment – this technology also allows people to print new products using non-traditional methods, ignore intermediaries and reduce production costs as much as possible. Third, nanotechnology and new materials create new material structures that are widely applied in most fields. Fourth, artificial intelligence (A.I) and cybernetics allow humans to control remotely, without limits on space, time, faster and more accurate interaction.

The Industrial Revolution 4.0 has been having a profound and comprehensive impact on all aspects of economic, political, and social life of countries, including education. Industry 4.0 requires a change in the education system in general, higher education in countries. Accordingly, higher education must become "an ecosystem", so that students can study together anytime, anywhere with connected devices. The objectives and training methods of universities must shift from transmitting knowledge to the masses to unleashing their potential, while empowering everyone to create. The teacher will move into a new role as the designer, catalyst, mentor and creator of the learning environment (Phan Chi Thanh, 2018). With digitized learning content, learners will have their own learning roadmap, can choose content suitable to the training objectives. The digital learning system also provides feedback on learning performance along with suggestions for further learning content. Learners can actively study materials as well as interact with lecturers at all times using a computer or smartphone. The development of online forms of learning helps learners save time, effort and cost. Augmented reality/virtual reality (AR/VR) technology is widely used, helping learners experience and hone their skills. In Industry 4.0, the application of online training in universities in general, private universities (PU) in particular is an indispensable, helping the university improve the quality of training.

This article summarizes the trend of online training development in Industry 4.0, analyzes the advantages and difficulties of private universities when applying online training forms and proposes a number of solutions to develop online training in private universities in Vietnam in the coming time.

2. Method

Since the late 1990s, the U.S. government has supported and supported electronic teaching and learning. In 2000, nearly 47% of U.S. universities and colleges offered different forms of distance learning models, making up 54,000 online courses. The number of participants increased by 33% annually between 1999 and 2004. By the end of 2004, about 90% of American universities and colleges offered E-learning models (Bui Viet Phu, 2012).

E-learning is also being implemented in universities and in companies is also going strong. In businesses, employees are trained in business processes on E-learning and LMS (Learning Manage System). Thereby, the employees have all the necessary knowledge and skills to perform their work well. Technology has grown tremendously since 2010 has made online training have really spread all over the world. In 2015, the number of people in the world participating in E-learning systems of about 36 million people rose to 60 million in 2016 and reached nearly 70 million in 2017. The increase in the number of users has led to a constant increase in the revenue of this industry. Data at the 19th International Conference on "Application of Information Technology and Management - ITAM" held in 2018 said: In 2016, the revenue of the E-learning sector worldwide reached 51.5 billion USD. In 2017, the global online education market reached more than 100 billion USD (results of research by Global Industry Analysts).

As E-learning began to become a world trend, in the country, E-learning has become a learning model that attracts a large number of users, especially at universities. E-learning

opens up a new learning environment that allows learners to interact anytime, anywhere on mobile apps and social networks (Le Van Math and Truong Thi Diem, 2020).

3. Results

3.1. Advantages and difficulties in applying online training in private universities today

3.1.1. Advantages

Firstly, in Industry 4.0 universities in general, private universities (PU) in particular has favorable digital education infrastructure conditions to develop online training.

The infrastructure of digital education in the context of the application of tens of thousands of people on the Internet (IoT), big data , cloud computing has now brought many great opportunities and possibilities to help the regeneration, production of knowledge, information sharing, "leveling" barriers in access to knowledge (Phung Xuan Nha, In particular, along with the development of technology, digital education will gradually become a "new form of learning relationships" that will change the teaching model that has existed for a long time in the top-down or bottom-up system to the network, Social sharing in which learners will become the center of the social learning network (Tran Thi Van Hoa, 2018).

In Vietnam, the technology infrastructure is growing rapidly, the internet with increasing transmission speed and low fees. Vietnam has the 6th largest number of internet users in Asia and the 12th largest in the world with 64 million in 2018. Socially, Vietnam is also in the "golden population period", in which the number of people under the age of 30 accounts for over 50% of the population, who have easy access to information and communication technologies. Therefore, Vietnam is considered as a country with great potential for E-learning development. According to data from market research organization Ambient Insight, Vietnam is in the list of the top 10 countries in terms of e-learning development rate. Vietnam's e-learning market according to experts is not less than 2 billion USD and has a growth rate of 40% but the majority is focused on exam preparation, foreign language preparation and soft skills. These are favorable objective conditions for private universities to implement online teaching.

Secondly, the training activities in private universities are quite diverse and rich, with many contents that can be applied to online teaching.

Training activities at private universities basically meet the needs of the market. In the academic year 2019 - 2020, there were 16,142 lecturers from private universities out of a total of 73,132 lecturers nationwide, accounting for 22.07%. Out of a total of 21,977 lecturers with doctoral degrees, private universities have 3,660 lecturers accounting for 16.65% (Higher education statistics in the academic year 2019 - 2020). Young, dynamic lecturers give schools flexibility in online training activities.

According to the Department of Quality Management - Ministry of Education and Training, updated on April 30, 2022, 38 universities have completed self-assessment reports, accredited out of a total of 236 universities across the country accounting for 16.10%. This shows that the quality of training of universities is increasingly improved in line with the application of online teaching.

The percentage of students enrolled in the private university increases every year. The country had 1,672,881 students in the 2019-2020 year, of which students from private universities were 313,479, accounting for 18.74%, an increase of 1.04% (18.74% - 17.34%) compared to 2018 - 2019. In recent years, the number of graduates from private universities regularly accounts for 14% - 17% or more of the total number of annual graduates (Higher education statistics in the academic year 2019 - 2020). This is a favorable factor, indispensable to help private universities can implement online training at all levels of study and subjects, contributing to improving the quality of training of each school.

Table 1. Data on number of schools, and the scale of university education

No	Contents	2018 – 2019				2019 – 2020			
		Total	Divide into		%	Tổng số	Divide into		%
			Public Uni	Private Uni			Public Uni	Private Uni	
1	Number of schools	237	172	65	27,43	237	172	65	27,43
2	University student's scale	1.526.111	1.261.529	264.582	17,34	1.672.881	1.359.402	313.479	18,74
3	Number of students that graduate	311.599	266.970	44.629	14,32	263.172	218.251	44.921	17,07
4	Number of Managers, lecturers, staffs	83.587	64.772	18.815	22,51	85.091	65.948	19.143	22,50
5	Number of primary lecturers	73.312	56.985	16.327	22,27	73.132	56.990	16.142	22,07
6	Number of Dr	21.106	17.336	3.770	17,86	21.977	18.317	3.660	16,65

Source: Compilation Author

Thirdly, private universities have made great investments in facilities and sources of digital materials for online teaching. The number of private universities accounting for 27.43% (65/237) of the total number of universities in the country (Higher Education Statistics for the academic year 2019 - 2020) is shown in the following Chart 1.

Private universities have invested in building spacious and modern, there are schools that meet international standards. According to the list of universities recognized to meet the quality standards of education in the country, there are 29 private universities in 167 accredited universities meeting the quality standards of education (Department of Quality Management - Ministry of Education and Training, April 30, 2022).

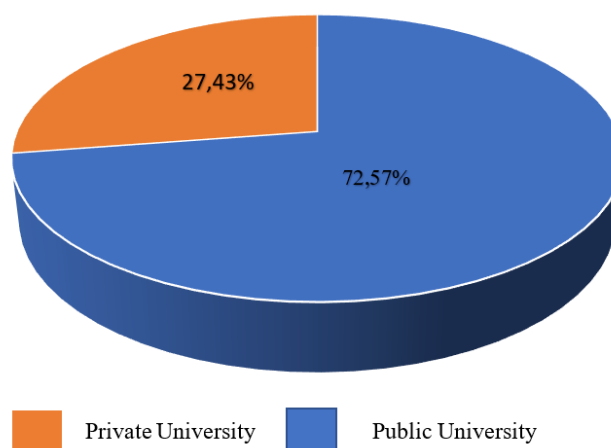


Figure 1. The percentage of private and public universities across the country

Source: Higher education statistics for the academic year 2019 - 2020

Along with investing in facilities, private universities have been interested in developing sources of information data, digitized input educational knowledge content (design, production, publishing, storage) and transferred through digital tools to meet the increasing demand for "multi-sensorization" and strong interaction for learners. Developed on the platform, digital tools according to the principles of content richness, diversity, strong interaction, reuse, ease of access, lookup, share and contribute ... Digital learning has gradually become an effective goal and medium in online training of private universities. More than just "digitizing text" or "open learning" as before, gamification applications increase immersive opportunities and embed learners in virtual environments to solve problems; 3D simulation, animation, hologram, video creation, artificial intelligence lectures, interactive E-book... it has helped digital learning not only provide information and learning content, but also create the ability to interact strongly with those contents for learners.

3.1.2. Some difficulties, obstacles

The difficulties and obstacles of the application of E-learning in private universities include institutional, cultural, technological, educational and ethical aspects:

Firstly, Vietnam has had macro policies from the Party and the State on promoting the application of information technology in higher education (Phung Xuan Nha, 2018). However, the implementation of the policy in practice is not good, especially in the field of distance education. The legal framework is incomplete. There are provisions on the conditions for applying E-learning in general (Circular No. 12/2016/TT-BGDĐT) and the concept of E-learning in the Regulation on Distance Learning (Circular No. 10/2017/TT-BGDĐT). The application of E-learning to formal training, postgraduate training has no clear legal basis to apply. The psychology of underestimating degrees from remote and online training by employers and learners limits the ability to attract learners.

Secondly, private universities lack the funds to invest in development in the context of the State not funding. Projects usually proceed thanks to foreign funding. The lack of connectivity between universities, so the spillover impact of these meager investments is still low. The learning environment does not stimulate the initiative and creativity of students. The capacity of the teaching staff and the education management team has not met the requirements of E-learning development, both in terms of technology and content. Some older lecturers are not used to the use of the internet should increase the workload as well as the pressure on lecturers. It gives rise to issues related to cybersecurity as well as intellectual property issues.

Thirdly, the teaching staff is lacking compared to the needs, and a limited number of lecturers in terms of qualifications and capacity (Liu Van An, 2019). Most PRIVATE UNIVERSITIES are unable to accommodate enough organic lecturers, the number of visiting lecturers still accounts for a large proportion, most of them are organic lecturers who have retired from being invited back. There are private universities after 8-10 years of establishment with a very small number of highly qualified lecturers (Professor, Doctor of Science, Master). The investment to train, foster and improve the level of lecturers at private universities is still limited.

Fourth, teaching facilities and equipment are still difficult.

Most schools have a narrow area, most of which do not meet the standards of classroom and lecture hall area. Many private universities do not have their own facilities, lecture halls, working rooms must rent without space for cultural activities, sports, dormitories many schools do not have. The library system, including the e-libraries of schools is generally small, the number of books is poor. Laboratory equipment, practice in most schools is lacking, outdated (Summary report of monitoring results ...). Facilities are lacking but the rate of increase in enrollment targets is high. That leads to low quality of training, not creating a consensus on benefits, strong enough attention to quality among learners, teachers, investors for education, employers, and society.

Fifth, the content and teaching methods of many schools are still outdated. The training content of private universities is generally outdated. The development of the program, the compilation of the syllabus has not paid enough attention; the content of the program lacks updating, the import of programs and syllabuses has not been evaluated to fully assess the applicability and effectiveness for higher education in our country.

3.2. Some solutions to develop online training in Vietnamese private universities in the coming time

3.2.1. Raising awareness and responsibility for the development of online training in Vietnamese private universities

The propaganda to raise awareness about the position, role, and benefits of online training in private universities should be promoted, not only in the education sector but also in the whole society. Management subjects, lecturers and students at the schools need to be aware of the advantages, difficulties, and conditions for implementing online training. It is necessary to develop a roadmap, a plan to put online training into the subjects and the training program. Private universities need to coordinate effective marketing campaigns for E-learning programs. Marketing contributes to bringing E-learning to all walks of life, thereby encouraging the spirit of learning as well as shortening the barriers that traditional training brings. Strengthen business cooperation in building E-learning websites. Enhance training on methods and skills, using a combination of components to create E-learning lectures. At the same time, improving the effectiveness of online forums, affirming the role of interaction when evaluating courses and learners' results, assessing the roles and responsibilities of administrators and technicians as well as technical instructors.

3.2.2. The State should amend and supplement the system of legal documents on finance for education in general and private universities to create a synchronous legal framework to create the most favorable conditions for private universities to develop.

Financial difficulties are one of the obstacles of private universities to develop online training. Therefore, special attention should be paid to the issue of attracting investment capital to private universities. Re-regulate ownership of assets for established capital contributors. Make sure their investments are profitable, not merely a form of savings. All investment activities everyone wants to make a profit, although not yet confirmed but investing in private university is also a form of business towards profit, but not like

businesses doing business for pure profit, the profit share of the private university establishment will continue to reinvest development to improve the quality of mining. Investors only enjoy a fair share of the profits.

Adjust and supplement financial support policies for private universities. If there is only one source of revenue from tuition fees of students with the requirement to invest in quality assurance conditions such as building facilities, renovating modern equipment, investing in building a team of teachers, and paying taxes to the State, the financial resources of private universities will face a lot of difficulties, so it is necessary to be financial support from the State to develop the scale and quality of private university institutions. It is not recommended to tax non-profit private universities. Taxing private universities is the main tax on students, as the main source of revenue for private universities is tuition fees. If taxed, the schools will raise tuition fees, the "sufferer" will be students. It is not only the way in which the State fulfills its task of providing public services but also a way to perfect the public services provided to society.

3.2.3. Interested in developing teaching staff

The teaching staff has a particularly important role for each educational institution, being the guide for the student's learning, contributing to the formation of qualities, personality, qualifications, and professional skills for students. The teaching staff is an asset that ensures the survival and development of private universities. They have the role of creating the brand, the class of the training institution in the country as well as internationally. Nowadays, the teaching staff has an extremely important mission in training human resources that are both highly qualified and have good personality qualities – citizens who can meet the requirements of national renewal and development. The quality of the teaching staff is also an important criterion in the evaluation and accreditation of university quality. Therefore, the care to build and develop the teaching staff of private universities will create a great change in the quality of higher education, meeting the new requirements for the socio-economic development of the country.

To prepare a highly qualified human resource team to be ready for the Industrial Revolution 4.0, there should be a form of training of lecturers to meet the most modern teaching requirements, such as the ability to apply teaching information technology, capable of using modern teaching facilities and most importantly, self-learning capacity, Self-study of science.

3.2.4. Upgrading the infrastructure for E – Learning

Good infrastructure plays an important role, successfully determining the implementation of online teaching and learning, while the development of infrastructure to serve E-learning with reforms and upgrades cannot take place in the short term. Therefore, private universities need to allocate finances as well as arrange reasonable time to continue to simultaneously implement both teaching activities and upgrade infrastructure without affecting learners.

The Ministry of Education and Training needs to develop appropriate LMS and LCMS systems to support online training (LMS - manages online learning activities, LCMS

- manages learning content); develop multimedia lecture materials for online training. The Ministry also needs to have regulations on the basic standards of training in the form of E-learning is the inevitable trend of society, stipulating the minimum standards of E-learning training such as infrastructure, equipment, teachers, learners, academic outlines. Recognition of online learning results...

3.2.5. Strengthening cooperation between private universities and enterprises to improve the efficiency of online training

In the context of the Industrial Revolution 4.0, the core element of building the higher education system is that training is associated with practical requirements, training that better meets the needs of society. Developing a cohesive training model between educational institutions (schools) and businesses is considered an important requirement to be set. To strengthen the cooperation between private universities and businesses to improve the quality of online training, many measures should be taken.

1) Expand training links between enterprises and private universities. The business side will act as information providers for training institutions to understand the needs of the labor market. The training activities of universities and colleges are always geared towards the needs of businesses. The school ensures that the supply of workers that meet the needs of the business. Thus, the enterprise is cooperating with the training institution is also a practical need of the enterprise itself. Therefore, this link is both inevitable and highly feasible in meeting labor for businesses.

2) Private universities and businesses combine in research and technology transfer. The transfer of science and technology has two aspects. The first is research and transfer to improve research capacity in schools and promote enterprise production in the direction of improvement according to demand. When intellectual human resources are becoming a direct production force and a determinant of the competitiveness of enterprises, the implementation and close combination of schools and enterprises in scientific research is a trend, a positive measure of dynamic education, creative. Secondly, the school has a team of well-trained intellectuals, capable enough to receive the transfer of advanced new technologies, thereby applying to businesses. In this respect, the business benefits in terms of saving time and taking advantage of external resources. Also from this activity, the school is quickly approaching new technologies based on resources from businesses.

3) The Government orients and brings resources from foreign organizations to help promote the cohesion between private universities and businesses in Vietnam. For businesses, access to foreign organizations opens new opportunities for enterprises to access foreign markets and resources. On the school's side, relying on resources from foreign organizations to conduct contacts and engagement with businesses will enhance its position and prestige in that relationship.

4. Discussion and Conclusion

Along with the development of Industry 4.0, online training is no longer a strange form for private universities. Education experts said that, along with the development of technology and the increasing demand for lifelong learning, E-learning online learning is an inevitable trend that countries in the world as well as Vietnam aim for and promote. E-

learning online training offers many benefits such as simplicity and accessibility for learners; flexibility helps learners to be fully proactive about time, learning space, course selection, appropriate learning content; highly synchronized curriculum and materials... However, the application of this form of training in private universities, besides the basic advantages, still has many difficulties and obstacles. Therefore, to develop online training, private universities need to take drastic action, synchronously implement many solutions; at the same time, it is necessary to have timely support and orientation from the Government and state management agencies.

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POPULATION AGEING AND ECONOMIC DEVELOPMENT IN VIETNAM

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Abstract

In recent years, population ageing has become a global phenomenon, taking place in almost all countries in the world. Similar to this trend, Vietnam has also been undergoing a rapid rise in the number and proportion of the elderly people in the population, which can imply many impacts on the nation's economic development. Therefore, this paper focuses on analyzing the current situation of population ageing in Vietnam, mainly from 1975 to 2020. The results show that the older-aged group has continuously and significantly increased during this period, accounting for 7.87% of the total population in 2020 and this number is predicted to continue to rise in the upcoming future. While Vietnam has officially entered the "ageing" stage since 2011, it is forecast that the country may reach another stage – "aged" in less than 2 decades. This can pose many challenges as well as present some opportunities for the economic development of Vietnam. Using a collection of past literatures on the relationship between population ageing and economic development in different nations, the authors then discuss more deeply about the challenges and opportunities Vietnam's economy may face, as well as recommend some policies for the Vietnamese government in their preparation for coping and adapting to the ageing population.

Keywords: *Economic development; Population ageing; Vietnam; Vietnam's economic development.*

1. Introduction

Population ageing can be defined as a transition in a country's demography characterized with a rise in the share of the old-aged people (United Nations (UN), 2015). This leads to an older structure in the nation's population. As for the thresholds in defining an ageing population, according to the United Nations Population Fund (UNFPA) (2011), when the share of the elderly group (who are aged 65 and over) reaches 7%, the country's population can then be called "ageing". If it exceeds 14% and 20%, the population becomes "aged" and "super-aged" respectively. 60-year-old can also be used as another threshold to indicate an ageing population, specifically when the share of people in this age or over amounts to over 10% of the population; whereas it is called "aged" and "super-aged" when reaching 20% and 30% respectively (UNFPA, 2011). The main reasons that cause this particular change in demography include declines in fertility and mortality rates as well as rise in life expectancies (Weil, 1997; Giang & Pfau, 2007).

In recent years, population ageing has become an increasing phenomenon and is happening in almost all nations across the world. Before, population ageing was mostly reported in developed countries such as Japan, Germany, Italy (Lee et al., 2011; Muto et al., 2016). However, this same phenomenon can now be seen happening in many more developing nations, including China, Singapore, Korea (Banister et al., 2012; World Bank, 2016). More notably, the rate at which developing countries are experiencing population ageing is much higher compared to developed nations in the past. Not outside of this trend, Vietnam is also one of the countries undergoing the same phenomenon, where the share of older group in the country's population has been experiencing a rapid rise in both numbers and percentages (Giang & Pfau, 2009), more rapid than any other age groups. What is more concerning is that the rate at which population ageing is occurring in Vietnam can be considered one of the fastest in Asian region, or even in the world (Tong, 2017).

This would no doubt pose many challenges for the economic development of Vietnam, especially for the government and policymakers. This can be even more challenging for Vietnam since the country's level of income has only reached lower-middle level, thus it can come across an additional problem of "getting old before getting rich" (World Bank, 2016; IMF, 2017). Therefore, if not prepared carefully with appropriate measures to deal with the challenges that come with the phenomenon of population ageing, Vietnam's economy and socio-economic development in the future could be negatively affected, especially in the long term. More interestingly, population ageing can also come with some opportunities. If managed well, the investment in human capital and contributions from the elders can in fact help promote economic growth (United Nations, 2015). Thus, the government can have a proactive approach to prepare and adapt to the ongoing change in population structure so as to mitigate the negative influences and even capture the possible benefits from population ageing in order to promote more development (World Bank, 2016).

Of course, to come up with such policies would require proper and insightful researches into the situation of population ageing in Vietnam, and what specific challenges (and maybe even opportunities) such phenomenon could bring about to the nation's economic development. With the current lack of formal papers about this topic, the needs for more researches regarding population ageing and its relationship with Vietnam's economic development are greater than ever. Therefore, this paper intends to fill the literature gap by providing a thorough analysis of the situation of population ageing in Vietnam. Additionally, using past literatures that studied about the effects of population ageing on different nations, economically and socially, this paper will then discuss possible challenges and opportunities that can come with population ageing for Vietnamese economy. From that, our paper will provide some policy recommendations for Vietnamese government to help them design appropriate measures to respond to the phenomenon of population ageing.

2. Method

Our paper collects secondary data on Vietnam's demography and the main sources of data are from World Bank database and the General Statistics Office (GSO) of Vietnam. Using data ranging from the years 1975 to 2020, we apply statistical data analysis method in order to

research the situation of population ageing that is happening in Vietnam and the possible reasons behind its occurrence. This paper also synthesizes and analyzes a collection of past literatures on the topic of population ageing and its effects on many nations' economy in order to discuss the possible challenges and potential opportunities that population ageing can bring about to Vietnam's economic development as well as the appropriate policies that can be used to deal with the phenomenon. The results of our study will be discussed in the following sections.

3. Results

3.1. Literature review on population ageing and economic development

It is widely accepted among economics literature that population and demography of a country plays a great role in its economic development. Therefore, a particular shift in demographic structure such as one that moves towards an older age structure will certainly have some effects on the nation's economy.

On one hand, population ageing can affect a country's savings. In the life-cycle theory, many economists believe that the savings patterns of a typical individual follows a hump-shaped age profile where they tend to save little in their early years as a child, then accumulate most of their savings during their working years to prepare for retirement and save very little again or even dissave (for example: draw down savings) after retirement (Bloom & Canning, 2008; Albuquerque & Lopes, 2010; Weil, 1997). Therefore, more elderly people in the population would imply a lower aggregate savings rate for the country (Weil, 1997; Cutler et al., 1990). The rising fraction of the elderly group also implies more needs for government transfer such as retirement pensions or social security to assure the life of the older-aged group (Bloom & Canning, 2008). In other words, population ageing can create a substantial burden on a country's government budget (Bloom et al., 2010; Otsu & Shibayama, 2016). Another adverse effect that comes with population ageing when more and more people in the population are moving toward an older age group while the fertility rate continues to decline is the possible shortage of labor supply in the upcoming future (Lee et al., 2011; Muto et al., 2016;). As this phenomenon means a larger proportion of the elderly who would mostly be in their retirement and thus often economically inactive (Lee et al., 2011) and a smaller group of the working age group who are the main sources of the labor force, there will most likely be a decrease in the labor participation rate (Otsu & Shibayama, 2016). Thus, population ageing can have negative effects on a country's economic development.

On the other hand, population ageing may not only come with negative impacts. The lower fertility rate associated with population ageing would imply fewer children per family, meaning less dependencies from the youth and less expenditure devoted for child rearing (Lee et al., 2011) which could result in greater opportunities for households to save more. Increased longevity can also induce people to have higher precautionary savings to account for longer retirement period (Borsch-Supan, 2008). Meanwhile, the decline in the labor force can be offset by generating a greater participation rate, especially from the elderly people (Bloom & Canning, 2008; Clark et al., 2008) since rise in life expectancy can allow older people to prolong their working lives (Bloom & Canning, 2008), especially since this increase in life expectancy can mostly be associated with better health of the population, including the elderly.

The older-aged people can also make contributions to the economy by transferring their knowledge and experience to their younger family members, thus help improving the human capital of the younger generations. What’s more, decrease in fertility rate can imply fewer children in the family which allows more resources and investments from the parents for their children, further improving the human capital of the younger workforce (Lee et al., 2011; Prettnner, 2013). Therefore, there are possibilities that if dealt with in the right way, this population ageing phenomenon can actually help promote economic development.

3.2. The situation of population ageing in Vietnam

Generally, the total of Vietnam’s population is considered relatively large. Data by the GSO of Vietnam showed that the average total population of the nation in 2020 is estimated to be 97.58 million people which accounts for around 1.24% of the population of the world. Looking more closely at the demographic structure of Vietnam, in 2020, the number of the working age population (aged 15-64 years old) is 67.11 million, equivalent to 68.94% of the total population. Meanwhile, the child group (aged 0-14 years old) accounts for approximately 22.58 million, making up 23.19% of the population whereas the number of elderly people who are 65 years old and over is around 7.65 million, which is 7.87% % of Vietnamese population.

In recent decades, Vietnam’s age structure has been undergoing significant changes and has been transitioning gradually towards an ageing society. Despite only accounting for more than 7% of the whole population, the elderly group has been shown to experience considerable increases in the past years. More importantly, the rises in the number and percentage of this particular group are much more rapid compared to other age groups.

The total number of population aged 65 and over in Vietnam between 1975 – 2020

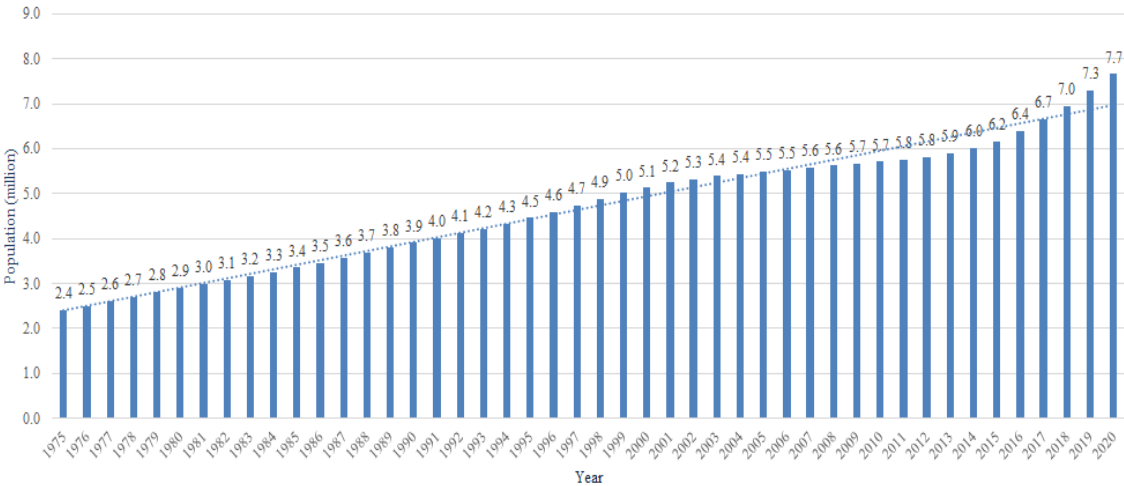


Figure 1. Total number of population aged 65 and over in Vietnam between 1975 – 2020

Source: World Bank Database

As can be seen from the graph, during the period from 1975 to 2020, the number of elderly people in Vietnam increased continuously and significantly. More specifically, while the population aged 65 and over was only about 2.4 million people in 1975, in 2000, the number has more than doubled to over 5 million. And from this year 2000, the population aged 65 years and over in Vietnam has constantly risen from 5.1 million to reach 7.65 million in 2020, a figure that is more than three times of that in 1975.

However, some people may argue that these increases in the number of elderly people could come from a general increase in the whole population of the country. Therefore, we will now look at the proportion of this particular group as compared to the total population to see the change in the age structure more clearly:

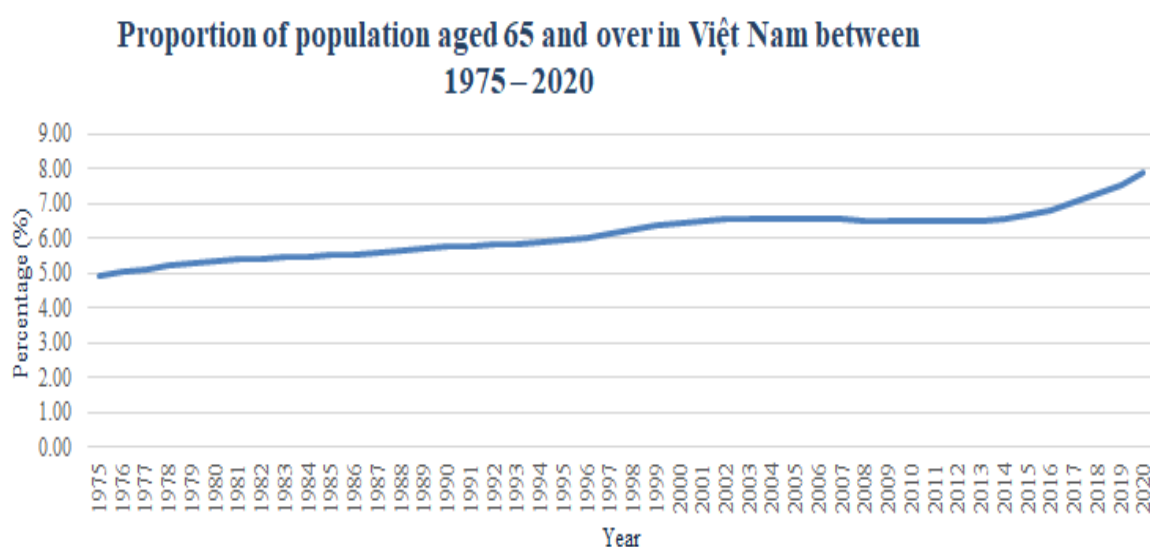


Figure 2. Proportion of population aged 65 and over in Vietnam between 1975 - 2020

Source: World Bank Database

It can be seen clearly from the above figure that the proportion of elderly people in Vietnam itself has risen remarkably in recent decades. In fact, the percentage of people aged 65 and over in Vietnam has increased by nearly two times from 4.94% of the country's population in 1975 to 7.87 % in 2020. By using the 65-year-old as a threshold for measuring population ageing, we can conclude that Vietnam has entered the “ageing” stage since 2016 as nearly 7% of the country’s population are 65 years old and over by this year.

However, if we use 60-year-old as an ageing threshold instead, it may indicate that Vietnam has become an “ageing” country at an even earlier year. More specifically, when 60 years of age is used as a baseline to define the elderly group, the number of older-aged people in Vietnam has also risen continuously over the years.

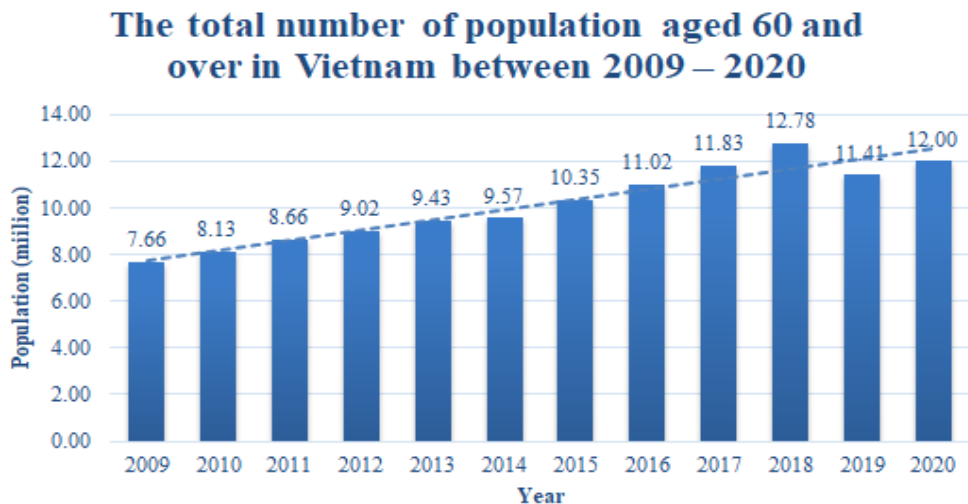


Figure 3. Total number of population aged 60 and over in Vietnam between 2009 - 2020

Source: Authors' calculations based on the results of the Surveys on Population Change and Family Planning for the period of April 1, 2009 to 2020

During the period from 2009 to 2020, the population of people 60 years old and over has experienced a continuous rise from 7.6 million people in 2009 to around 12.7 million people in 2018, corresponding to an increase from 8.93% to 13.53% of the total population which again showed a nearly doubled figure. Even though the number of old-aged people slightly decreased in the year 2019, this number started to rise again in 2020 and still reached 12 million people, accounting for 12.34% of the total population in 2020. This shows that the share of old-age group in the country's population still generally experience an overall upward trend. More importantly, according to this measure, Vietnam has actually officially entered the "aging" stage in an earlier year: in 2011 with nearly 10% of the total population being 60 years old and over.

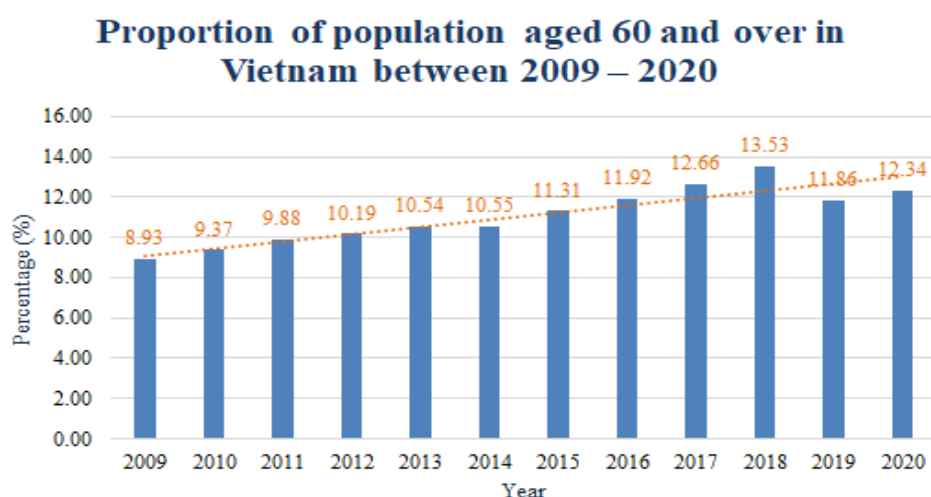


Figure 4. Proportion of population aged 60 and over in Vietnam between 2009 - 2020

Source: Authors' calculations based on the results of the Surveys on Population Change and Family Planning for the period of April 1, 2009 to 2020

Similar to other countries, the main reasons that have caused population ageing in Vietnam are most likely a combination of two factors: a decrease in the fertility and mortality rates along with an increase in the population's life expectancy. World Bank data shows that between the period from 1975 to 2020, the total fertility rate of Vietnam has decreased sharply from 6 children/mother in 1975 to about 2 children/ mother in 2015 – a 3-fold decrease in volume. This low birth rate continued to be maintained at around 2 children per mother until 2020. This decline in birth rates is believed to have largely been due to the introduction and successful implementation of the “Family Planning” Policy in Vietnam in the 1970s, with the typical example being the “One-or-Two-Child” policy. Meanwhile, the mortality rate in Vietnam has decreased from 5.18% in 1975 to around 1.67% in 2020. At the same time, the life expectancy at birth increased from 61.5 years to 75.5 years old in the same period. The reason behind this decrease in mortality and increase in life expectancy can be attributed to the rapid socio-economic transformation in Vietnam since the "Doi Moi" period, which in turn led to many advancements and improvements in the medical and healthcare systems in Vietnam, which helped reduce mortality rate and improve life expectancy.

In the past, Vietnam has benefited from the above factors as they contributed to an increase in the working-age population and the creation of young, healthy and well-trained workforce to drive economic growth. However, after some periods, Vietnam has been experiencing a decline in the proportion of the children population (aged 0-14 years) while the percentage of the elderly group has increased rapidly in both quantity and proportion.

Table 1. Forecast of Vietnam’s population structure in the period 2029 - 2049

Year	2029	2039	2049
Total population (million)	102.3	106.5	108.5
Proportion of child population (0-4 years old)	20.9%	18.1%	17.9%
Proportion of working age population (15-64 years old)	68.0%	67.0%	64.0%
Proportion of old-age population (65 years old and over)	11.1%	14.9%	18.1%
Old age index 60+	77.6	113.2	138.9

Source: Authors' calculations based on GSO's data

What's more, predictions indicate that this rise in the older-aged group would continue in the upcoming years, reaching approximately 15.9 million and account for nearly 15% of the total population by 2040. This implies that Vietnam is likely to enter the next stage of “ageing” by becoming an “aged” population by this time. And by 2050, the number of the elderly in the country will increase to 19.6 million, making up more than 18% of the population, meaning Vietnam will head to a further stage of ageing. In other words, in the future, Vietnam's population will continue to undergo a strong and rapid structural transformation, following the trend of more and more elderly people in Vietnamese society.

3.4. Population ageing and economic development in Vietnam: challenges and opportunities

The gradual ageing of Vietnamese population can be considered a notable issue in the current years. This would bring about a number of challenges for the development of the nation, especially in terms of economics.

As mentioned above, there are possible shortages of the labor force in the upcoming future. According to GSO, in 2020, there are approximately 54.8 million people in the labor force, accounting for 56.2% of the country's total population. This number showed a decline in the labor force of around 924.5 thousand people compared to the year before 2019. Newest estimation for 2021 even showed that the labor force has continued to decrease to 50.5 million people, equivalent to 52.7% of the country's total population. Moreover, the working age population is predicted to decline from 68% to 67% from 2029 to 2049; while the younger population (ages 0-14) will decrease from 20.9% to 18.1% in the same period. This shrinking in the future workforce can dampen the production and output of Vietnam in the near future

In addition, the aging index (measured by the number of people aged 60 and over divided by the population under 15 years old) is forecast to exceed 100 by 2039, implying that the older population in Vietnam will outnumber the younger population by this year. This suggests that there will be more burden from the elderly group on the economy, since smaller group of younger people will have to support a now larger older-aged group. Other concerns include healthcare and pension funding for the elderly; more burden of the government budget and sustainability of the fiscal policy. What should be taken into consideration is that the rapid rate of ageing in Vietnam while the income status is still at lower – average level suggests that Vietnam would face the problem of “getting old before getting rich”, bringing even more challenges than other developed nations. Therefore, if not prepared well, this phenomenon could have serious negative effects on Vietnam's long-term economic development.

However, population aging does not necessarily always hinder a country's economic development. Higher savings rates, investments in human capital and contributions from the elderly can help promote growth. With Vietnam's popular existence of traditional family where grandparents usually live with their children and grandchildren, the elderly can bring many contributions to the economy and society. For example: They can help with child caring and support for their children and grandchildren, transfer their knowledge and experience,... Higher participation from the elderly can also be made use to improve the labor force participation since in Asian countries in Vietnam, many older-aged people still work after retirement, especially in the countryside. More importantly, population ageing requires a proactive approach by the government through the development and improvement of the pension and health care system as well as the social security system to successfully prepare and adapt to the changes in population structure that are taking place. Only then can Vietnam minimize the negative consequences of ageing and maintain economic development. Moreover, if managed well, the demographic transition that Vietnam is currently experiencing could lead to a long and prosperous life for the Vietnamese people.

4. Discussion and Conclusion

4.1. Policy recommendations

From the analysis of the situation of population aging in Vietnam and the discussion on the potential impacts this phenomenon has on Vietnam's economic development, we suggest the following policies:

Firstly, since population ageing is mostly associated with a rise in the share of the elderly people in the population and since this particular group is inherently one of the most vulnerable groups in the society, the needs for welfare and health care for the elderly will increase significantly. As a result, it is important for the Vietnamese government to pay more attention to the development of healthcare and social security policies for the older-age group. The design of such policies should also take into consideration the differences between different specific groups to account for essential needs, especially since resources is limited. For example, more priorities should be given to more vulnerable groups of older people such as those aged 80 years and over, those living in rural areas, elderly women, ethnic minorities,...etc. This is especially important when in Vietnam, the life of the elderly still faces many difficulties. Many elderly people still belong to poor households; most still live in the countryside, are farmers or work in agriculture. The percentage of elderly people who can live on pensions or social benefits is still very low. Thus, the development of a high-quality health care system, with medical facilities specializing in geriatrics; as well as having well-trained human resource for the healthcare of the elderly are considered necessary.

Moreover, one of the main reasons that lead to the occurrence of population ageing in Vietnam is the decrease in the fertility rate. Therefore, it may be recommended to the Vietnamese government to develop policies and programs to counter this problem. For example, there could be improvement in the provision of information and better access and better quality to reproductive healthcare along with social service supports for people making reproductive decisions. More favorable policies for working mothers such as more flexible working hours; more support for childcare and maternity care can also encourage women's participation in the workforce while also help increase the birth rate in the population.

Meanwhile, regarding a way to compensate for the potential future labor shortage in Vietnam, it is suggested that the Vietnamese government should implement measures to encourage the continued participation of the older-aged people in the labor force. Policies should be designed so as to create more incentives for the elderly to continue working and help them work in accordance with their health, expertise and skills. For example, the government can develop a lifelong learning programs for the elderly, making it easier for this group to have access to and learn new knowledge and skills to continue in their jobs, to still make their contributions to the society and the economy. Additionally, the future generations of elderly people who have increased levels of education and skills can become an important force for economic development. Thus, policies should be made with more focus on promoting and making use of the participation and contributions of the elderly. With this, Vietnam can move towards a more active approach in ageing.

4.2. Conclusion

Population ageing is undeniably becoming a global phenomenon and occurs in many countries across the world. Not outside of that trend, Vietnam is also experiencing a shift in demographic structure with an increasing number of elderly people in the population, both in number and proportion. This paper takes a closer look into the situation of population ageing happening in Vietnam and discuss the potential challenges and opportunities that this

phenomenon may bring to Vietnam's economic development. Therefore, our research will help the Vietnamese government better understand and have more awareness about the issues of population ageing as well as how to prepare to deal with this phenomenon in the upcoming future. In addition, we also propose some policy recommendations which include: policies to develop better healthcare and social security systems to improve the quality of life for the elderly; policies to promote more births among the populations and policies that would help increase labor force participation, especially of the elderly group. The authors believe that these policy reforms can be useful for the Vietnamese government in designing and implementing appropriate measures to effectively and successfully adapt to the situation of ageing population in Vietnam. More importantly, with the rapid speed that population ageing is happening in Vietnam, it is recommended that the Vietnamese government should prepare and apply the appropriate measures as soon as possible to put Vietnam in a better position to cope with the possible challenges that come with population ageing while still capturing the potential benefits related to this phenomenon and maintain sustainable development in the short term and the long term.

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DEVELOP SELF-LEADERSHIP SKILLS IN ENTREPRENEURSHIP FOR VIETNAM STUDENTS

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Abstract

The Vietnam government has set a target to have about one million businesses operating effectively. Startup is one of the most important activities to achieve that goal. Entrepreneurship can be seen as an innovation, i.e., risk-taking, pursuing the new, and being ahead of others. Self-leadership is important for innovators and has many benefits for risk-taking entrepreneurs. The universities in Vietnam have many activities to encourage students to start a business, and there have been several entrepreneurship courses. However, no university has trained students in self-leadership skills. Developing self-leadership skills for students is an important factor in promoting entrepreneurship in Vietnam.

Keywords: *Startup, Entrepreneurship, Self-leadership*

1. Introduction

Vietnam is facing a situation of economic growth tend to decrease, unsustainable, low economic creativity capacity (Mai Viet Dung, 2015). It is accompanied by an ever-increasing unemployment problem, especially among people with tertiary education (VCCI, 2016). To address the above fundamental issues of macroeconomics, developing a group of enterprises based on science and technology - an innovative start-up or formerly called an innovation startup is the choice that is imperative for our country today (Nhat Nam, 2016).

With the efforts of the Government and the participation and response of the whole society, creative start-up activities in Vietnam tend to increase in both quantity and quality. According to the statistics of one of the leading magazines on startup in Southeast Asia Echelon, Vietnam currently has about 3,000 innovative startups. Statistics from Topica Founder Institute (TFI) show that in 2017, Vietnam received nearly double the number of innovative start-up deals and increased 50% in total investment capital compared to 2016 (Ministry of Science & Technology, 2018). Many creative start-up movements among young people took place wildly, such as the movement to bring startups into university lecture halls, the program of creative start-up students ...

In Vietnam, the Government has set a target to have about one million businesses operating effectively by 2020; and starting a youth business is one of the most important activities to achieve that goal. Many programs, policies and support funds have been implemented to promote business among young people in Vietnam. According to the Global Entrepreneur Report (GEM), the proportion of adults who are aware of the opportunity to start a new business in Vietnam increased from 39.4% in 2014 to 56.8% in 2015, higher than

in the whole Southeast Asia (Report, G. E., 2017). However, GEM also reported that the proportion of people planning to start a business in Vietnam is only 22.3%, much lower than other countries with similar economic development levels. Evidence of entrepreneurial intent among young people in Vietnam is available. Therefore, it is necessary to fight against barriers affecting the business intentions of young people, which can contribute to the development of policies to improve young entrepreneurs in Vietnam.

Leadership as an important feature for an entrepreneur

An entrepreneur's leadership has become apparently important due to challenges in a management setting. It is believed that entrepreneurs are people-dependent and need people's help. This could be both inside and outside the company. Therefore, entrepreneurial leadership emerges as something a businessman wants to run his company (Sklaveniti 2017 p. 204). Among others, Reid et al. (2018) argue that many of an entrepreneur's attributes or characteristics are the same as those needed to be a leader. Leadership and leadership research have collaborated in several ways (Reid et al. 2018). Some of the thematic areas that overlap entrepreneurship and leadership, such as vision, influence, creativity and innovation, planning, and cognitive and dispositional approaches (Reid et al. 2018, p. 152).

Thus, leadership remains an important part of entrepreneurship research (Simsek et al. 2015, quoted in Reid et al. 2018). One way to improve an entrepreneur's life and business are perhaps by pursuing "self-leadership to lead him or herself more effectively." It's argued that leading oneself can only lead others (Furtner, Baldegger & Rauthmann, 2013). Leading oneself is specifically related to the idea of self-leadership, and self-leadership can be taught and implemented through a combination of behavioral and cognitive techniques (D'Intino et al. 2007, p.105). Therefore, if leadership is important for entrepreneurship, an entrepreneur can use self-leadership as a starting point to develop their leadership skills.

Many scholars claim to support leadership as something that can be either thought or learned (Doh 2003). And for an entrepreneur, leadership has become a skill needed, and self-leadership is seen as necessary (e.g., Manz & Sims 1991; Pearce 2007; Reichard & Johnson 2011). Furthermore, leadership can be seen from various viewpoints and through different reference frames depending on a company's maturation. In startups, however, the leader usually learns how to lead through the entrepreneurial process. He or she may have a vague idea of whether to be a leader or how to become a leader at the outset of their business venture, but when it progresses, it always occurs during business venture growth (Leitch, McMullan & Harrison 2012, p.348). Thus, one who wishes to become a leader may build leadership through entrepreneurship. To cope with the lead role, an entrepreneur can deal with self-leadership as an important contribution (Furtner, Baldegger & Rauthmann 2013).

2. Literature Review

2.1. Self-leadership

Self-leadership is a term that emerged in the 1980s and is described as "a process in which a person influences himself in order to gain self-direction and self-motivation for success" (Houghton & Neck 2003, p.126). It can be applied by different behavioral and cognitive approaches, which can be used to affect personal effectiveness positively (Neck &

Houghton 2006, pp. 271). Since its creation, self-leadership has gained popularity among scholars and even executives who have used self-leadership concepts through training programs to increase workplace self-leadership (Neck & Houghton 2006, pp. 270-271). Different research revealed three central dimensions of self-leadership: (a) self-behavior; (b) self-reward / punishment; (c) positive thought (Prussia, Anderson & Manz 1998, and Houghton & Neck 2002). In this study, these aspects will be presented to the reader for a deeper understanding of the principle of self-leadership.



Figure 1. Self-leadership pattern, Houghton & Neck 2002

The idea of self-leadership is based on psychological theories, primarily related to cognitive and behavioral theories (Neck & Houghton 2006). Therefore, one can learn principles and strategies about how to apply self-leadership to achieve benefits such as individual strength, inspiration, and creativity (Yun, Cox & Sims Jr 2006, and DiLiello & Houghton 2006).

✚ *Providing self-leadership*

Self-leadership is a theory is a construction based on an individual's psychological aspects as a set of cognitive and behavioral strategies divided mainly into three major categories (a) behavior-focus strategies; (b) natural rewards; (c) constructive thinking (Prussia, Anderson & Manz 1998, and Houghton & Neck 2002) that can enhance one 's performance through self-efficacy.

✚ *Conduct-focused approaches*

One adopts behavior-focus approaches to "increase self-awareness, leading to behavior modification requiring required but sometimes difficult activities" (Houghton & Neck 2002, p. 673). Behavior emphasis may involve a series of techniques outlined, such as self-observation, target setting, reward, punishment, cueing, correction of feedback, and practice (Houghton & Neck 2002, and Neck & Houghton 2006). Such techniques are similar to tactics taken to form one's own actions by HR agencies or even business strategies, but

embraced and presented by one to oneself. Both approaches increase self-awareness and practice to contribute to real behavioral improvement, enhancement, or removal (Houghton & Neck 2002, pp. 673).

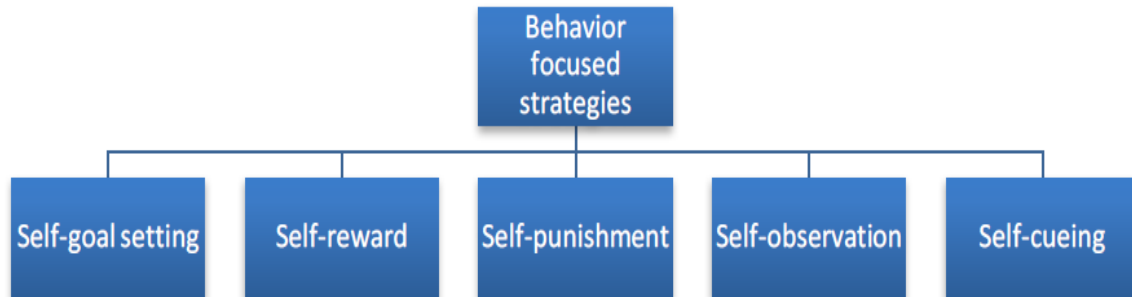


Figure 2. Behavior focused strategies, based on Houghton & Neck 2002

✚ Strategies for Natural Reward

Natural rewards are strategies designed by one to shift one's focus to the most pleasant aspects of a task or shape the work environment to a more pleasant place where one's enjoyment of doing a task is likely to be more natural (Houghton & Neck 2002, pp. 673-674). These techniques may include but are not limited to, outdoor work, using pictures on the workstation, conversing with others to make the work less mechanical and more normal, as shown in the figure below.



Figure 3. Natural reward approaches based on 2002

✚ Constructive learning techniques

Positive thought or positive thinking patterns are techniques aimed at challenging and removing unhealthy and irrational ideas to create a more constructive thinking pattern (Neck & Houghton 2006, p. 272). The way to enhance a constructive way of thinking is by increasing positive self-talking and replacing destructive self-talking, in this scenario, one should re-evaluate one's way of thinking about oneself and change one's way of internal dialogue, present in the figure how constructive pattern strategies are used;

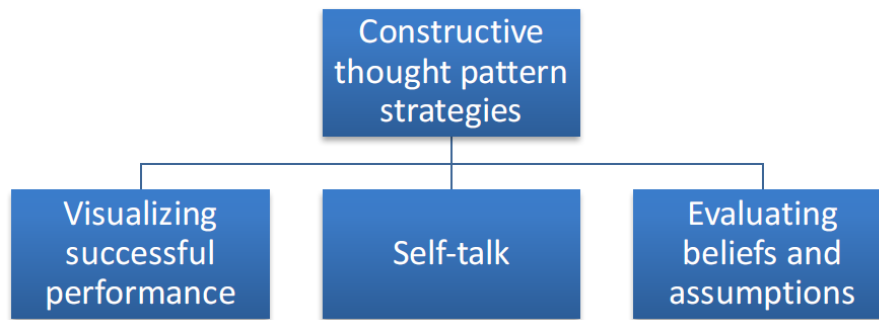


Figure 4. Building strategies based on Houghton & Neck 2002

✚ *Self-leadership is intrinsic to one's discipline and sensory making*

Sensing is the ability to understand what is happening, to understand the present and how the flow of events has led to the current situation rationalization (Weick, Sutcliffe, Obstfeld, 2005). As one must be careful to follow one or more strategies, the application of these strategies must make sense to oneself if one looks back. Leadership is the link between figure and ground, what leaders do, and actions and utterances from the action relationship of leaders, and it's about giving meaning to a context (Smircich & Morgan, 1982). Thus, self-leadership is related to a self-sensing process in which one must incorporate one's own actions by making sense.

✚ *Self-leading disputes and limitations*

Neck and Houghton (2006) draw attention to the fact that self-leadership is not easy to quantify. The concept of self-leadership overlaps with classic theories of self-motivation and self-influence, making self-leadership difficult to be a unique and distinguishable building separated from other motivational and personality constructions (Neck & Houghton 2006, pp. 274-275). While self-leadership is related to different psychological principles and theories, it is a specific structure that has to do with one's personality and behavior but also with actions, self-discipline, and self-sensing.

Because self-leadership is not easily measurable, RSLQ is one method for measuring self-leadership. However, it faces critics, particularly when used in non-western contexts (Neuber & Wu 2006, Alves et al . 2006). Nevertheless, construction is not annulled. It brings challenges to scholars and practitioners, and one has to be the best self-judge of self-leadership effectiveness, adapting the way it is evaluated when necessary.

Self-leadership concepts can be applied in practical ways and have proven to be tools that enhance the performance of those who receive instruction on the subject as shown by results (Neck & Manz 1996, Stewart, Carson & Cardy 1996). While hard to quantify (Houghton & Neck 2002 and Furtner, Baldegger & Rauthmann 2013), an individual's self-leadership training and growth is possible and can effectively improve efficiency (D'Intino et al . 2007 and Neck et al. 2013).

✚ *Self-leadership of others*

Self-leadership is not leadership, and one aspect of leadership and self-leadership is positively linked to certain leadership types rather than others. It's not clear how self-

management accounts for leadership itself, but its connection is empirically evident (Furtner, Baldegger & Rauthmann 2013).

Self-leadership is typically a concept used to control one's actions. When one thinks about leadership, the leader and follower must be taken into account. "Leadership is realized in the process by which one or more individuals may attempt to frame and describe others' reality" (Smircich & Morgan 1982, p. 258). Thus, self-leadership is the self-success in attempting to frame and describe one's own reality through a series of blended techniques that include self-behavior-focused strategies, natural reward techniques, and self-building thought (Prussia, Anderson & Manz 1998, and Houghton & Neck 2002). One must follow to lead.

Simultaneously, the following is a trend that goes hand-in-hand with leadership as leaders and followers have a normal relationship. Leaders and followers must share a common purpose. Followership is an active action as followers intend to participate in events (Baker 2007). Hence, followers willingly encourage leaders to lead while common interests motivate leaders and followers. Self-leadership, by example, can enhance leadership if followers can make sense of their leadership.

2.2. Entrepreneurship and Self-leadership

Entrepreneurship can be said to be a spirit of relentless challenge to build new values and possibilities through creativity, initiative, and risk-taking without being constrained by resources that can be managed in a rapidly evolving competitive environment and can also be said to be contributing attitude and competence. Furthermore, leadership can be identified as a concept that means influencing others rather than position or title. It can also be observed to be strong in terms of organizational management, influencing the exercising power process (Ha & Jung, 2011).

The characteristic study of entrepreneurship focuses primarily on identifying specific variables of personality, validating the level of achievement, control position, risk-taking, and ambiguity tolerance. On the other hand, people's characteristics addressed in terms of leadership can be seen as compassion, work motivation, emotional equilibrium, competence, ethical conduct, imagination, and bravery. This is, if the characteristics of the leader and leadership are analyzed in terms of the individual's various characteristics affecting success within the category of characteristics, the difference is that the dimension of entrepreneurship is emphasized in creating and running a new organization.

As such, there are many parallels between the philosophy of entrepreneurship and leadership in that they both have some ambiguity, but there is a significant gap in the study method and practical implementation. Accordingly, entrepreneurship is said to be part of leadership in a specific sense, but entrepreneurship can be viewed differently from leadership in terms of developing something new rather than handling the current.

Entrepreneurship can be seen as an innovation, i.e. risk-taking along with innovative pursuing the new and ahead of others (Yoo & Kim, 2015). This indicates that self-leadership may be much more important to innovation-oriented people (Pearce & Manz, 2005), and self-leadership may be even more beneficial to risk-taking entrepreneurs (D'Intino et al., 2007), and those with strong initiative have shown themselves to be comparatively stronger

in self-leadership compared to those with the less strong initiative (Yun & Sims, 2006). As such, entrepreneurship and self-leadership are closely linked to each other.

Self-leadership, consistent with recent trends, is emphasized by each member's efforts to exercise influences and lead to desirable thoughts and actions, unlike traditional leadership that focuses solely on the leader's influence to achieve organizational performance (Song, 2013). In previous self-leadership studies (Houghton & Neck, 2002; Neck & Manz, 2010), constituents' self-leadership is often required to fulfill creative positions that sustain entrepreneurship, affecting entrepreneurship. It can also be said to be a response mechanism used to cope with changes in an enterprise's climate or organization in an active reaction to a rapidly evolving entrepreneurial spirit world or organizational change.

Accordingly, a study claims that since self-leadership can determine self-regulation towards environmental changes and self-control level of intent, the relationship with entrepreneurship is likely to be close (Kim & Noh, 2012). It is also defined as an element of behavioral activities that approach college students' self-goal and passion without further dividing them into sub-elements such as behavior-centric strategy, natural compensation strategy, and constructive thinking strategy, which are sub-elements of self-leadership (Song, 2013).

Entrepreneurship creativity may mean a desire to generate new ideas required to produce new products or services that have not existed before. That is, innovation represents the entrepreneurial propensity to embrace and encourage innovative concepts, R&D, and creative processes leading to new goods, new services, and technological creation (Yoo, 2010). Examining previous studies related to innovation and entrepreneurship self-leadership, innovation has been empirically validated to have a positive relationship with self-leadership (Neck & Houghton, 2006).

The relationship between risk-taking and self-leadership of entrepreneurship implies a tendency to introduce risk-preferred decision-making, seeking opportunities despite risks in making business decisions where uncertainty exists, and in this regard, it has been claimed that it can exert influence (Kim, 2008). Moreover, the partnership between entrepreneurship initiative and self-management is an entrepreneurial mindset to predict new opportunities and protect existing markets by encouraging new opportunities (Lee, 2016).

3. Results

3.1. Application of the theory

Manz and Sims (1980) introduced self-management as an extension of self-management theory and is characterized as "the process of self-influencing" (Neck and Manz, 2010). It involves three major sub-faceted strategic areas (Neck and Houghton, 2006): behavior-focused strategies (self-goal setting, self-reward, self-punishment, self-observation, self-care); natural reward strategies; and positive pattern strategies (visualizing good results, self-talking, assessing values and assumptions).

Use this tri-partite model as it provides the most detailed and inclusive account of self-leadership strategies. Some scholars proposed discarding self-punishment from the

nine-factorial compendium of self-leadership techniques. Nonetheless, use all the original dimensions because decided to check the most inclusive self-leadership and not limit our study to a limited collection of dimensions. (Andressen et al. 2012) also presented empirical proof of the nine-factor model of self-leadership.

Self-regulatory strategies can be used to focus one's attention on one's own behaviors to reduce discrepancies between current and desired states. They foster successful behaviors and eradicate unfavorable behaviors (Neck and Houghton, 2006). Obtaining undesirable conduct (status quo) is assessed in the first step. In a second step, the self-goal setting sets a behavior-modifying goal (desired condition). Thus, self-observation serves constant monitoring of discrepancies between the present and desired condition during the pursuit of the goal. For a targeted, systematic behavioral change, self-reward, and self-punishment are used. Self-cueing is some form of a memory aid to promote target achievement (e.g. post-its, notes, etc.).

The central component of self-leadership is natural to reward strategies (Furtner et al., 2013; Manz, 1986; Neck and Houghton, 2006) that can directly influence people's task-related intrinsic motivation. By using natural reward strategies, pleasant aspects of a task are focused on (and de-focused negative aspects) or actively implemented (Neck and Manz, 2010) so that stronger intrinsic motivation, joy, and self-determination may arise. The task is then "naturally' rewarding,' as it has an intrinsic positive element. Therefore, on a conceptual level, natural reward strategies are strongly linked to emotional regulation, as different regulatory strategies can be subsumed in this dimension, such as situation selection (selecting an inherently rewarding task), situation modification (generating and implementing pleasant aspects into a task), careful deployment (focusing). Regulation of emotions and self-regulation are closely related (e.g., Furtner and Hiller, 2013), and as self-regulation is an integral part of self-leadership, self-leadership can be crucially guided by underlying emotion-regulating mechanisms, putting natural reward strategies at the core of self-leadership (Furtner et al., 2013).

Constructive thinking patterns refer to positive and explicit control of habitual thinking patterns (Neck and Manz, 1992). Mental imaging or simulation is used to predict potential positive results with the intention of improving actual performance (Driskell et al. , 1994; Neck and Manz, 2010). Pessimistic self-talk can be eliminated through self-reflective analysis and replaced by optimistic self-talk (Seligman, 1991). Furthermore, irrational or unstable thought patterns may be established and modulated by analyzing one's own beliefs and perceptions.

3.2. Recommendation

Currently, the universities in Vietnam have many activities to encourage students to start a business. However, although there have been several entrepreneurship courses, no university has trained students in self-leadership skills. Therefore, it is necessary to add self-leadership skills to teaching.

Based on the premise that self-leadership skills can hardly be developed simply through structured education (i.e. theoretical input) and learning is a process of direct

experience, analytical evaluation, abstract conceptualization and constructive exploration (Kolb's experiential learning theory, 1984), an creative approach to developing and improving selected self-leadership skills.

The learning process requires physical experience, perception and critical reflection. The course is planned for 30 hours, emphasizing primarily physical activity. Each unit includes a section with physical activities (i.e., bodywork) and an analytical reflection section. The ultimate aim is to build and improve the following skills in self-leadership.

Table 1. Overview of selected self-leadership skills

Competencies	Description
Concentration	Students train to be focused the moment they 're in
	Keeping the mind concentrated and listening diligently to the instructions increases the ability to concentrate under intense, complex circumstances
	A special breathing technique helps a deep concentrated mind
	Practicing the exercises requires focusing on body function
Self-awareness	Effective listening is a leader's most essential skill. Self-awareness means listening to one's inner self (i.e. self-focus)
	Students practice listening within their bodies to consider their own desires and feelings and acknowledge their own restrictions
	Increased self-confidence can help to trust one's own decisions
Self-discipline	Students must overcome their inner resistance because they don't learn that way
	Doing the exercises consistently takes discipline and diligence
	Students are encouraged to incorporate learning outcomes into their everyday lives
Creating positive thought pattern	Positive thinking during exercises enables students to transfer this ability to work and its achievement
	Positive self-discussion as internal communication helps decision-making and creates a "can-do" belief
	Students improve their capacity to creatively execute a task and visualize how to do it beforehand
Flexibility and balance	The learned exercises make students more versatile in body and mind
	In doing uncomfortable exercises, students must conquer inner temptations and thus abandon their comfort zone
	Flexibility means being open to new ways of thinking that may allow students to be better prepared for future challenges

Competencies	Description
	The course supports students' mental and physical strength and well-being and encourages better achieving and maintaining harmony between body and mind
Empathy	Better understanding of one's own needs, emotions and constraints may contribute to a better understanding of others' needs, emotions and restrictions
	People may be well qualified to listen to a conversation, but they also improve their ability to detect nonverbal communication
Communication	Due to the course structure, students practice both non-verbal body language communication and verbal communication
	Through exercises, students increase their exposure to non-verbal contact
	The verbal contact component assists the class initially with group composition and subsequently with group success
	It helps students to familiarize themselves and increase their community cohesiveness
Relaxation	No doubt a leader must be able to recover in order to obtain fresh strength for fresh challenges
	Therefore, students practice handling their limited resources to avoid burn-out
	They feel the difference between triggering and relaxing
	Breathing helps students to relax their mind and spirit

Participants gained hands-on training in self-leadership. Especially they should be able to:

- Be mindful of self-disciplinary problems in their everyday work
- Raise the ability to tackle internal constraints
- Keep centered (i.e. self-focused) under harsh conditions
- Know their own thoughts, desires, and limitations (i.e. self-awareness)
- Understanding others' feelings, desires, and limitations (i.e. empathy)
- Understand the sense of the entire mind and body
- Calm and calm consciously
- Apply selected self-management skills in their daily work to avoid stress and maintain a healthy work-life balance
- Understand the importance of non-verbal contact
- Build constructive thought habits
- Consider body and mind control

Practicing these self-leadership skills can contribute to the self-efficacy, inspiration, and success of participants.

4. Conclusion

Developing self-leadership skills for students is an important factor in promoting entrepreneurship in Vietnam. However, there is no program to train self-leadership skills in universities. This study proposed a program to guide self-leadership skills for Vietnam students. In the future, if this course is to be taken, it is necessary to have an evaluation analysis of student growth after study. As such, this program will meet the desired outcome standards and increase the success rate when students start their careers.

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BUILDING THE TEACHING STAFF OF DEFENSE AND SECURITY EDUCATION AT UNIVERSITIES IN THE MEKONG DELTA

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Abstract

The article analyzes and clarifies the actual situation of building a contingent of lecturers in defense and security education at universities in the Mekong Delta. In the face of the requirements of the fundamental and comprehensive renovation of education and training, the strong impact of the industrial revolution 4.0, and the international and domestic context, many complicated developments are posing high demands for national defense and security work and the teaching staff of defense and security education. The Mekong Delta is not an exception to this development, so the research to clarify the actual situation of building a contingent of defense and security education lecturers at universities will help orient and find appropriate solutions, effective and feasible for this management.

Keywords: *Mekong Delta, teaching staff, defense and security education.*

1. Introduction

In universities, the teaching staff holds positions and plays a very important role in improving the quality and effectiveness of education. Therefore, the work of developing lecturers at universities is of great interest to our Party and State. In the Decision "Approving the project to improve the capacity of lecturers and managers of higher education institutions to meet the requirements of a fundamental and comprehensive renovation of education and training in the period of 2019 - 2030" of the Decision No. The Prime Minister has clearly stated the point of view, "The training and retraining to improve the capacity of lecturers and managers of higher education institutions should be given importance because this is a decisive factor in the quality of education higher education" (Prime Minister, 2019, pp.2).

Currently, the Mekong Delta has about 20 universities, in response to the renovation requirements of Vietnam's higher education and the implementation of the industrial revolution 4.0, universities must be able to train quality human resources increasing amount. This is a central and urgent task for the teaching staff in general and building the teaching staff of defense and security education at universities in particular. Over the years, the teaching staff of defense and security education at universities in the Mekong Delta have been interested in building and developing both quantity and quality, with a sense of responsibility and dedication. He is passionate about his profession, has good political and moral qualities, and has professional qualifications. However, currently, in universities in the Mekong Delta, the teaching staff of defense and security education is both short in quantity and has certain limitations in quality. Therefore, assessing the current situation and finding measures to develop the teaching staff of defense and security education in the Mekong Delta is a necessary and urgent issue today.

In Vietnam, the development of the teaching staff of national defense and security education at universities is understood as the standardization and integration of knowledge, skills, and attitudes to form a system of professional competence standards defense and security education lecturer. To implement the method of managing and developing the teaching staff of national defense and security education at universities, it is necessary to define a framework of professional qualifications; The next step is to "standardize" the content of management and development activities of the teaching staff of defense and security education according to the process from planning, development planning, recruitment, assignment, use, evaluation, training, fostering lecturers, reward and treatment policies, motivating staff ..., all are based on the professional competency standards of national defense and security education lecturers.

The competency model of national defense and security educators is a general and honest picture reflecting the activities of national defense and security educators. In addition to teaching capacity, there are many other competencies to participate in many different activities. National defense and security education lecturers are both capable of teaching as a pedagogue, with qualifications, the ability to organize and manage daily teaching and educational activities, in addition, they have professional competence of necessary military skills. The capacity model shows that in order to organize training and retraining for national defense and security education instructors, it is necessary to first identify the standards of the specific competencies mentioned above, and at the same time, need to develop those competencies in an appropriate manner synchronized. Among the above competencies, professional competence is dominant, directly affecting the development of lecturers. In addition, the identification of activities of national defense and security education lecturers also plays an important role in training and fostering the teaching staff.

On the basis of the studies, in this study, the author gives a model of the competencies that need to be built and developed for the teaching staff of defense and security education according to the figure below:

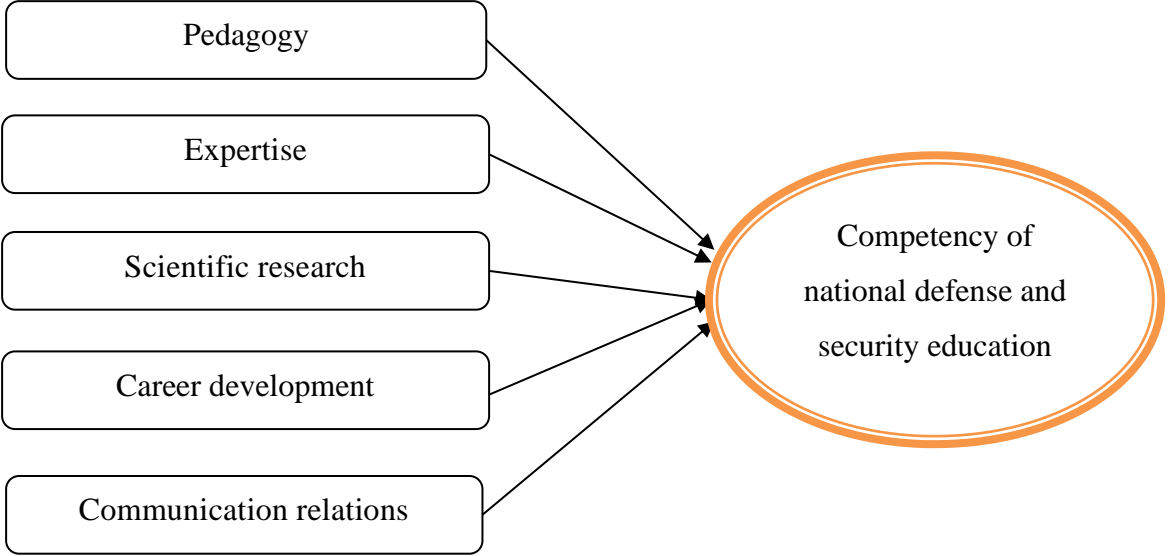


Figure 1. Competency model of national defense and security educators

2. Method

2.1. Overview of the survey organization

2.1.1. Survey purpose

Practical surveys and surveys aim to collect data to assess the reality of the development of national defense and security education lecturers at universities in the Mekong Delta in an objective manner. This is the basis of analyzing the strengths, weaknesses, opportunities and challenges in developing the teaching staff of defense and security education at universities in the Mekong Delta. From there, draw objective, scientific and accurate conclusions as a basis for proposing solutions to develop the teaching staff of defense and security education at universities in the Mekong Delta, contributing to improving the quality of life high quality of the teaching staff of defense and security education at universities in the Mekong Delta.

2.1.2. Survey content

Survey on the actual situation of building the teaching staff of national defense and security education at regional universities with specific contents such as:

Assess the current status of the teaching staff;

Review and assess the current capacity of the teaching staff of national defense and security education at universities in the Mekong Delta;

Assessing the current situation of building a contingent of lecturers in defense and security education at universities in the Mekong Delta.

2.1.3. Survey audience

Survey of 50 managers; 135 lecturers in 08 universities in the Mekong Delta with Centers, Faculty, Department of National Defense and Security Education (An Giang University, Can Tho University, Cuu Long University, Dong Thap University, Tien Giang University, Tra Vinh University, Vo Truong Toan University, and Kien Giang University) in March 2022.

2.2. Survey method

2.2.1. Questionnaire survey

Design a questionnaire with the content of asking administrators and lecturers to evaluate the results of developing the teaching staff of defense and security education at universities in the Mekong Delta. The values determined according to the assessment levels, are calculated as percentages, average points and on a scale as follows:

The results of calculating the average score are calculated on a scale from 0 points to 4 points such as: From 0 points - under 1,75 points: Weak; From 1,75 points - under 2,5 points: Average; From 2,5 points - under 3,25 points: Good; From 3,25 points - 4 points: Good; (approximately 0,75).

Use the formulas in mathematical statistics to calculate the average score for the indexes of the survey contents. Based on these results, the author analyzes the current situation of developing the teaching staff of defense and security education of 08 universities in the Mekong Delta.

2.2.2. In-depth interview

Using interview questions from 50 specialists of functional departments, managers, and lecturers of 08/20 universities in the Mekong Delta has Centers, Faculty, Department of National Defense and Security Education. Direct interviews with the subjects to clarify the difficulties to propose orientations for building a contingent of defense and security education lecturers.

2.2.3. Information processing method

Using SPSS software to enter and process descriptive statistics.

3. Results

3.1. Assessment of the current status of lecturers in defense and security education at universities in the Mekong Delta

Firstly, the characteristics of the teaching staff

The teaching staff of national defense and security education at universities in the Mekong Delta are trained from various sources, mainly seconded officers in the army and short-term trained lecturers (6 months), combining defense education with physical education, national defense education with political education, a team with formal training and expertise in defense and security education is very limited. Due to the diversity of training sources, there are unequal professional qualifications, pedagogical skills, scientific research capacity, etc., among lecturers. The teaching staff of the schools is not guaranteed in terms of quantity and structure, some schools still lack highly qualified lecturers.

With these characteristics, when considering aspects to develop the teaching staff of defense and security education in universities in the Mekong Delta, it is necessary to analyze and study specifically the current state of capacity of the teaching staff and the current situation of management of the construction and development of the teaching staff to find an effective solution to manage this development.

Secondly, quantity, gender, and age

Through the process of construction, development, and growth, the teaching staff of defense and security education at universities in the Mekong Delta has changed, and the number of lecturers is increasing day by day. The rate of increase in favor of high-quality and highly qualified lecturers has also been increased, but the average annual rate of increase has not met the task of teaching and educating national defense and security of the school.

The teaching staff of defense and security education at universities in the Mekong Delta have a relatively reasonable age structure, with 62.2% of the lecturers aged 35-50. This is not a young age, has a relatively high professional level, and has accumulated a lot of teaching experience. In particular, this is the enthusiastic and enthusiastic age group, not afraid to face advanced and modern technology; able to adapt to new things, and quickly absorb new technologies. However, at this age, usually lecturers do not have academic titles, high degrees and practical experience are still at a certain level. Regarding gender, the more balanced the ratio of men to women, the more favorable it will be for the development of teaching staff. However, due to the peculiarities, the proportion of female lecturers is very

small compared to that of male lecturers. The survey results show that the structure is 88,9% male and 11,1% female.

Thirdly, the structure of training qualifications and professional expertise

Table 1. Statistics of training qualifications of lecturers

No.	Names of Universities	Total	Number of organic lecturers							
			Prof/Assoc.		Doctor		Master		Bachelor	
			Amount	%	Amount	%	Amount	%	Amount	%
1.	An Giang Universities	15	0	0	1	6,7	12	80	2	13,3
2.	Can Tho Universities	48	0	0	1	2,1	27	56,2	20	58,3
3.	MeKong Universities	10	0	0	0	0	6	60	4	40
4.	Dong Thap Universities	14	0	0	1	7,1	10	71,4	3	28,6
5.	Kien Giang Universities	7	0	0	0	0	4	57,1	3	42,9
6.	Tien Giang Universities	12	0	0	0	0	8	66,7	4	33,3
7.	Tra Vinh Universities	24	0	0	0	0	18	75	6	25
8.	Vo Truong Toan Universities	5	0	0	0	0	3	60	2	40
Total		135	0	0	3	2,2	88	65,2	44	32,6

Source: Statistics up to March 2022 of 08 universities in the Mekong Delta

The survey results show that the structure of qualifications of the teaching staff of defense and security education at universities in the Mekong Delta is relatively reasonable, with the proportion of lecturers holding a master's degree accounting for the majority (65,2%), have a doctorate or higher, accounting for 2,2% and up to 32,6% of the lecturers have a university degree. Therefore, it is required that universities in the Mekong Delta need to continue to strive to increase the percentage of defense and security education teachers with high academic titles and degrees, striving for 100% of lecturers to achieve high academic standards master's degree. In training and teaching, several universities in the Mekong Delta have mechanisms and policies to invite visiting lecturers who are military officers of local military units to participate in teaching work, exchange professional knowledge and technical skills, and participate in scientific research to help young lecturers have the opportunity to study and improve their qualifications.

Fourthly, the structure of professional qualifications in pedagogy, informatics, and foreign languages

About pedagogy: Survey results show that about 90% have certificates of pedagogy in university teaching and certificates of teaching in defense and security education. Regarding foreign language proficiency: The survey results show that the number of national defense and security education lecturers with foreign language qualifications reaching university, postgraduate or international standards is very small (1,3% have IELTS 500/TOEFT 550 certificates; 3,6% have a university degree in foreign languages). However, the number of lecturers in defense and security education with B1 certificates accounts for 53,7% because the majority of teachers have master's degrees. Besides, teachers with foreign language certificate A, B, C (from 2015 and earlier) and other certificates account for 28,5%. About informatics: Survey results show that the vast majority of defense and security education lecturers have certificates of information technology application (accounting for 70,7%). The computer literacy of the teaching staff of defense and security education at universities in the Mekong Delta is still limited compared to the requirements for using and implementing information technology-related teaching aids. This requires universities to strengthen training and fostering in pedagogy, foreign languages, and informatics for this team.

Fifthly, the capacity of the teaching staff

Table 2. Current status of capacity of the teaching staff (Percentage unit)

No.	Capacity	Degree evaluation				Medium score	Standard deviation	Places
		Good	Fair	Average	Poor			
1.	Specialize	22,1	38,7	33,8	5,4	2,78	0,87	1
2.	Scientific research	20,7	25,9	37,1	16,3	2,48	0,88	3
3.	Career Development	23,4	32,2	28,8	15,6	2,70	0,85	2

The survey results show that the professional capacity of the teaching staff of defense and security education at universities in the Mekong Delta is quite good with an average score of 2.78. According to the results of in-depth interviews on this issue, administrators of universities in the Mekong Delta all believe that the teaching staff of defense and security education has specialized knowledge and skills. The subject is quite good, however, the weakness is the ability to apply professional knowledge to solve practical problems, and the ability to access new information technology to put into teaching and scientific research.

Regarding the scientific research capacity of the teaching staff of defense and security education at universities in the Mekong Delta, it is only assessed at the average level, with a mean score of 2,48, the standard deviation is quite high, showing that the evaluation opinions are not concentrated and scattered. This shows that the scientific research capacity of the teaching staff of defense and security education at universities in the Mekong Delta has not been highly appreciated. The professional development capacity of the teaching staff of defense and security education is quite good, with an average score of 2,70. However, there is a weak criterion that is the ability to use foreign languages for

professional development activities. Therefore, schools need to focus on developing the foreign language skills of their teaching staff.

3.2. The actual situation of building and developing the teaching staff of defense and security education at universities in the Mekong Delta

Firstly, the perception of management levels on the development of teaching staff of defense and security education

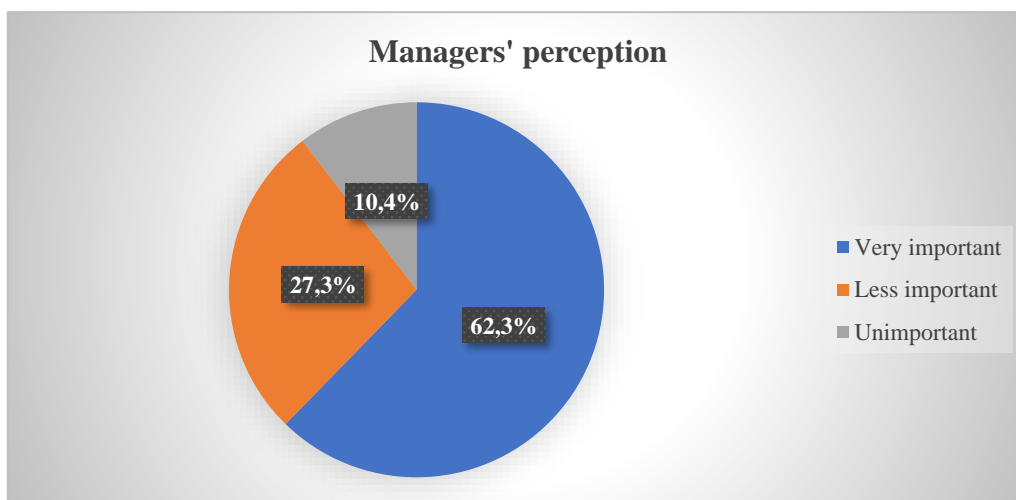


Figure 2. Awareness status of managers

The survey results on the perception of managers about the importance of developing the teaching staff of defense and security education at universities are as follows: Very important: 62,3%; less important: 27,3%; unimportant: 10,4%. According to the interview results, some managers believe that it is very necessary and important to build and develop the teaching staff of defense and security education at universities in the Mekong Delta because this development is in line with the current practice in the face of the impact of the domestic and international context, especially the impact of the Industrial Revolution 4.0. However, some others believe that defense and security education is a conditional subject, so universities need to focus on building and developing a contingent of lecturers in other subjects and majors developing the teaching staff of defense and security education in universities in the Mekong Delta is less necessary and unimportant.

Secondly, planning and recruiting teaching staff

The survey results show that at present, the staff and lecturers all realize the necessity of implementing the contents of the teaching staff planning. Which, managers and lecturers think that researching and analyzing the current status of the teaching staff is the most necessary because it is necessary to know the current situation and needs to be able to implement the development of a management plan and organize the implementation of the plan and evaluate the construction management plan, develop the teaching staff of defense and security education at universities. However, administrators and lecturers have not paid much attention to disseminating the plan to the entire teaching staff, civil servants, and public employees in the school, and at the same time forecasting the resource needs of the teaching staff defense and security education. These are also two very necessary contents in planning

the teaching staff of defense and security education. In the process of developing the teaching staff planning, it is necessary to expand democracy, to attract the broad participation of the school's administrators, civil servants, officials, and lecturers, so that they can overview, more complete and mobilize the participation of all cadres, civil servants, public employees and lecturers in the implementation of the plan to build and develop the teaching staff of defense and security education.

In terms of recruitment, all criteria are assessed at a good level, with the average score from 2,49 to 2,77. Thereby, it can be clearly seen the difficulties that need to be solved at universities in the Mekong Delta in recruiting lecturers in defense and security education.

Thirdly, arrange and use the teaching staff

According to the survey results of 08 universities in the Mekong Delta on the actual arrangement and use of teaching staff in defense and security education. The results of the evaluation are shown in table 3 below:

Table 3. Actual situation of arrangement and use of teaching staff (Percentage unit)

No.	Content	Degree evaluation				Medium score	Standard deviation	Places
		Good	Fair	Average	Poor			
1.	Formulate and promulgate regulations on assignment and arrangement at job positions	17,1	24,1	44,2	14,6	2,44	0,78	3
2.	Organize the assignment, arrange use at the job positions	27,4	28,4	41,1	3,1	2,8	0,77	1
3.	Rotation, appointment	17,7	41,2	28,5	12,6	2,64	0,80	2
4.	Evaluate and monitor usage	13,2	24,4	45,2	17,2	2,34	0,82	4

The survey results show that the arrangement and use of defense and security education lecturers at universities in the Mekong Delta is relatively well done. The school's leaders have directed the units to manage and use the teaching staff to meet training requirements and promote their capacity in teaching, scientific research, and application of information technology in lessons preach. However, through interviews, some opinions said that: The arrangement and use of national defense and security education lecturers in some universities are still not really appropriate, there is still a shortage of teachers, spare lessons. This is also an issue that universities in the Mekong Delta need to pay attention to in recruitment and planning.

Fourthly, training and fostering teaching staff

The survey results on training and fostering the teaching staff of defense and security education at universities in the Mekong Delta are evaluated as good and good, with an average score of 2,10 to 3,07 with high evaluation criteria: training and fostering political and

administrative theory; fostering knowledge about education; cultivating pedagogical skills. Some criteria are assessed at a low level such as training and fostering to improve professional standards, informatics, foreign languages; capacity building for professional development.

The results show that the schools are interested in training and fostering political and administrative theories in accordance with the regulations of the Party and State on the management and standardization of cadres. At the same time, it is also necessary to develop a plan and content for a training and retraining program in order to develop the capabilities of the teaching staff of defense and security education. However, the reality shows that universities in the Mekong Delta have not paid due attention to the training and retraining of high-level national defense and security education lecturers, improving the quality of life high level of professional development capabilities... These are important competencies, universities should have specific plans and promote training and retraining.

Fifthly, the examination and evaluation of the teaching staff

According to the survey results, the assessment of the teaching staff of defense and security education is done at a fairly good level, with the average score of the criteria from 2,55 to 3,10. In general, the examination and evaluation of universities in the Mekong Delta are carried out through the following contents: 1) Implement the examination and evaluation plan and the examination schedule of the university and the application periodically for teachers to know and implement. The plan has clearly defined purposes, requirements, time, methods of testing, and evaluation; 2) The Board of Directors directs the training room; testing, and quality control room; The People's Inspection Committee, Trade Union, and Youth Union shall coordinate in inspecting and evaluating professional qualifications, professional records, and lecturers' books; 3) Synthesize opinions on the evaluation of teaching activities, which is the basis for assessing the quality and qualifications of the teaching staff in general, the teaching staff of defense and security education in particular, and propose training courses for the students training and fostering each teacher of national defense and security education to improve professional capacity. At the same time, the test and evaluation results are also shown in the school year emulation review.

Sixthly, the organization of conditions to support the development of the teaching staff

The implementation of remuneration regimes and policies for lecturers is very important, both a requirement and a solution for schools today. The survey results show that the criteria are evaluated at a fairly good level, which shows that managers and lecturers both realize that the implementation of the regime, remuneration policy, and working environment are very important. In fact, the development and promulgation of mechanisms and policies to attract lecturers, especially lecturers in defense and security education, is one of the first important tasks for universities in the Mekong Delta.

4. Discussion and Conclusion

4.1. Discussion

In general, the current situation of developing the teaching staff of defense and security education in universities in the Mekong Delta is relatively reasonable. However, there are still shortcomings and limitations that need to be overcome such as the percentage

of lecturers with academic degrees is not high; foreign language and computer skills are still limited, and the number of visiting lecturers who are military officers of local military units in universities in the Mekong Delta is still high.

Many teachers of national defense and security education have not been able to access modern teaching methods, lack practical knowledge, and the capacity of some national defense and security educators has not yet met the requirements; the number of lecturers with formal university-level pedagogical training is very limited, most of the lecturers are trained through pedagogical training courses to grant certificates in pedagogy; the scientific research capacity shown in the scientific research activities of the teaching staff of national defense and security education is still weak compared to the requirements set forth, very few large-scale and capable scientific works are available high practical applicability, the number of scientific research works published in prestigious domestic and international scientific journals is not much; the planning of the teaching staff of national defense and security education has not yet been unified, and the professional competency standards associated with the duties of the lecturer's title are not clear. The recruitment of lecturers according to the administrative process is still temporary, there is little decentralization for faculties and subjects, not according to the requirements of the task description of the competency framework, and the capacity of the candidates has not been assessed pellets.

The arrangement and use of defense and security education lecturers in universities in the Mekong Delta is not appropriate, many units still have a shortage of lecturers and excess teaching hours. Several defense and security education lecturers have not been properly assigned, and there is a shortage of highly qualified lecturers; the training and development of national defense and security education lecturers is still a formality, with a large number of themed subjects, not focusing on developing the capacity of national defense education lecturers and security. Most schools do not have long-term training plans, lack initiative, and have not taken advantage of opportunities.

The above situation shows that a comprehensive picture of the capacity of the teaching staff of national defense and security education in universities in the Mekong Delta is still limited. The development of this team still has many shortcomings, slows innovation, and does not meet the training needs of the locality in particular, and the whole region in general. Therefore, there is a need for a direction to solve this problem.

4.2. Conclusions and recommendations

4.2.1. Conclusions

The research, assessment of the current capacity, and development of the teaching staff of national defense and security education in the Mekong Delta show that there have been significant advances in improving the capacity of the national defense and security education team in recent years. this five. However, in the current new situation, the capacity of the teaching staff of defense and security education in all aspects has not yet met the demand for human resource training. The reality shows that the teaching staff of national defense and security education at universities in the Mekong Delta still have limitations that

need to be overcome in terms of the Number and percentage of lecturers with academic titles and degrees. ; Foreign language and computer skills; Managing and developing a teaching staff from planning, training, recruiting, employing to testing and evaluating. In particular, there is no capacity framework to serve as the basis for recruitment, use, and capacity assessment of national defense and security education lecturers in accordance with changes in the new context.

4.2.2. Recommendations

The results of the above situation study show that there should be effective solutions to help managers do well in developing the teaching staff of defense and security education at universities in the Mekong Delta today.

Firstly, to raise awareness for managers and lecturers of universities in the Mekong Delta about the importance of developing teaching staff in defense and security education.

Secondly, building a capacity framework for national defense and security educators.

Thirdly, to improve planning and development plans for teaching staff of defense and security education.

Fourthly, develop, organize and implement the process of recruiting and employing national defense and security education lecturers.

Fifthly, organize training and fostering to improve the capacity of the teaching staff of national defense and security education.

Sixthly, to ensure the implementation of policies and regimes on developing the teaching staff of defense and security education.

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RESEARCH ON FACTORS AFFECTING STUDENTS' DECISION TO CHOOSE UNIVERSITIES IN THE NORTH CENTRE OF VIETNAM

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Abstract

The enrollment issue toward regional institutions is particularly critical in the reformation context of the university enrollment process recently and the complicated scenario of the Covid-19 pandemic. What important factors affect students' decision to choose public universities in the North Central region is a question that most of universities must care about. Therefore, the purpose of this article is to study the influence of factors on students' decision to choose a university there. The study uses secondary data to describe the characteristics of universities in the North Central region and primary data through a student survey of 8 public universities to test the effect of proposed factors to the decision to choose a university according to the research model. Through a survey from 500 students with the support of data analysis tools (SPSS and AMOS 24), factor belonging to students, training activities, facilities, costs, promotion and local factor have a positive relationship with intention to choose a university; on the other hand, the factor of intention is an intermediate variable that has a great impact on the final university choice decision of students. The result also shows the moderating role of the factor of graduation exam score to the relationship between intention and final decision. These have important implications in contributing to the consolidation of theory and practice in the current difficult university enrollment situation in Vietnam these days.

Key words: *students, decision, university, the North Central, regional*

1. Introduction

Stemming from the importance of higher education and the Government's policy of educational socialization, the number of universities in our country has increased rapidly, including public universities in the North Central Region. Also from 2015, when the Ministry of Education and Training innovated the methods of university and college enrollment and allowed universities across the country to be autonomous in developing enrollment plans, universities in general and public universities in the North Central region in particular face many difficulties when the number of enrollment is not enough, leading to the shortage of funds, while the state budget is limited. Whether public universities in the North Central region can survive and develop depends a lot on improving the efficiency of annual enrollment. In addition, the world and Vietnam are experiencing unprecedented

negative impacts of the Covid-19 pandemic that started in Wuhan city, China from the beginning of January 2020²¹⁴. In 2021, Vietnam has 1,714,742 infections, ranking 31/224 countries and territories, while with the rate of infections per 1 million people, Vietnam ranks 138/224 countries and territories. On average, there are 17,383 infections for every 1 million people²¹⁵. Although Vietnam is well under control of the pandemic, most universities have just re-opened; learning and teaching activities have not returned to normal. Therefore, the recruitment task of universities with the goal of attracting enough students, which was not convenient, is now even more difficult.

In terms of science, while studies on the role of higher education, university development, higher education service quality and student satisfaction in the world and in Vietnam are very diverse, studies on groups of public universities in the regional area, especially in the North Central region, are not available (Maringe, 2006; Le, 2015). Moreover, the results of previous studies have not studied the two types of decisions in the university selection process uniquely in Vietnam, including: the decision to register for a university before the High School Graduation Examination and the decision to enroll after the student's admission. Meanwhile, the choice of a university to register and/or to attend by learners takes place over a long period of time from the registration until the announcement of the student's admission. With the aim to contribute suggestion and recommendation to the above situation for both students and universities, this study has identified and evaluated the main factors affecting students' decision to choose a public university in the North Central region, as a basis for high school students and especially universities to make the effective decisions and attraction strategies in the future periods.

2. Literature review and Research model

2.1. Universities in regional areas

In Vietnam, a university located in a regional area is a type of training institution under the higher education system, usually training multi-level, multi-disciplinary, multi-field and implementing both short-term and long-term training programs from intermediate to university and postgraduate to meet all needs of the labor market and lifelong learning needs of local residents (Le, 2015). Regional universities in the provinces were born thanks to the determination of the government and local authorities, are expected to bring quality university opportunities to everyone, realize the dream of local community is to go to university in the place where they live without moving to big and crowded cities (Duong, 2011). Higher education is easily accessible and available to people across the regions with the foundation of regional universities.

2.2. Determinants of students' decision

There have been many research studies on students' choice or decision to choose a university. The earliest is the work of Chapman (1981) which shows that there are two main

²¹⁴ <https://www.worldometers.info/coronavirus/>

²¹⁵ <https://vncdc.gov.vn/>

groups of factors affecting the decision to choose a university, namely (1) the characteristics of individual students (socio-economic conditions, academic aspirations, aptitudes, academic results) and (2) external factors (influential individuals and fixed characteristics of the university such as cost, location, curriculum and the university's communication efforts with students). In economics, students must choose the university with the highest utility in terms of expected net benefits (DesJardins and Toutkoushian, 2005). The human capital theory view holds that college enrollment rates are expected to be higher for individuals with better academic preparation and achievement, as they are more likely to complete their education and get a high-paying job in the future (Catsiapis, 1987). Sociological approaches to university choice again emphasize the ways in which socioeconomic background characteristics influence student decision making (Terenzini et al., 2001). However, studies have widely confirmed that the decision to choose a university is influenced by the characteristics of the student or/and the attributes of that university (Perna, 2006; Migin et al., 2015; Ming, 2010; Tran et al., 2018; Tran & Bui, 2020; Le, 2015; Tran & Cao, 2009).

(1) Individual characteristics of students

A research by Mehboob et al. (2012) showed that self-assessment of an individual's interests and abilities before choosing a university to apply to has a positive influence on the rate of students applying and entering. Preference for a university over other options also includes factors related to an individual's career preferences and employment prospects for a good career. Young people's career explorations and choices actually influence their choice of university (Sezgin & Binatl, 2011). In addition, the socioeconomic background of the student's family, especially the financial source, was concluded to be an important factor in university choice (Wargner & Fard, 2009).

(2) Characteristics and advertisement effort of the university

Many studies have shown that the decision to choose a university is influenced by the characteristics of that university itself. The attributes considered have an impact such as whether the school is public or private, the quality of the teachers, the availability of training programs, the quality and reputation, the facilities (such as library, computer equipment, and classrooms, campus size,...), tuition & financial aid from the university and its' advertisement efforts (Ming, 2010; Shamsudin et al., 2018; Tran & Bui, 2020; Le & Khuc, 2020,...). Atarah and Peprah (2014) studied the impact of advertising on students' college choice, thereby concluding that advertising activities provide information to students, thus having a direct impact on enrollment decisions to enter a university.

2.3. Decision to choose a regional university

The geographical location of an organization is the place where its' tangible assets yield higher value in case its location is placed not only near the central areas of the city, province, or district but also in the area where transportation has been developed (Le, 2020). The decision to choose a university in a local area is also influenced by local factors (Le & Khuc, 2000; Le et al, 2022). Rumbley (2016) argues that educational tradition, teaching knowledge and practice are the antecedents of elements of local education. Le (2014)

emphasizes the advantage of studying in local areas, which are considered favorable in the way that low cost of study (including tuition and living expenses) motivates students to choose a university in their province. Some high schools take students on college tours or participate in career counseling sessions from local universities. Most students in a locality with a university can know some information about that one or can have a chance to visit the university in their province. This is a distinct advantage of regional universities that the others in big cities can hardly have.

This study was carried out to solve the new problem arise that is to examine the process of choosing a university from the stage of registration to application and final decision to choose a university in order to contribute to building a scientific basis in accordance with the current condition of university enrollment in Vietnam according to the new regulations of the Ministry of Education and Training from 2015. On the other hand, this study focuses on public universities in the North Central region, where characteristics, geographical conditions, mechanisms and policies on university enrollment and training are unique and quite different from those of universities concentrated in major economic and educational centers in the country. From those, the proposed research model is as shown on Figure 1.

In this model, there are three factors that are considered newer than the previous studies: the first is the “local elements”. This is because the research focuses on regional objects, this factor can show the specificity of the research object; the second is the intermediate variable “Intention” to a university is assumed to be affected by 2 groups of factors belonging to students and group of factors belonging to the university (such as training activities, facilities, costs, promotion and local elements); the third is the “graduation exam result” (modifying variable) which is assumed to be able to moderate the influence of the registration factor on the student's decision to choose a university due to the new characteristics of the university admission regulation in Vietnam.

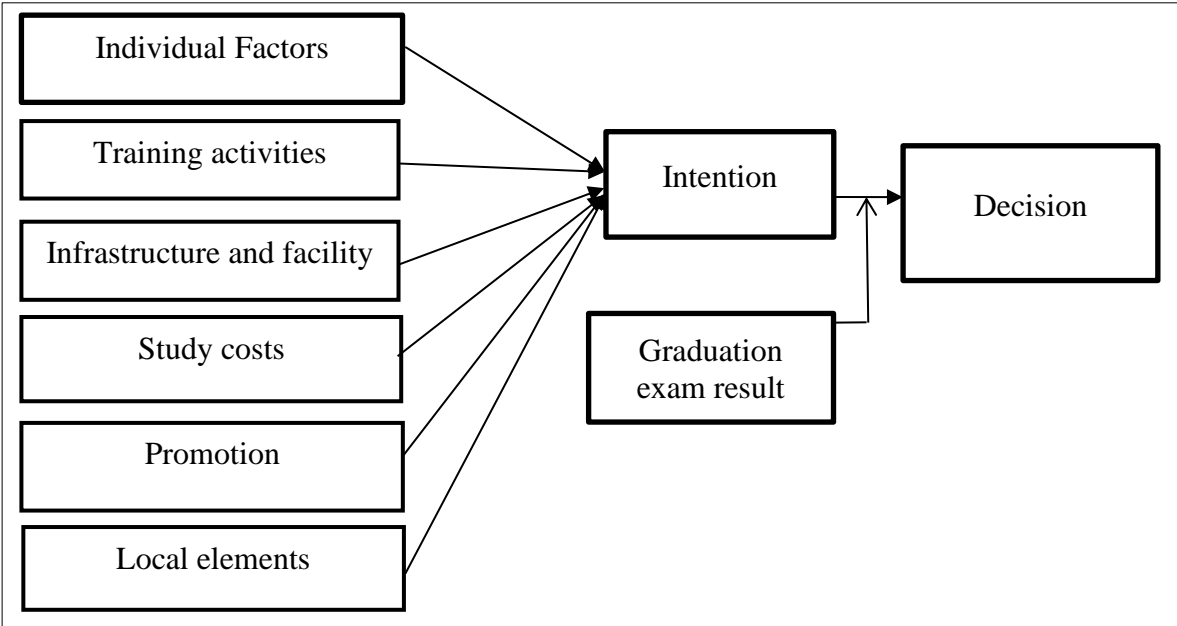


Figure 1. Research model

3. Method

The basic principle to build the scale is based on related theories and research. When the scales do not fully represent the measurement of the concept, this study continues to consider and put some observed variables developed by the qualitative research through in-depth interviews with experts, educators, and students into the scale. The results of the qualitative research have been adjusted and supplemented by observed variables to develop measurement concepts of local factors, registration, and graduation exam results in the model (Table 1).

Table 1. Scale development source

No	Code	Factor	References
1	STUD	Individual factors	Tran et al. (2018), Le and Khuc (2020)
2	TRAIN	Training activities	Tran and Cao (2009); Tran et al. (2018)
3	INFRU	Infrastructure and facilities	Chapman (1981); Tran and Cao (2009), Le and Khuc (2020)
4	COST	Study costs	Tran et al. (2018); Tran and Cao (2009)
5	PRO	Promotion	Kim and Gasman, (2011), Le (2015)
6	LOCA	Local elements	Le (2015), Shamsudin et al. (2018)
7	INTEN	Intention	Qualitative research results, author
8	RESUL	Graduation exam result	Qualitative research results, author
9	DECI	Decision	Tran and Cao (2009), Le (2015); Tran et al. (2018)

The study used a combination of primary and secondary data analysis. Secondary data are collected from the “3 public report” to describe the characteristics of regional universities. The primary data were collected through surveying student cases of 8 universities in the North Central region to test the factors affecting the decision to choose proposed according to the research model. The research scale consists of 33 observed variables measuring 9 independent and dependent factors of the model according to the Likert scale of 5 levels from strongly agree to strongly disagree. Research sample information was collected by quota technique from 8 schools with enrollment data in the last 3 years with 500 non-probability random samples and the number of valid votes included in the analysis is 488 samples, characterized on Table 2. After collected, data is coded and processed with the support of SPSS and AMOS 24 software to analyze the impact of the proposed factors in the model.

Table 2. Information of the respondents

Respondents		Frequency	Percentage	Respondents		Frequency	Percentage
Gender	Male	278	57.00%	Univer- sity	Hong Duc	55	11.27%
	Female	210	43.00%		Culture, Sports and Tourism	20	4.10%
	Total	488	100		Quang Binh	33	6.76%
Major fields	Economic	132	27.00%		Ha Tinh	17	3.48%
	Social Sciences and Humanity	128	26.30%		Vinh university of Technology Education	33	6.76%
	Natural science, engineer, technology	138	28.30%		Nghe An College of Economic	16	3.28%
	Pedagogy	90	18.40%		Vinh	102	20.90%
	Total	488	100		Hue	212	43.44%
Years of student	First	100	20.50%		Total	488	100.00%
	Second	122	25.00%		Inform- ation source	From websites/ internet	230
	Third	146	29.90%	From relatives and friends		198	26.12%
	Fouth	120	24.60%	From teachers		69	9.10%
	Total	488	100	From consultants		130	17.15%
Intention of choosing university	Class 10	131	26.84%	From advertisement documents		94	12.40%
	Class 11	124	25.41%	Others	37	4.88%	
	Class 12	233	47.75%	Total	758	100.00%	
	Total	488	100.00%				

4. Results

4.1. Description of characteristics of universities in the North Central region

North Central is the northern region of Central Vietnam, is one of seven economic regions under the government's socio-economic zoning plan. Administratively, the North Central region currently includes 6 provinces with an area of about 5.15 million hectares, including: Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Tri, and Thua Thien Hue. Currently, there are 8 public universities in the North Central region, which were established and developed mainly from pedagogical, elementary and intermediate schools, and developed into colleges, thereby forming a university with a variety of training disciplines.

Students of universities in the North Central region are very diverse, from full-time to part-time students. Their students almost come from local regions or mainly from neighboring areas, ensuring the goal of opening up opportunities to access higher education for everyone in the local community and area. The training programs of the universities have also developed in the direction of diversification to meet most of the needs of learners and society, becoming centers of training and retraining of human resources.

Table 3. Characteristics of the universities in the North Centre of Vietnam

No	University	Province	Year of establi-	Training majors	No of lecturer	Square (m2)	Tuition fee (mil/year)
1.	Hong Duc University	Thanh Hoa	1997	59	411	478.000	6,2 - 7,3
2.	University of Culture, Sports and Tourism	Thanh Hoa	2011	18	189	73.380	6,8 - 8,2
3.	Quang Binh	Quang Binh	2006	23	207	125.596	9,46
4.	Ha Tinh University	Ha Tinh	2007	23	212	868.200	5,4 – 6,3
5.	Vinh university of Technology Education	Nghe An	2006	42	237	179.598	9,7-10,9
6.	Nghe An College of Economic	Nghe An	2014	7	170	20.175	9,3
7.	Vinh University	Nghe An	2001	113	662	140.000	11,9-12,9
8.	Hue University (including 13 member units)	Thua Thien Hue	1957	288	3632		9,8 - 11,7

Source: synthesized from “3 public reports” and websites of 8 universities

In terms of management method, the eight universities within the scope of the study are all public universities managed by the Ministry of Education and Training, of which five are funded by the local governments of the provinces for educational and training activities (Hong Duc University, University of Culture, Sports and Tourism, Nghe An College of Economic, Ha Tinh University, Quang Binh University). For training majors, 04 universities have at least 40 majors such as Hong Duc University, Vinh university of Technology Education. Notably, Vinh University and Hue University are big and key universities of the region with over 100 training programs. However, there are still many issues that need to be improved such as the limited training scale of some schools, the quality of training activities (objectives, training program content) not really close to the actual requirements of the locality, teaching methods have not been radically reformed as current requirement (Table 3).

In terms of study costs, they are all public, so state or local government sponsor educational and training activities. Therefore, the cost of studying is lower than that of other universities; tuition fees fluctuate on the average from about 7 million to 10 million Vietnam dong a year (Table 3).

In term of human resource, the number of lecturers with master's and university degrees still accounts for a large proportion in the structure of professional qualifications of universities. The number of scientific works and international publications by lecturers at universities has increased, but overall, it is still very small (Table 3).

Spacious, modern facilities, fully equipped are one of the advantages of these schools to register and attend.

Promotion activities: diversified on many information channels (on the website, different information channels via the Internet) and continuously updated and shared faster with more attractive effects to interested audiences and society as a whole.

4.2. Research results on factors affecting the decision to choose a university

4.2.1 Reliability of the Scale

The result of reliability test of the scale shows that the scales both have a reasonably strong Cronbach's Alpha coefficient and the Corrected item - Total correlation of items are all more than 0.3, except for 02 observations STUD3 and TRAIN5 (Cronbach's Alpha coefficient is better if remove the 02 variables from the scales). Second-testing of the reliability coefficients gives the results on Table 4. The proposed items measure the same concepts and the scales are reliable for using in the next steps.

Table 4. Results of Cronbach's Alpha Test

No	Factors	Number of variables	Cronbach's Alpha
1	Individual factors	3	0.804
2	Training activities	4	0.803
3	Infrastructure and facilities	4	0.839
4	Study costs	3	0.808
5	Promotion	3	0.804
6	Local elements	4	0.802
7	Intention	3	0.793
8	Graduation exam result	3	0.767
9	Decision	4	0.827
	Total	31	

4.2.2 Exploratory factor analysis (EFA) and Confirmatory factor analysis (CFA)

The results of KMO and Barlett's test for the remaining 31 observed variables after the reliability test show that the KMO index is high (0.871) with the value Sig = 0. Thus, the large KMO index shows the suitable application of the analysis. The factor of exploring the scale set in this is appropriate. The use of factors analysis can explain 57.9% of the

explanatory power of all the influencing factors after removing the 02 variables TRAIN4 and LOCA4 from the model due to insufficient load factor.

The results of the CFA analysis for 29 variables show that the Chi-squared index / df = 1,048 (df <3); TLI = 0.9996; CFI = 0.996 (TLI, CFI > 0.9); GFI = 0.941 > 0.8 and RMSEA = 0.011 < 0.08. PCLOSE = 1,000 > 0.05 are in good range. Therefore, the model is compatible with real data.

4.2.3 Structural Equation Modeling

To measure the fit between the theoretical model and the actual data, Structural Equation Model continued to be used. The results showed that Chi-squared / df = 1,093 (df <3); TLI = 0.993; CFI = 0.994 (TLI, CFI > 0.9); GFI = 0.944 > 0.8 and RMSEA = 0.015 < 0.08. Therefore, it can be concluded that the model is compatible with the actual data (Figure 2).

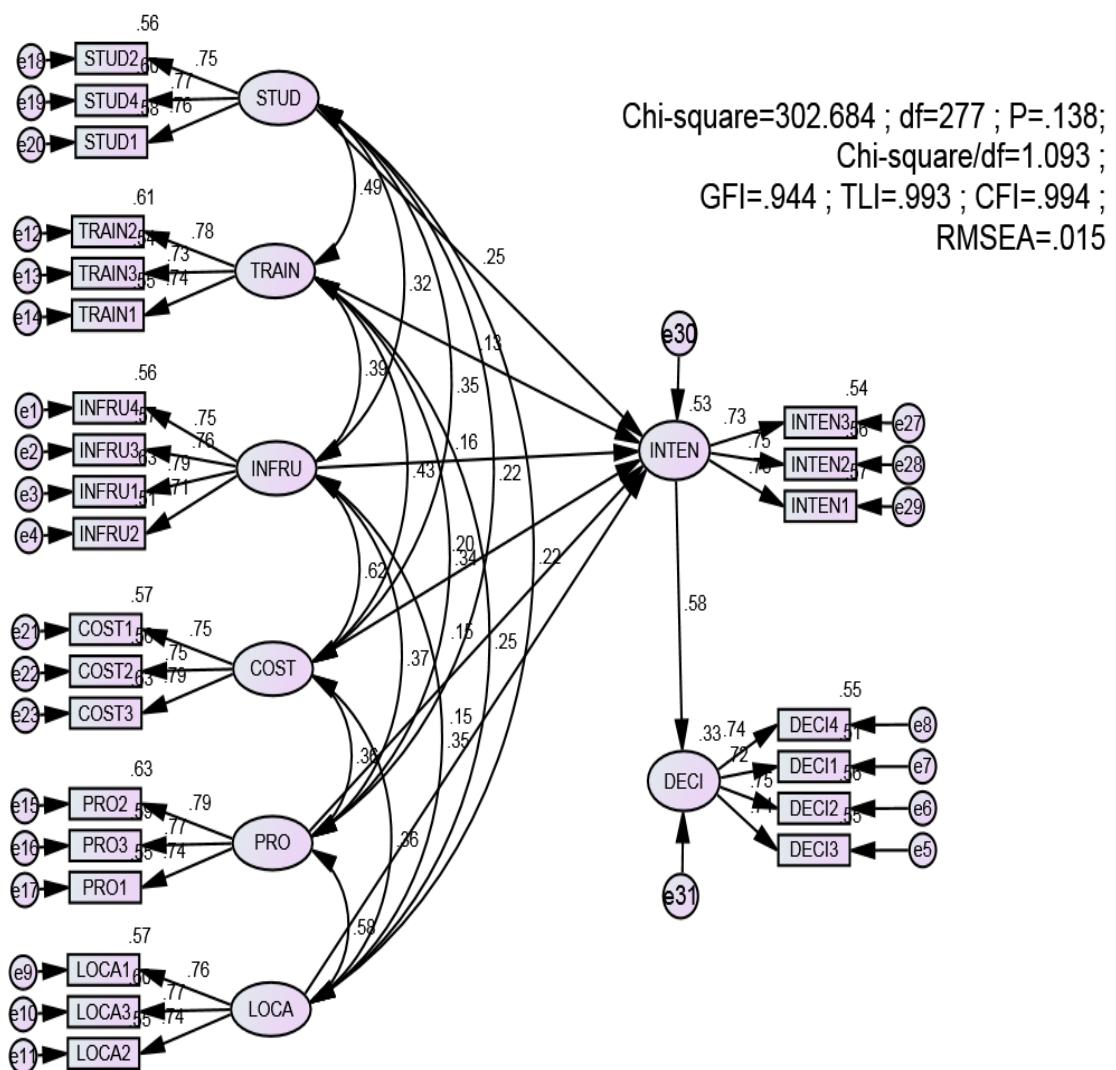


Figure 2. Structural equation modeling

The relationships between Individual factors, Training activities, Infrastructure and facilities, Study costs, Promotion, Local elements and Intention are all accepted ($p < 0.05$). Thus, the effects of the independent variable on the dependent variable in the model are

positive. On the other hand, there exists a positive relationship between Intention and Decision ($p < 0.05$) (Table 5). The hypothesis testing results also show that the order of impact of the independent variable on the dependent variable is: Individual factors, Studying costs, Promotion, Infrastructure and facilities, Local elements and finally, Training activities.

Table 5. Results of testing hypotheses at final SEM

			Estimate	S.E.	C.R.	P	Hypothes-es Result	Levels of impact
INTEN	<---	STUD	.178	.045	3.925	***	Accepted	First
INTEN	<---	TRAIN	.105	.052	2.011	.044	Accepted	Fifth
INTEN	<---	INFRU	.128	.056	2.303	.021	Accepted	Fourth
INTEN	<---	COST	.144	.053	2.718	.007	Accepted	Second
INTEN	<---	PRO	.130	.061	2.146	.032	Accepted	Third
INTEN	<---	LOCA	.128	.058	2.210	.027	Accepted	Fourth
DECI	<---	INTEN	.618	.073	8.457	***	Accepted	Strong

The results of evaluating the regulatory relationship by Bootstrapping technique through the PROCESS 3.5 macro on SPSS software also showed that the higher DECI is (the higher the results of the high school exam confirm the ability and the closer to the prediction and student's expectations), the higher the Decision increases.

5. Discussion and Conclusion

5.1. Discussion

The research results are consistent with the views of previous researchers on the decision-making behavior of students to choose a university and continue to affirm the role of factors belonging to learners and belonging to universities in the decision-making process according to the research model (Ming, 2010; Tran & Cao, 2009, Vu et al, 2017).

The results of the influence of local elements also show that local universities have the advantage of having a variety of majors and levels of training that allow them to meet the diverse needs of learners, and also ensure socio-economic development goals in many fields of that locality. Universities in the local area should continue to diversify training disciplines in the direction that are suitable with regional and local development practices, create identities and differences, and associate training with future employment. Diversify the training majors and at the same time improve the training quality and the quality of the lecturers so that the factor of training activities contributes more in the student's university selection process.

The cost factor has a strong influence on the decision to choose a university. On the other hand, universities in the North Central region have low tuition and living costs compared to other regions, which is a great advantage that those in this region should take advantage of to have propaganda orientations for suitable enrollment strategies. Especially

in this study, the new factor Intention and graduation exam result both confirmed a great influence on the decision to choose a university, so enrollment propaganda should be carried out regularly before and after the exam so that potential students as well as other individuals in the whole society know and choose universities.

5.2. Conclusion

The study has solved the main objective of finding out the affecting factors and its levels of impact on the decision to choose a university in the North Central region in the new condition with the participation of the intermediary factors namely Intention and Graduation Exam Result; learning about the advantages and disadvantages of regional universities, thereby orienting solutions to improve efficiency for those ones. In addition, research continues to confirm the role of internal and external factors in students' decision to choose a university; this implies oriented solutions in line with local development practices. Universities in the North Central region need to make more efforts to take advantage of their local advantages, enhance training quality, connecting activities, and promote training programs and brand images to be more effective in the process of attracting students, ensuring competitiveness of regional universities in the current difficult enrollment conditions.

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APPLYING MULTIPLE INTELLIGENCE THEORY TO COMPREHENSIVELY DEVELOP STUDENTS' CAPACITY IN VIETNAMESE EDUCATION

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Abstract

Over the past decades, our country's education has made remarkable achievements and development steps, making an important contribution to the mission of raising people's knowledge, training human resources, fostering talents and achieving some important results in the construction, protection and development of the country. Vietnam's education continues on the path of development, in which selective research on advanced teaching methods and theories embarks motivation for discovering, learning, and researching to the modern scientific world.

The theory of multiple intelligences is an optimal theory that creates a belief that helps to source potential talents hidden deep in each person, creating and directing the resources to achieve desired goals. Success begins with belief, and belief comes from a statement or an idea that we come up with ourselves. The theory of multiple intelligences is an example.

Keywords: *Multiple intelligence theory, capacity, education, training and response.*

1. Introduction

Studies on intelligence before Howard Gardner

In 1905, Alfred Binet (1857 - 1911), a French psychologist, first invented the first practical IQ test, making a measure of intelligence for the purpose of classifying students into intellectually equivalent groups to facilitate training.

In 1912, William Stern (1871 - 1938), a German philosopher and psychologist coined the term IQ (intelligence quotient). He used the quotient between Mental Age (which reflects

a person's level of intellectual development) and Biological Age (the person's actual age) to calculate an individual's intellectual development. He believes that individual differences, such as intelligence, are complex in nature and that there is no easy way to qualitatively compare individuals with one another. Concepts such as mental frailty cannot be identified with a single intelligence test, because there are many factors that the test does not test, such as behavioral and emotional variables.

In 1916, Lewis M. Terman (1877 - 1956), a psychologist at Stanford University and the President of the American Psychological Association credited as a pioneer in the field of educational psychology in the early 20th century, improved this calculation, by multiplying the above quotient by 100 to remove the odd number after the decimal point [6] and [11].

His formula for calculating intelligence, $IQ = \frac{\text{Intellectual age}}{\text{Biological age}} \times 100$, has been widely recognized and used. He also improved from Binet's test table to create the Stanford-Binet test which is considered the original for many IQ tests today.

The basis for Howard Gardner's theory of multiple intelligences

Howard Earl Gardner (born July 11, 1943) is an American developmental psychologist and professor of cognitive and educational studies. He is the father of multiple intelligences. According to Gardner's Theory of Multiple Intelligences, people have many different ways of processing information, and these ways are relatively independent of each other. This theory is a critique of standard intelligence theory, which emphasizes the correlation between abilities, as well as of traditional measures such as IQ tests that often only take into account language, logical and spatial abilities [11].

Howard rejects the traditional concept of intelligence, which is often identified and assessed based on IQ tests. He believes that this concept does not fully reflect the diverse intellectual abilities of people.

According to him, at school, a student who easily solves a complex math problem is not necessarily smarter than another student who can't finish the problem. The second student will most likely be better at other "types" of intelligence.

His theory of multiple intelligences says that each individual can reach some levels in each "category" in the system of intelligences. Whether this level is low or high, it represents an individual's limitations or advantages in this area. In particular, this level is not "constant" throughout their life but will change (increase or decrease) depending on cultivation conditions.

Howard Gardner's theory of multiple intelligences is based on the work of psychoanalyst Eric Erikson, sociologist David Riesman, and psychologist and cognitive scientist Jerome Bruner. He took a course on human instincts, specifically how humans think.

In the theory of multiple intelligences, Gardner established the specific necessary requirements that each type of intelligence must meet to qualify as an effective intelligence.

2. Results

The theory of multiple intelligences, published in 1983 by Dr. Howard Gardner - Harvard University, initially included 7 intelligences. In 1996, he continued to add the 8th

intelligence, which is Intelligence about nature, after a period of research and possible experimental planning [6], [11] and [13].

In 1999, he officially announced to the world that he would continue to research, supplement and develop the theory of the 9th type of intelligence, which is existential intelligence. "Existential intelligence is a special intelligence, a useful structure to evaluate one of the outstanding human capacities", said Dr. Howard Gardner after more than 20 years of research (July 8, 2020). Howard Gardner announced that existential intelligence is still in the researching stage to prove its existence.

Existential intelligence has not officially become a type of intelligence in the theory of multiple intelligences because there is still not enough evidence related to brain parameters. The biometric analysis shows that the brain parameters do not have enough bases to show the existence of this type of intelligence.

The human world possesses different types of intelligence such as: Verbal/ Linguistic, Logical/ Mathematical, Visual/ Spatial, Bodily/ Kinaesthetic, Musical/ Rhythmic, Interpersonal/ Introspective, Intrapersonal/Social, and Naturalist, etc. The above-mentioned types of intelligence are generally called the theory of multiple intelligences.

Human intelligence is not only measured by IQ but also depends on eight intelligence indexes in the theory of multiple intelligences.



Figure 1. The eight types of intelligence in Howard Gardner's theory

According to Professor Gardner, intelligence is defined as "the ability to give solutions or create products which have value in one or more cultural settings" and intelligence cannot be measured solely through mathematical logic or the ability to quickly process a math problem.

Multiple intelligences depend on each individual; they are not constants but nonlinear mathematical functions, capable of varying to infinity in the specified domain depending on the knowledge acquisition conditions of each learner.

2.1. Multiple Intelligences

Individual's learning ability and intelligence are the capability that each person can express through 8 different types of intelligence:

1. Linguistic intelligence

Linguistic intelligence is speech expressed in words, expressions, or letters. This intelligence includes the ability to use language effectively for self-expression and to understand language including written, spoken, and body language.

People who are prone to linguistic intelligence are often good at reading, writing, speaking and listening to memorize; like to discuss debate, explain, or persuade. People with this intelligence often use the power of language to speak eloquently. In particular, people with linguistic intelligence will learn foreign languages well thanks to their vocabulary memory.

2. Social intelligence

Social intelligence represents the ability to interact socially, extrovert, cooperate, influence, and persuade others. People with social intelligence are often sensitive, empathetic, friendly, approachable, psychological, responsible, charismatic, understanding and compassionate. They have the ability to understand and work with others; to feel and share with the moods, personalities, feelings, temperaments, intentions and desires of others easily; and to see the world through the others' eyes.

3. Musical intelligence

Musical intelligence favours the skills of recognizing and composing tone, pitch, and rhythm; feeling, enjoying and performing music. This ability is capable of creating rhythms, memorizing melodies and songs. People having this intelligence are usually very sensitive to sounds, rhythms, and pitches.

Musical intelligence is in everyone's subconscious as long as they have good listening ability, have spare time for music, know how to sing to the tune, and hear various musical repertoires with precision and discernment of the senses.

Musical intelligence goes hand in hand with linguistic intelligence. From a musical perspective, musically intelligent people will convey content in the language of music.

4. Kinesthetic intelligence

Kinesthetic intelligence, also known as bodily intelligence, is the ability to use the body or part of the human body to solve problems, signal or express emotions, as well as the ability of the brain to control these activities for small muscle movements and whole-body muscle coordination.

People with kinesthetic intelligence often want to move their bodies, have "instinctive responses" to situations and things, and show the ability to master body movements.

5. Spatial intelligence

Spatial intelligence, also known as visual intelligence, is a category related to visual thinking methods and the ability to perceive, transform, and reproduce different angles of the world.

People with visual-spatial intelligence have the ability to draw or sketch their ideas in the form of images and graphics, as well as the ability to orient themselves in 3D space easily. This intelligence is reflected in the ability to perceive and visualize the world / space under many angles. In addition, this type of person also has wonderful ability to remember pictures and videos.

6. Naturalist intelligence

Naturalist intelligence is the ability to recognize and appreciate man's relationship with the natural world. The theory of naturalist intelligence helps people perceive, classify, and derive features of the environment. Naturalist intelligence includes keen observation of the natural surroundings and the ability to sort out different things well. It can be done by exploring nature, making collections for species, studying them, and grouping them together.

7. Intrapersonal Intelligence

People with intrapersonal intelligence can easily access and clearly see their own emotions; distinguish many emotional states inside and apply their own understanding to enrich and plan their life; often like to meditate to perceive and evaluate the strengths and weaknesses of themselves.

They always think in a quiet state; have strong independence, high frankness and extreme self-discipline, and high self-reliance; prefer working independently rather than working with others or groups; are introvert with the ability to think internally, plan and manage arguments, understand inner language. They have a high sense of self-awareness and are able to understand their own feelings, goals, and motivations.

People with inner intelligence can easily access and clearly see their own emotions, distinguish their inner emotional states, and use their own insights to highlight their own life paths.

8. Logical-mathematical intelligence

Logical-mathematical intelligence is the ability to reason, analyze, synthesize and find out the nature and laws of arithmetic-related problems; infer sequences and chain events; and think in the direction of cause-and-effect; understand abstract problems; and have good logical thinking.

This intelligence is closely related to scientific and mathematical ideas, the ability to generate hypotheses, find numerical patterns or rules based on theoretical concepts.

People with this intelligence often excel with abstract operations or numbers. This is also the area for abstract pattern recognition, scientific and investigative thinking, and the ability to perform complex calculations.

Sir Ken Robinson once said: *“Human potential, like natural resources, is buried very deeply. You have to make an effort to find it since it's not right on the surface. You even have to create the circumstances so that it can manifest.”*

Each of us has all of the above eight intelligences, but at different levels depending on each person's temperament. Some types in multiple intelligences are more or less developed, however these are not permanent, and they can vary depending on how much practice, motivation and development is required.

2.2. Current status of Vietnamese education

Education is considered the leading national policy which determines the success or failure of the whole nation, because the result of education and training is people who decide the prosperity of the nation. Nelson Mandela - the first President of the Republic of South Africa used to say *"To destroy any country it is not necessary to use atomic bombs or long-range missiles but just downplaying the quality of education and allowing cheating in students' exams. As the result of that education, patients would die at the hands of doctors; buildings would collapse at the hands of the engineers; money would be lost at the hands of the economists and accountants; justice is vibrated at the hands of the judges. The fall of education is the fall of a nation."*

In fact, Vietnamese education is cumbersome with old thinking that will be outdated and lead to many consequences and deadlocks. Perhaps never before has the society given such special attention to this issue. Where is education in Vietnam in comparison with that of the world? Why can't the quality of training ever improve? And how can solutions to this important problem be found?

Traditional, contemporary and modern schools often evaluate a student through memorization and re-enactment of a certain unit of knowledge no matter which teaching methods are applied: traditional methods or competency approaches. According to Gardner, teachers evaluate learners through one or two types of intelligence only: linguistic intelligence and logical/mathematical intelligence; this assessment does not guarantee the accuracy and scientificity [1].

Students with some optimal learning inclinations seem to be left out at schools, because in addition to linguistic and logical/mathematical intelligence, learners also have a tendency to learn through music, movement, vision, and communication. ...

On the other hand, all learners seem to be equated by a common method for an assessment and judgment; meanwhile, learners can learn better if they can acquire knowledge with their own strengths of diversity, temperament, passion and interest.

Intellectual diversity of each student has it yet been appreciated though each type of intelligence is very important and each learner has many abilities to follow many different trends to promote their ability to study and research in a unique way. Archimedes once said, "Give me a place to lean on, and I will lift the earth." The school should be a place to arouse passion, nurture potential, and facilitate learning in different directions for future owners of the society. Be a lever for learners to develop comprehensively.

Teaching methods applying multiple intelligences have not been widely developed in Vietnamese education; educators and education experts are looking for the optimal solution to this problem. Experiments show it is possible to apply the theory of multiple intelligences in teaching by applying and synthesizing classical, contemporary and modern teaching methods to activate learners, but certain necessary and sufficient conditions are required for the implementation to be successful.

The environment for implementing teaching and learning activities under the theory of multiple intelligences has not met the requirements for there are no legal provisions. The new method just comes from the modern approach of some teachers, administrators and some schools.

In the assessment of learners, teachers almost exclusively rely on the scores of each subject to assess the intelligence of each person. This is the main reason why students are unknowingly labeled as weak by their relatives or teachers because they have not achieved good grades [2].

Schools, families and society have not paid much attention to the development of intelligences other than language and logic/mathematics in 08 theories of multiple intelligences, especially existentialism, which has not yet been recognized.

The theory of multiple intelligences has brought a humane and necessary view to call on schools and teachers to appreciate the diversity of intelligence in each student. To solve the above situation, it is necessary to have a solution along with a teaching method that combines the theory of multiple intelligences to explicitly deploy in education and training.

2.3. Applying Howard Gardner's theory of multiple intelligences in Vietnamese education

According to Howard Gardner, individuals are creative in certain areas only. For example, Albert Einstein is the greatest physicist of all time, a genius in mathematics and science, but we see no outstanding signs of kinesthetic or social intelligences. Consequently, most individuals can only succeed brilliantly with some forms of intelligence they possess.

Currently, the curriculum gives too much importance to the development of language and logic - math abilities, which reduces the ability to develop other types of intelligence. As a result, learners who are not good at the above subjects will lose confidence in themselves. Their other abilities are well developed and profound, but due to not being fully exploited and nurtured in a timely manner, their talents will be lost, which is a disadvantage for the individual learner and a great loss to society.

Compulsory basic knowledge and skills such as languages, math, history, and science subjects should not be taught in the same way to different learners. Frustration and poor results will be greatly reduced if teachers provide knowledge in different ways, suitable for each student. It is the teacher's duty and responsibility to find that possible path, establishing a "multi-modal" approach so that each learner has the opportunity to explore his or her interests, talents, and creativity in certain areas. Educational programs need to be designed with a certain degree of "openness, softness and inheritance", taking into account the richness of natural inclinations and interests of each individual.

Thomas Armstrong sends a message to parents and educators: *“My work, as an educator and a psychologist in the field of diverse intelligences and natural talents of learners, is guided by the belief that all people are destined to be human beings. Every human being born into this world has unique potentials that, if properly nurtured, can contribute to making the world a better place. The biggest challenge for parents and teachers is to clear the barriers for gifted talents to be recognized, honored and nurtured.”*

Education and training play a core role for each country; educational development must take the lead in all fields. Teachers need to appreciate the diversity of intelligence in each student, each type of intelligence is important and each learner has more or less abilities in different tendencies. Schools, teachers and parents must support and arouse potential, facilitate learning and passion in different directions for children to be the future owners of society [6] and [8].

The theory of multiple intelligences has a profound influence on teaching and learning methods. In fact, when affected by many intelligent areas, learners have the opportunity to promote their own strengths and weaknesses with a learning environment that can meet the basic requirements of learning and research.

With the philosophy of comprehensive education for learners, it is necessary for teachers to apply the theory of multiple intelligences in teaching. Thereby, the teacher arouses passion, capacity and aspiration for learners; Learners with sufficient conditions, and skills could arm themselves with modern knowledge for comprehensive development of competence [5].

Applying the theory of multiple intelligences in education is successful only when the teacher respects the intellectual diversity in each student. Each type of intelligence has its own characteristics, and each learner occupies more or fewer different intelligences and dispositions. Family and school responsibilities help learners develop naturally according to their inclinations.

The theory of multiple intelligences helps teachers to put themselves in the right frame of modern education. Before teaching, teachers build a "thinking diagram", consider, and choose teaching methods based on "brain attack" strategy so that the lecture time is the most appropriate. And teachers should clearly understand why that method is effective or only works for one student but not for another. Therefore, during a lecture period, teachers change their teaching methods regularly to meet the interests, diversity and temperament of learners [1].

Teachers put themselves in the position of learners to understand them well, let students understand the learning content that the teacher teaches in their own way; Learners will have confidence and interest in learning and remembering the lesson. Teachers should create regular and sustainable relationships with learners, so that personal interaction always appears to satisfy curiosity during teaching and learning hours.

Sometimes teachers can use introspection to enlighten learners by assigning exercises to challenge them on how to make a connection between their own experience and the research content of the subjects or asking them to write essays on related topics. This method encourages students to think about their own learning styles and processes.

It is also advisable to let learners study naturally to attract their attention to incorporating the outside world into the lesson; One ideal method is project-based learning

which creates opportunities for students to interact with the outside environment and keeps them interested in the subject while stimulating creativity.

It is recommended to do research and apply complex methods to integrate the theory of multiple intelligences with other subjects. At first, teachers can apply intelligences about introspection, personal interaction and nature as the basic methods to start the lesson, which is one of the methods of opening the theory of multiple intelligences easily and most intuitive for learners.

There are many ways of learning and understanding when we approach a problem: Each of us has different personalities, interests, tastes and learning styles. Through actual observation, teachers need to understand and properly appreciate these differences and know what type of students excel in which area based on the theory of multiple intelligences and from there teachers can develop teaching activities suitable for learners' capacity. Every learner has special abilities that need to be discovered, fostered and measured to satisfy their intellectual range.

Learning style: To meet the learning style of learners, educators, educational managers should invest in equipment, facilities and teaching staff; especially, continuously improve the training program to meet learners' capacity in the most effective way. Knowing that learners always possess all types of intelligence, it is advisable to find and propose a learning style can help learners develop their all kinds of intelligence, while emphasizing the method to promote intellectual potential according to learners' capacity to help them succeed in life [7] and [8].

Orientation and career development for learners according to the theory of multiple intelligences: In education, career orientation is one of the important components. Taking multi-intelligent theory as the standard system; the ability of each learner would determine criteria in each standard guiding them to develop future career goals. The orientation of teachers is extremely important; Thereby, learners determine for themselves the possible domain and will put all their abilities and wisdom, time and effort into studying and researching to succeed.

3. Conclusion

In order to develop and optimally apply the theory of multiple intelligences in our education today, teachers must apply and help learners according to the strengths of each individual and consider the teaching method help students to learn in the most effective way.

From the experimental planning in education, we have the necessary and sufficient conditions to apply the theory of multiple intelligences in education as following ways: Building a diverse and practical learning environment, creating a comfortable psychology for students; Taking the perspective of learners when applying the criteria of multiple intelligence theory with the belief that all learners would be liberated by the theory of multiple intelligences; Accepting all characteristics of the learner's temperament, respecting and listening to all feedback even if it is unusual opinions of learners; Developing communication skills and creative thinking, encouraging teamwork but favoring independent work [12].

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FACTORS AFFECTING THE INTENTION TO USE ELECTRONIC TEXTBOOKS ON NEU READER APPLICATION OF STUDENTS OF THE NATIONAL ECONOMICS UNIVERSITY

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Abstract

The e-textbooks is a new resource in addition to the printed, which has been put into practice at universities in Vietnam including National Economics University. This requires a comprehensive study to determine which factors influence the intention to use them. The purpose of this research is to find out there are factors influencing the intention to use e-textbooks on the NEU Reader app of students of the National Economics University. This study formed a sample of 226 students by using convenience sampling. In addition, drawing upon previous theories namely UTAUT model. The results of the analysis indicate five groups of factors that influence students' intention to use the e-textbooks: Facilitating conditions, Perceived benefit, Performance expectancy, Perceived environment, Effort expectancy and while experience serves as a control variable. The impact of these factors, coupled with efforts to improve the intention to use the e-Textbooks on the NEU Reader app of students of the National Economics University, will be further outlined in this study. Theoretical and practical implications of this research are also discussed.

Keywords: *e-textbooks, NEU Reader, use intention, UTAUT, National Economics University.*

1. Introduction

Developments in computer technology have changed the nature of digital content and its accessibility to consumers. Furthermore, the internet has caused an evolution in the book publishing industry with the emergence of electronic books (e-books). Thanks to the development of e-books, learners can easily close the gap with the knowledge which is taught in class (Larson và Marsh, 2005). Rozel and Gardner (2000) also argue that the use of e-books directly affects the learning process of students. When using e-books more,

students will make more progress in learning. The benefits of e-books are also factors that make e-books more popular in learning and play an increasingly important role. Students can use keywords to search for the desired topic more easily and quickly than in traditional books (Shelburne, 2009). Besides, other advantages of e-books such as flexibility, data saving in the hard drive or the ability to make notes (Gibson and Gibb, 2011) or easy access, highly referenced (Letchumanan and Tarmizi, 2011),...

In addition to e- books, the rise of electronic textbooks (e- textbooks) provides a new channel for students to learn. An electronic textbook is a document used by teachers and learners in the teaching and learning process, with content equivalent to printed textbooks, used on electronic devices and integrated interactive tools with learners. With many advantages, electronic textbooks are gradually becoming the favorite choice of students.

Universities in Vietnam have applied the development of information technology, digital, improving the quality of teaching and learning and the National Economics University is no exception. As part of the educational digitization program, the school has put the majority of the entire textbooks on the NEU Reader digital learning system to replace the traditional paper one.

E-textbook of National Economics University is a textbook integrated in the electronic format of the printed books, used on the e-reader application which is called NEU Reader. According to the Digital Resources Portal (NEU): "NEU Reader works on all kinds of digital devices such as tablets, smartphones, laptops, desktops (PCs)", which demonstrates the portability and convenience of mobile phones. In addition, users are allowed to use it completely free of charge and ensure the same content as the printed books. The e-textbooks NEU Reader system has a PDF format in the form of a reading file, divided into 35 specialties with 264 general textbooks.

Based on that, this study was conducted to clarify the following objectives: (1) To understand e-textbooks and the factors that influence the intent to use e-textbooks; (2) Clarify the current situation of using e-textbooks on NEU reader app; (3) Determine the extent of influence of factors on the intention to use e-textbooks; (4) Proposed solutions and recommendations.

2. Literature Review

Accordingly, research topics on users' acceptance of e-textbooks have garnered attention. For example, Nelson and Webb (2007) used the Technology Acceptance Model - TAM and web usability to show that perceived ease of use and perceived usefulness are important predictors of students' intent to use e-textbooks. Lai and Ulhas (2012) integrated TAM and Innovation Diffusion Theory (IDT) to investigate e-textbook applications, where perceived enjoyment is the factor that has the greatest direct influence on intent to use. Hsiao and Tang (2014) assessed five theoretical models of technology acceptance to investigate students' adoption intentions for e-textbooks and showed that the UTAUT model is the best model for measuring the degree of influence of factors. With the tendency to use mobile devices and computers for learning, students have a high positive awareness and identity about e-books but the acceptance and use of e-textbooks is quite low (Wang and Bai, 2016).

E-books are predicted to be popular in the future because students believe that e-books will increase their academic performance and productivity, this finding was presented in Lawson and Body's study (2018).

In Vietnam, e-textbooks are still a new topic. Moreover, domestic studies are still only focused on the field of e-books. Research by Truong Thanh Tri et al. (2010) adopted regression analysis to conclude that there was no difference in students' approach to e-books, and that the social impact did not affect their intention to use ebooks much. Research by Bao Ba Quyet and Hoang Cao Cuong (2018) has shown that the attitude of e-books is likely to replace printed books accounting for a high proportion. Favorable conditions that have a strong impact on students' behavioral intentions to use e-books were mentioned in the study by Le Thi Tu et al. (2020).

Theoretical Background and hypothesis development

The UTAUT model and usage intention

Unified Theory of Acceptance and Use of Technology (UTAUT) was built and developed in 2003 by Venkatesh et al. to explain intention and use behavior of individuals. As a result of the combination of eight previous models, UTAUT was found to be 70% accurate at predicting behavioral intention. Therefore, UTAUT is more comprehensive in its assessment of the likelihood of technology success and understanding the drivers of acceptance (Lu et al., 2009). UTAUT posits four key constructs as direct determinants of information technology acceptance (behavioral intention) and use (behavior), namely performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC). Moreover, the theory postulates that the effect of these four variables is moderated by gender, age, experience, and voluntariness of use.

Performance expectancy indicates that college students use e- textbooks as they believe that the e- textbooks will increase effectiveness for tasks and improve learning outcomes. Furthermore, according to previous studies on e-books, the easier it is for an individual to use an e-book, the greater the perceived ease of use is, and the greater the usage intention (Hsu, 2017; Yoo và Roh, 2019). In addition, individuals will be affected by social influence. That is, suggestions from teachers and friends to use e-textbooks can increase the willingness of an individual to use them. With regard to facilitating conditions, these can reduce uncomfortable levels of uncertainty or ambiguity toward new technology (Al-Gahtani et al., 2007). In accordance with UTAUT structure and previous evidence, this study sets out the following hypotheses:

H1. Performance expectancy has a positive influence on the intention to use e-textbooks on the NEU Reader app of students of the National Economics University.

H2. Effort expectancy has a positive influence on the intention to use e-textbooks on the NEU Reader app of students of the National Economics University.

H3. Social influence has a positive influence on the intention to use e-textbooks on the NEU Reader app of students of the National Economics University.

H4. Facilitating conditions has a positive influence on the intention to use e-textbooks on the NEU Reader app of students of the National Economics University.

Environmental consciousness (EC) and usage intention

Users' concerns about the environment increase the number of green products they are willing to buy (Lee, 2009). Using e-books can reduce carbon emissions in printed works, so those interested in the environment intend to use e-books higher (Hsu et al., 2017). The hypothesis is given:

H5: Environmental consciousness has a positive influence on the intention to use e-textbooks on the NEU Reader app of students of the National Economics University.

Perceived risk (PR) and usage intention

According to Bauer (1960): "Perceived risk is a combination of uncertainty accompanied by the severity of the outcome." Lawson-Body et al. (2018) showed that the greater the perceived risk, the lower the likelihood of accepting e-books. The hypothesis is given:

H6: Perceived risk has a negative influence on the intention to use e-textbooks on the NEU Reader app of students of the National Economics University.

Habit of using printed books (HP) and usage intention

"Habits are the extent to which an individual behaves in an automatic way, obviously, as a result of the unconscious learning process" (Venkatesh et al., 2012). Although students take a positive approach to e-books, in the context that the culture of printed reading has become all too familiar, the majority of students still tend to use books with prints over electronic copies (Ashley Melinis, 2011). The hypothesis is given:

H7: The Habit of using printed books has a negative influence on the intention to use e-textbooks on the NEU Reader app of students of the National Economics University.

Perceived benefit (PB) and usage intention

The change in the form of learning due to COVID-19 pandemic has resulted in all support sources and support tools being unavailable (Piramanayagam and Seal, 2021). At that time, the e-textbooks on the NEU Reader app with the availability was a suitable alternative to the traditional printing textbooks. The hypothesis is given:

H8: Perceived benefit has a positive influence on the intention to use e-textbooks on the NEU Reader app of students of the National Economics University in the context of COVID-19 pandemic.

In addition, because NEU students have age characteristics that are not too different, gender is also said to have no predictor of the intention to use (Yoo và Roh, 2019) and the purchase of the NEU Reader e-textbooks is a regulation, therefore, the hypothesis of the experiential demographic variable is given:

H9: There is a difference in the intention to use the NEU Reader e-textbooks at different experience levels.

Taken together, this research presents the research framework shown in Figure 1.

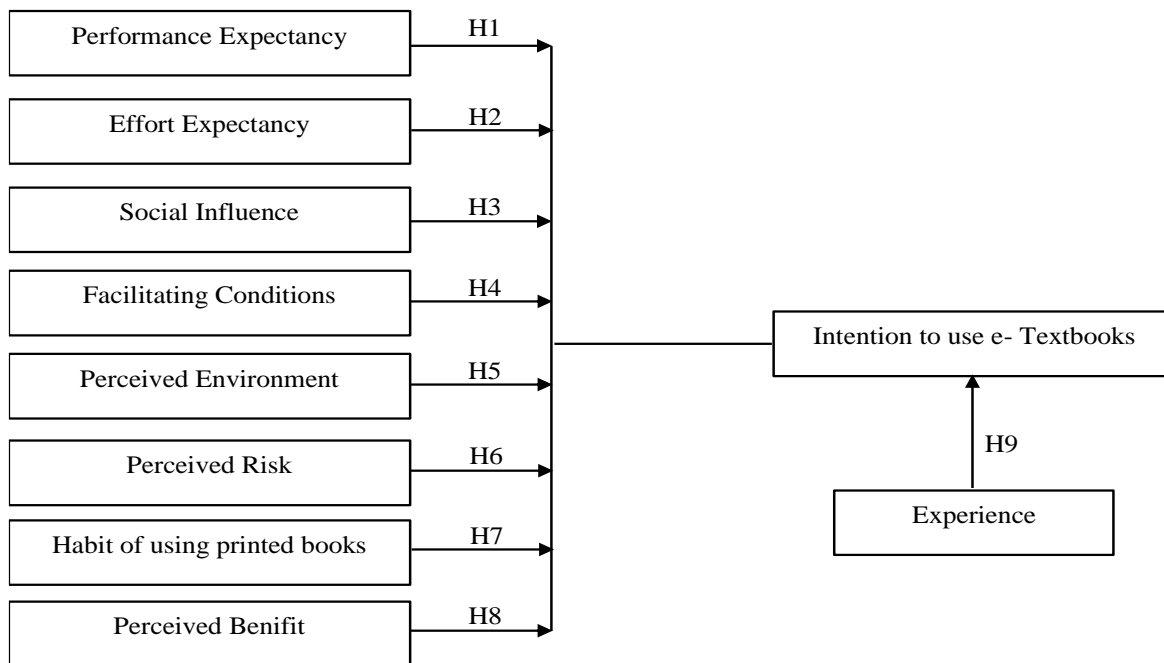


Figure 1. Research Model

3. Method

This study uses two main research methods, qualitative research and quantitative research. Qualitative research helps to find out the factors affecting the intention to use the NEU Reader e- textbooks of the students of the National Economics University. Next, quantitative research can test and draw the most accurate conclusions about the research problem.

Data collection methods

- Primary data: In-depth interviews were used to collect data that helps the research team adjust and perfect the survey, followed by an online questionnaire.

- Secondary data: Collecting, systematizing and analyzing secondary information from domestic and foreign books and newspapers, available documents, research work that has been carried out related to the topic and highly reliable websites.

Data samples

- Qualitative research sample includes 9 in-depth interview answers, helping the team discover new factors.

- Quantitative research sample: Bollen (1989) introduced a regulation on the number of samples and explained that the sample-to-variable ratio observed must ensure a minimum of 5:1. Furthermore, according to Gorsuch (1983), factor analysis requires at least 200 observations. Thus, to ensure and enhance the reliability factor as well as accuracy and objectivity, the team issued 243 survey tables, resulting in 226 valid observation samples.

Data analysis method

- Methods of secondary data analysis: The research team applied methods of analyzing, synthesizing and comparing data.

- Methods of primary data analysis: After collecting the questionnaire, the research team began to select the questionnaire, clean the data, encode the necessary information in the questionnaire, enter the data and analyzed using SPSS software version 20.0 with a 5-point Likert scale from “Strongly disagree” to “Strongly agree”.

4. Results

Sample Characteristics

It can be seen that the majority of students have used e- textbooks on the NEU Reader app provided by the school, accounting for 90.69%, while the percentage of students who have not used it is only 9.31%. The survey results conducted by the research team show that reading e - textbooks on the Neu Reader app is the plurality, depending on the different frequency levels of students and the percentage of students who do not use it. The relatively minor rate is 9.31% and the largest proportion is from 3 to 5 times/week, accounting for 22.88%. Therefore, it is undeniable that e - textbooks have impacted students' intention to use and accept it as an important source of learning materials in their learning and research process.

Table 1. Current use of e- textbooks on NEU reader app

Demographic Profile		Frequency	Percent (%)
Gender	Female	158	69.9
	Male	68	31.1
Educational level	First- year	15	6.64
	Second - year	52	23.01
	Third - year	140	61.95
	Fourth - year	18	8.4
Use of e - textbook	Yes	205	90.69
	No	21	9.31
Frequency of e- textbook usage among users	More than once/day	8	3.54
	Daily	10	4.42
	3 - 5 times/week	63	22.88
	One time / week	32	14.16
	2 - 3 times/ month	44	19.47
	One time/ month	12	5.31
	One time/ month	36	15.93
	No use	21	9.31

Reability Test

Cronbach’s alpha was used to test the internal consistency reliability of each of the composite constructs.

Table 2. Result of reliability test

Construct	Number of items	Cronbach's Alpha
Performance expectancy	4	0.879
Effort expectancy	4	0.787
Social influence	2	0.688
Facilitating conditions	4	0.646
Environmental consciousness	3	0.766
Perceived risk	4	0.719
Habit of using printed books	4	0.854
Perceived benefit	2	0.716
Intention to use e- Textbooks	4	0.852

Cronbach's alpha values for all constructs ranging from 0.646 to 0.879 indicate the existence of reliability (Nunnally 1978).

Exploratory factor analysis method

After analyzing the EFA factor, it was revealed Sig is $0.000 < 0.05$, KMO coefficient is $0.864 > 0.5$. This indicates how much significance the data set put into exploratory analysis is quite good, proving the appropriate factor analysis model. Factor Loading coefficients are both greater than 0.5 and Eigenvalue = $1.181 > 1$ that demonstrates the scales have practical significance.

Table 3. Result of KMO test of independent variables

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.864
Barlett's Test of Sphericity	Approx. Chi- Square	2859.237
	df	351
	Sig.	.000

For the dependent variable Intention to use (IU), the data of the test coefficient KMO = $0.789 > 0.5$; Sig=000; Eigenvalues = $2.772 > 1$ and extracted variance is 69.301% (greater than 50%) illustrates the ability to converge well the variables in the scale.

Table 4. Result of EFA analysis of dependent variable

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.789
Bartlett's Test of Sphericity	Approx. Chi-Square	396.412
	df	6
	Sig.	.000
% of Variance	69.301%	
Eigenvalues	2.772	

With the results of the EFA analysis of the independent variables, it demonstrates that the observed variables converge together in the same concept and are represented by the research team as following: Performance expectancy (from PE1 to PE4); Facilitating conditions (from FC1 to FC4); Social influence (from SI1 to SI2); Habits of using printed books (from HP1 to HP4); Effort expectancy (from EE1 to EE3); Perceived benefit (from PB1 to PB2); Perceived risk (from PR1 to PR4); Environmental consciousness (from EC1 to EC3).

Table 5. Result of rotation matrix of independent variables

	Component							
	1	2	3	4	5	6	7	8
PE3	.834							
PE4	.784							
PE1	.781							
PE2	.743							
FC4		.739						
FC2		.659						
FC1		.640						
FC3		.611						
SI2			.640					
SI1			.604					
HP3				.863				
HP2				.862				
HP4				.768				
HP1				.753				
EE2					.724			
EE1					.612			
EE3					.539			
PB2						.539		
PB1						.537		
PR2							.760	
PR3							.656	
PR4							.654	
PR1							.591	
EC3								.825
EC2								.822
EC1								.713

Extraction Method: Principal Component Analysis.

Correlation analysis

Pearson correlation was used to test the hypothetical relationships between the constructs. The results show that a significant positive linear correlation exists between intention to use e- textbooks and the independent variables including performance expectancy, effort expectancy, social influence, facilitating conditions, environmental consciousness, habit of using printed books and perceived risk (Sig. of all factors is less than 0.05). Although the habit of using printed books is confirmed to have no linear correlation with intention to use (Sig.=.121>0.05), the research team suspects that this factor has an impact on the use intention, so we decided to keep it for Multiple Linear Regression Analysis.

Table 6. Correlation matrix

	PE	EE	SI	FC	EC	PR	HP	PB	IU
PE	1.00								
EE	.621**	1.00							
SI	.611**	.558**	1.00						
FC	.639**	.651**	.543**	1.00					
EC	.270**	.245**	.325**	.296**	1.00				
PR	.323**	.391**	.376**	.381**	.134*	1.00			
HP	.185**	.241**	.214**	.197**	-.043	.348**	1.00		
PB	.312**	.470**	.314**	.410**	.262**	.449**	.180**	1.00	
IU	.561**	.574**	.478**	.605**	.410**	.381**	.103	.502**	1.00

** . Correlation is significant at the 0.01 level

* . Correlation is significant at the 0.05 level

Multiple linear regression analysis and hypothesis testing

Table 7. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.731 ^a	.535	.517	.54835	1.748

Adjusted R Square value equals 0.517, this means that the independent variables in the model included in the regression analysis affect 51.7% of the variability of dependent variables "Intention to use e- textbooks on the NEU Reader app of students of the National Economics University", the remaining 48.3% is caused by the impact of random errors.

Durbin-Watson value (DW) = 1,748, the model does not violate any similar assumptions related to the first-order sequence (Yahua Qiao, 2011).

Table 8. Regression Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
1	(Constant)	-.162	.297		-.545	.586		
	PE	.175	.062	.192	2.819	.005	.460	2.173
	EE	.146	.072	.141	2.028	.044	.443	2.259
	SI	.022	.059	.023	.368	.713	.527	1.896
	FC	.270	.081	.227	3.317	.001	.458	2.182
	EC	.170	.048	.178	3.522	.001	.839	1.192
	PR	.090	.065	.078	1.377	.170	.671	1.490
	HP	-.072	.050	-.073	-1.444	.150	.848	1.179
	PB	.222	.061	.206	3.638	.000	.667	1.500

The model does not have multilinear phenomena (VIF coefficients in the range of 1 - 2.5).

Social influence (SI), perceived risk (PR) and habits of using printed books (HP) with a Sig coefficient are all greater than 0.05, so it should be removed from the model, the corresponding hypotheses of H3, H6, H7 are all refused.

The Sig coefficient of the remaining five variables is performance expectancy (PE), effort expectancy (EE), facilitating conditions (FC), perceived benefit (PB), environmental consciousness (EC) are all less than 0.05 so the H1, H2, H4, H5 and H8 hypothesis are accepted.

This demonstrates that these factors are significant in the model that means that the increase or decrease of the coefficient of each factor will affect the intention to use the e- textbooks on the NEU Reader application of students of the National Economics University. Particularly facilitating conditions (FC) has the strongest impact, followed by perceived benefit (PB), performance expectancy (PE), environmental consciousness (EC) and effort expectancy (EE).

Control variable

One-way ANOVA test results show that there is a difference in intention to use NEU Reader e- textbooks at different experience levels.

	Hypothesis	Sig. (Levene test)	Sig. (ANOVA test)	Conclusions
H9	<i>There are differences in intention to use NEU Reader e- textbooks at different experience levels.</i>	0.412 > 0.05	0.012 < 0.05	Accepted

5. Discussion and Conclusion

5.1. Discussion

The research results show that there are five factors affecting the intention to use e- textbooks on the NEU Reader app of National Economics University students. First, facilitating conditions are the factors that have the greatest impact on students' intention to use e-textbooks, this result is consistent with the findings of Rana et al., 2013; Oh et al.,

2014. Students' intention to adopt e-textbooks can be increased through enhanced provision of necessary guidance and support during use (Al-Gahtani et al., 2007). Second, perceived benefit has a significant influence on usage intention. Especially in the context of online learning due to the COVID-19 pandemic, e-textbooks with easy access and low cost have become an appropriate alternative to printed textbooks. Performance expectancy is the third predictor of intention to use e-textbooks. In particular, students with higher performance expectancy have higher intention to use e-textbooks, so they tend to perceive e-textbooks as less complicated (Hsu et al., 2017). Fourth, environmental consciousness has a positive effect on the intention to use e-textbooks. When the students are concerned about environmental issues, they will tend to choose to use environmentally friendly products. Effort expectancy is the last factor found to have a positive influence on intention to use e-textbooks, this result is consistent with previous empirical studies such as Alam et al., 2014 and Bankole et al., 2011. From the student's point of view, they believe that the easier it is to use e-textbooks, the more they intend to use them.

In addition, three factors: social influence, perceived risk and habit of using printed books did not affect students' intention to use e-textbooks. In the evolving technology landscape, individuals make choices based on their own instead of being influenced by others' decisions or opinions. With the outstanding benefits of e-textbooks, students will still choose to use them without being too affected by the risks and habits of using printed books that have existed before.

Moreover, the test results show that there is a difference between the intention to use e-textbooks at different experience levels. The more experienced the students, the greater the intention to use. This is completely consistent with the reason that the more experienced, the higher the problem of access and proficiency in using it, so they tend to use more than students who have no experience and are afraid to approach new ways and methods in learning.

Conclusions and recommendations

For digital Publishing app provider NEU Reader: (1) Troubleshoot login errors, data download errors, app programming errors; (2) Solve the problem of connection errors with the server and fix the data error lost during use; (3) Software upgrades such as the addition of features, utilities such as notes, bookmark, tools to highlight important content, search content with keywords further is diverse access across different types of devices and platforms.

For the National Economics University

Firstly, develop the NEU Reader e-textbooks system: (1) Provide adequate e-textbooks of all disciplines; (2) Update e-Textbooks regularly to keep up with the training program, especially the newly released or modified textbooks.

Secondly, promote the management and development of the NEU Reader e-textbooks: (1) The school needs to direct the Faculties/Institutes to actively compile new textbooks and republish long-published textbooks; (2) Regularly have programs and courses to introduce NEU Reader e-textbooks to students; (3) A team of technicians is needed to solve students' questions in the process of using NEU Reader e-textbooks.

Contribution of research: The proposed recommendations can help improve the quality of the NEU Reader e-textbooks system and create the best learning conditions for students. At the same time, contributing to providing a theoretical basis for the current status of students' intention to use e-textbooks at National Economics University in particular and universities in Vietnam in general for research in the field of science and technology in the future. However, a limitation of the study is that the data sample collected by the group is still modest and not really representative because the sample is mostly junior, so the group proposes future studies to expand sample size range and further clarify the influence of factors.

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FACTORS AFFECTING THE INTENTION TOWARD HEALTHY EATING OF YOUNG PEOPLE IN HA NOI

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Abstract

Nowadays, healthy eating is an important issue, especially for the young generation between the ages of 16 and 30. Therefore, the study aims to find out factors that affect the intention to eat healthily of young people in Ha Noi. This study applies quantitative methods with a sociological investigation with 308 observed samples. The results indicate 6 factors including: health consciousness, healthy food knowledge, perceived behavioral control, subjective norm, eating habits and attitude toward healthy eating affect intention to eat healthily of young people in Ha Noi. In which, perceived behavioral control plays an important role and has a strong impact on the intention to eat healthily. From the results, this study implies that the government should propagate through mass media about the importance and practical benefits of healthy eating; Enterprises need to diversify products to meet the needs of consumers; Businesses should consider opening more offline stores to access more customers. In addition, this study clarifies and broadens the scope of influencing factors in the context of intention to eat healthily in Ha Noi, which has not been done by previous studies in Viet Nam.

Keywords: *Intention toward healthy eating, TPB, young people.*

1. Introduction

The development of media and the influence of the Covid-19 pandemic have changed young people's food consumption habits and behavior towards healthy eating. "Eat clean" is gradually becoming a trend among young people these days. It is not difficult to come across articles sharing and discussing healthy eating on social networking platforms such as Facebook, Instagram, Tiktok... from celebrities, housewives, students, employees and office staff. However, many consumers still choose food based on convenience and inexpensive prices such as fast food, processed food, poor quality food... instead of healthy products. The authors have conducted a research in Hanoi, where the population density is high and the level of internet use is frequent, with the research objectives below:

- Synthesizing the theoretical basis and factors affecting the intention toward healthy eating
- Determining the factors affecting the intention toward healthy eating of young people in Hanoi.
- Analyzing the impact of factors affecting the healthy eating intention of young people in Hanoi.
- Make suggestions and recommendations to promote healthy eating intentions of young people in Hanoi.

2. Literature Review

One of the theories developed and widely applied to social psychology is the Theory of Reasoned Action (TRA) of Ajzen & Fishbein (1977). This theory is designed to account for human behavior in general. TRA extends the relationship between people's attitude and behavior to behavioral intention before an action is performed. Besides, behavioral intention is influenced not only by attitude but also by subjective norms. Subjective norms are governed by normative beliefs and compliance motivations. The theory of planned behavior (TPB) proposed by Ajzen (1991) is an extended version of the Theory of Reasoned Action (TRA) whose main purpose is to predict planned and intentional behaviors. Specifically, TPB predicts behavior based on 3 main factors: attitude, subjective norm, and perceived behavioral control.

TRA and TPB theories are considered as fundamental behavioral theories for researchers to apply in studies of healthy eating intentions: Findings of the current study on the account of traditional TPB corroborates previous studies on eating behavior in which perceived behavioral control and attitude are the strongest determinants of intention, while subjective norm has less impact (Armitage and Conner, 1998; Dennison and Shepherd, 1995; Raats, Shepherd and Sparks, 1995; Astram and Rise, 1996). Healthy eating intentions are predicted by attitudes, perceived behavioral control, cognitive barriers, and self-efficacy in Hong Kong (Chan et al., 2014).

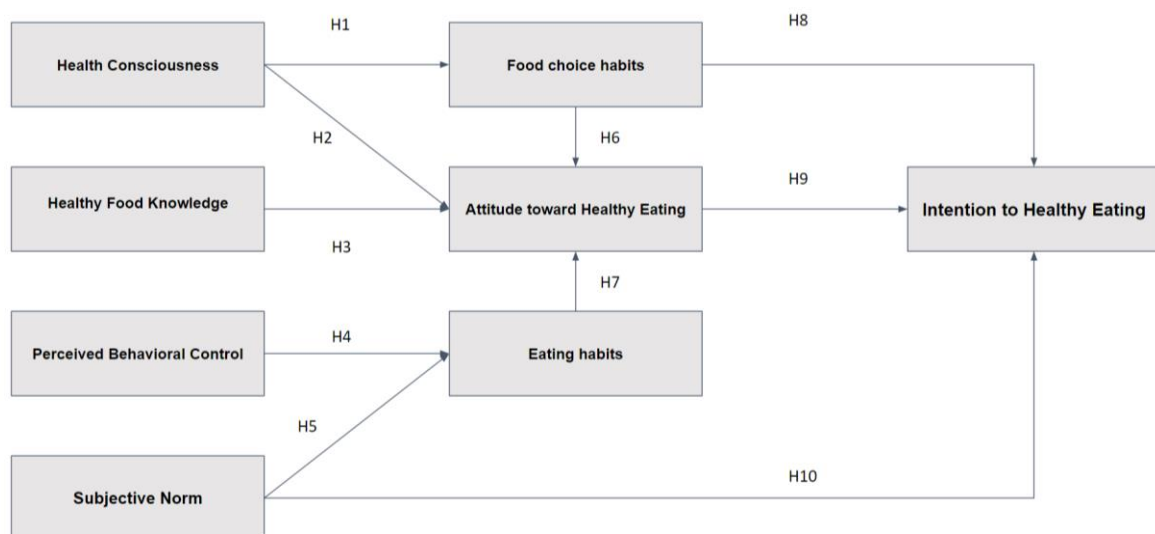


Figure 1. Proposed research model

Hypothesis

Health Consciousness (HC):

Health consciousness is the awareness of the importance of an individual's health (Mamun et al., 2020). Nguyen et al (2019) suggest that health consciousness reflects an individual's willingness to adopt a healthy eating habit.

Health and nutritional values include factors related to the avoidance or control of disease (eg, heart disease, cancer, or hypertension), weight control (health- or cosmetic-promoted) and physical well-being (optimal energy and health). Furst et al (1996) have suggested that the sense of health value has a significant and positive influence on food choice habits.

H1: Health consciousness has a positive influence on food choice habits

Many researches have shown a significant influence of health consciousness on consumers' attitudes towards healthy food consumption (Smith & Paladino, 2010; Yadav & Pathak, 2016). Francesco Testa et al. (2018) also confirmed that healthy eating attitudes are positively influenced by consumers' health consciousness. Based on the above, the research team hypothesized:

H2: Health consciousness has a positive effect on attitude toward healthy eating

Healthy Food Knowledge (HK):

Consumers must have some knowledge about foods, healthy products, and the ingredients of a meal in order to eat healthily. Although many college students are aware of the importance of meeting nutritional values, their knowledge and attitudes can prevent them from changing their behavior (Abraham et al., 2018). However, there is a gap between having knowledge and actually putting it into action. Therefore, information on promotion and activities about healthy eating should be focused to improve awareness and knowledge and attitude towards healthy food (Mamun et al., 2020).

H3: Healthy knowledge positively influences attitudes on healthy eating.

Perceived Behavioral Control (PBC):

Perceived Behavioral Control is an individual's understanding of how easy or difficult it is to perform a behavior (Ajzen, 2002). The assessment of the underlying belief structures of attitudes and cognitive behavioral control (Ajzen, 1991) provides the possibility to identify important barriers to and to facilitate dietary change. (Raats et al., 1995) Based on the above, the research team proposes the following hypothesis:

H4: Perceived behavioral control has a positive effect on eating habits

Subjective Norm (SN):

It can be asserted that the role of habit significantly influences intention prediction, more than the influence of attitude and subjective norm on behavioral prediction (Brinberg & Durand, 1983; Shepherd & Sparks, 1994).

H5: Subjective norm has a negative effect on eating habits.

Rezai et al. (2017) recognized that subjective norms have a positive and significant influence ($\beta = 0.198$, $p = 0.000$) on people's intention to buy healthy food in terms of Malaysian consumers. Furthermore, Menozzi et al. (2015) recognized that the subjective norm ($\beta = 0.56$, $p = 0.000$) significantly affects intention to use green food among Italian students.

H10: Subjective norm has a positive effect on intention to eat healthily

Food choice habits (HF)

Identifying the key factors in consumers' food choices will make it easier to understand their concerns and attitudes about healthy eating (Carrillo et al., 2011). The results of Sun's study (2008) also strongly support the assertion that food choice habits have an independent and moderating influence on healthy eating attitudes.

H6: Food choice habits have a positive effect on attitudes toward healthy eating

Assessing the importance of food to health is strongly associated with healthy eating intentions (Lim and van Dam, 2020). Beside that, understanding the underpinnings of food choices in life is important for planning dietary changes (Gedrich, 2003). Food choice habits have been confirmed to influence organic food purchase decisions by Lockie et al. in 2004, this factor is predicted to have an impact on intention to healthy eating.

H8: Food choice habits has a positive effect on intention to eat healthily

Eating habits (EB)

Unhealthy eating habits have a close relationship with psychological factors such as attitude (Hoque et al., 2018). Habit formation has been proposed as a means to promote the maintenance of healthy eating behaviors and attitudes. People who have a positive attitude towards healthy eating are often those who have had healthy eating habits in the past.

H7: Eating habits influence attitudes toward healthy eating positively

Attitude toward Healthy Eating (AE)

Attitude is a favorable or unfavorable assessment of a particular behavior (Ajzen, 1991). Attitude affects intention to be performed and the more favorable the attitude, the higher the intention to perform the behavior (Tarkiainen and Sundqvist, 2005). Attitude is the most important contributing factor to healthy food consumption intentions (Mamun et al., 2020). Many respondents appreciate the value of healthy eating.

H9: Attitudes toward healthy eating have a positive effect on intention to eat healthily

3. Method

Sample design: This research used convenience sampling method and the sample size formula of Bollen (1989): $n=5*m$ (m: number of variables). There are a total of 32 variables divided into 7 factors so the minimum sample size required is $32*5 = 160$ observations. Although the minimum required size of the study was 160 observations, the authors built an initial sample of 500 observations due to the fact that there were incomplete respondents leading to the invalid results that need to be rejected. To ensure the high reliability of the study, the research team chose a large number of samples. After the rejection process, the number of observations still ensures the minimum sample size with 308 observations.

Data collection method: (1) – Secondary data are studies, scholarly books, scientific articles, and journals related to the research area of healthy eating and healthy eating intentions that were obtained by the research team. (2) – Primary data is collected by conducting a sociological survey in Hanoi city. The survey subjects are young people living and working in Hanoi, the survey was carried out from October 27, 2021 to November 10,

2021. Due to the complicated situation of the Covid-19 pandemic, the questionnaire was designed and sent by the team entirely online, specifically on the Google Form platform, and then sent to the respondents through different channels: Email, Facebook Messenger, Instagram (the research team used a number of practical gifts for the survey subjects such as online English courses, Office, graphic design...). Sample size concludes 500 observations, the results of the number of used questionnaires are 308.

Data analytical method: To conduct the quantitative analysis, the research team used descriptive statistical analysis techniques through SPSS.20 software. Testing the reliability of the variables by Cronbach's Alpha coefficient (Hair et al., 1998) and using exploratory factor analysis (EFA) to identify groups of factors in the model and analytical techniques ANOVA with mean of intention to compare with demographic variables. Structural Equation Modeling (SEM) was used to analyze the model structure.

4. Results

Exploratory Factor Analysis (EFA): The first and second EFA results (PAF extraction method, Promax rotation) rejected HF3, BC4, EB5, SN1, HK3, HK4, AE4, HF1, HC1 have factor loading less than 0.5, HF2 is converted into a variable of Attitude. Observations belonging to the HF factor group were all removed. The 3rd EFA results on 23 observed variables resulted in 6 groups of factors, the total variance extracted was 59,148 which explained over 59% of the variation of the variables. After conducting the Cronbach's Alpha test, the results show that all 6 groups of factors in the model have Cronbach's Alpha coefficients greater than 0.7, showing that all factor groups are reliable. The correlation coefficients of all observed variables are at the confidence level above 0.6 except for HF2. The observed variable HF2 is a statistically significant new finding with a variable correlation coefficient of 0.531 and belongs to the group of factors AE. The specific EFA analysis results are presented in the table below:

Table 1. Analysis results (N = 308)

Items	Variables						
	AE	IN	EB	BC	HC	SN	HK
Attitude towards healthy eating (Alpha = 0,818)							
AE2 - Eating healthily is good	0,861						
AE1 - Eating healthily is beneficial	0,844						
AE3 - Eating healthily is worthy	0,774						
HF2 - I choose food according to taste preference	0,531						
Intention to eat healthily (Alpha = 0,826)							
IN2 - I intend to eat healthily in near future		0,916					
IN3 - I will try to eat healthily in a period of time		0,738					
IN1 - I would consider eating healthily		0,626					

Items	Variables						
	AE	IN	EB	BC	HC	SN	HK
IN4 - I am definitely going to eat healthily		0,612					
Eating habits (Alpha = 0,783)							
EB2 - How often do you eat processed food per month?			0,787				
EB3 - How often do you eat fast food per month?			0,755				
EB4 - How often do you eat out per month?			0,674				
EB1 - How often do you take snacks apart from regular meals per month?			0,622				
Perceived behavioral control (Alpha = 0,813)							
BC1 - . I have resources, time and chances to buy healthy food				0,856			
BC3 - I am confident that if I want, I can buy healthy food.				0,718			
BC2 - To buy or not to buy healthy food is entirely up to me				0,638			
Health consciousness (Alpha = 0,777)							
HC2 - I often dwell on my health					0,761		
HC3 - I choose food carefully to ensure good health					0,740		
HC4 - I think that I take health into account a lot in my life					0,687		
Subjective norm (Alpha = 0,776)							
SN4 - The newspapers and magazines that I read suggest that I should eat healthy						0,874	
SN3 - The TV programs that I watch suggest that I should eat healthy						0,805	
SN2 - The information on Internet that I read suggest that I should eat healthy						0,516	
Healthy food knowledge (Alpha = 0,702)							
HK2 - I am knowledgeable about the impact of unhealthy foods							0,802
HK1 - I am familiar with healthy foods							0,675

Source: Research data 2021

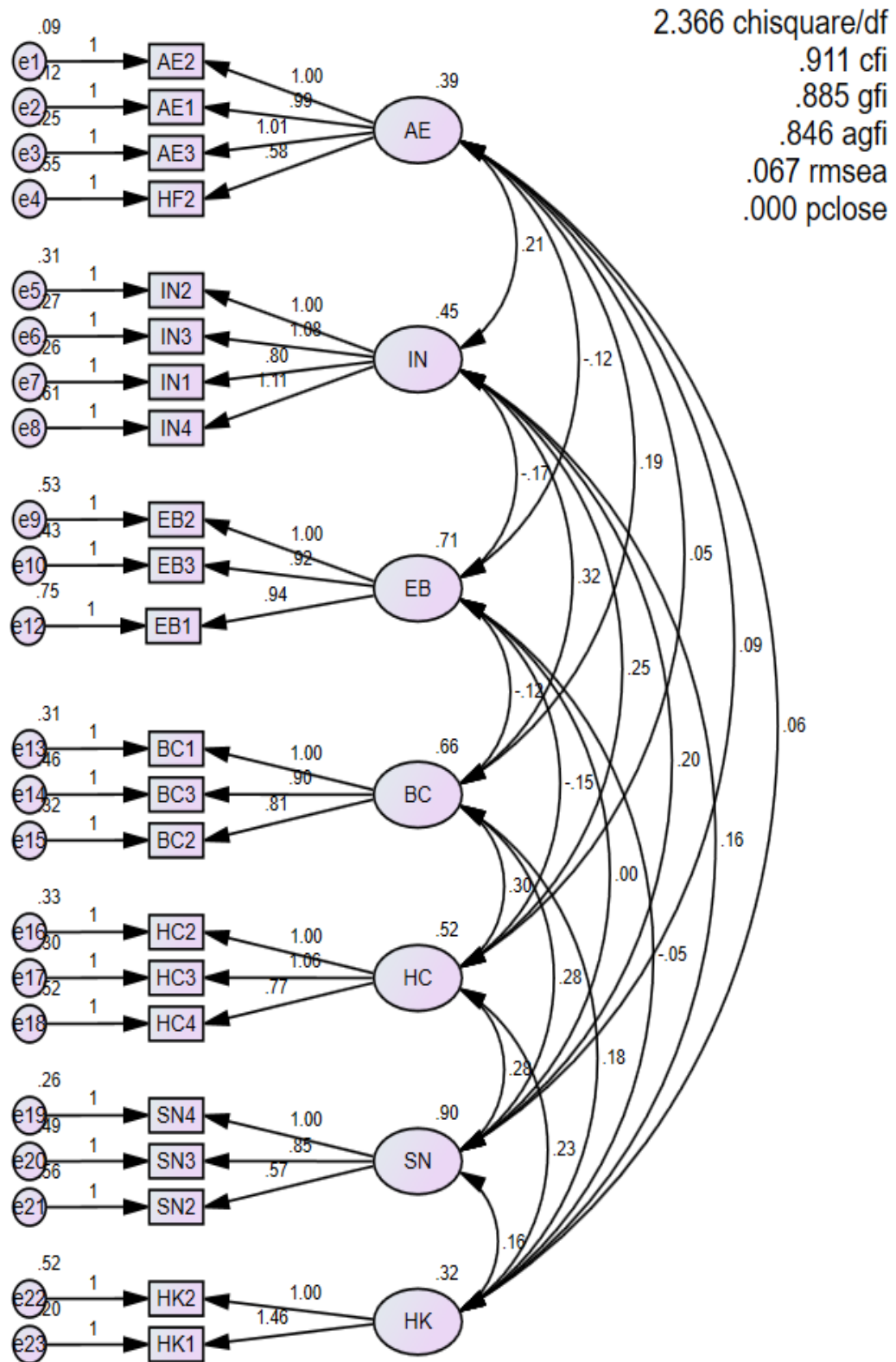


Figure 2. Confirmatory Factor Analysis (CFA)

The results of the analysis when compared with the conditions of the confirmatory factor test (CFA) show that the study's model is suitable for analysis.

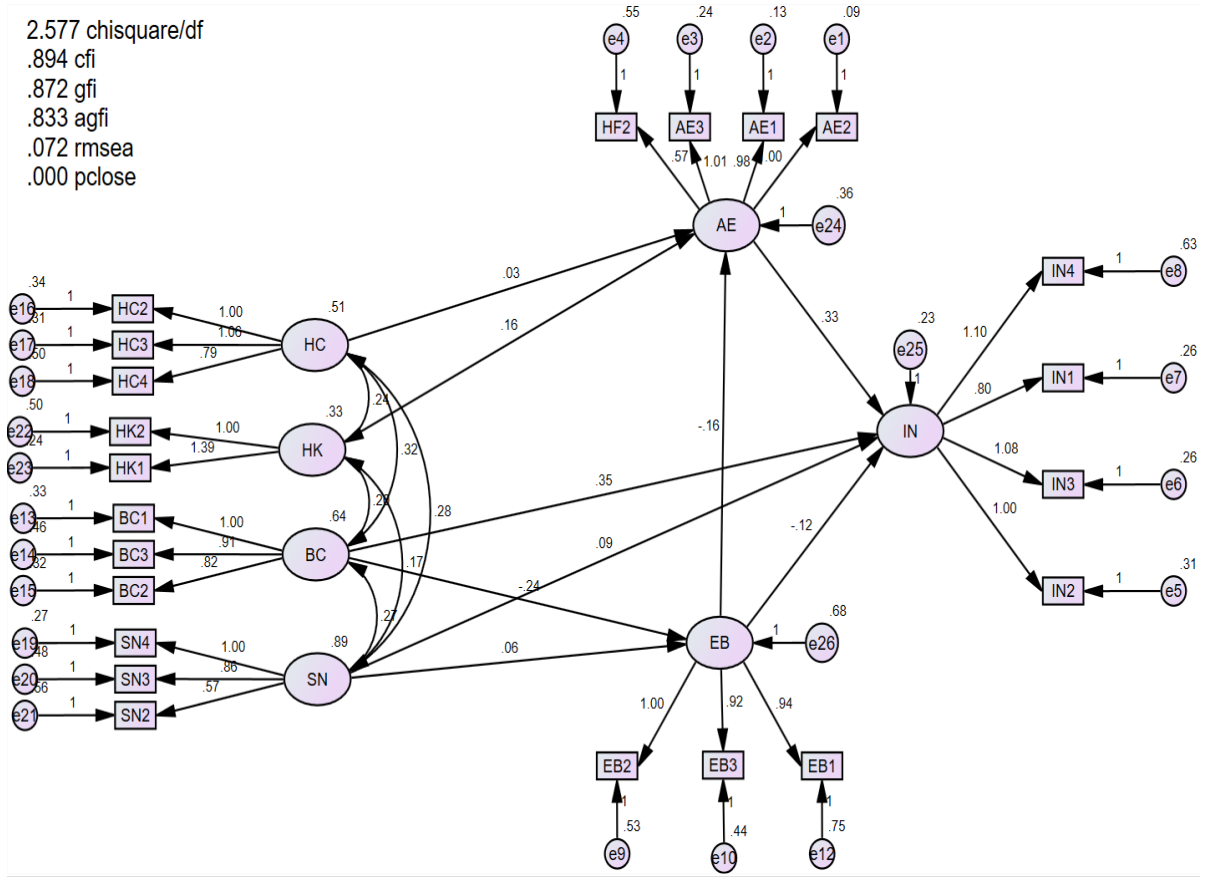


Figure 3. Structural Equation Model

Source: Research data 2021

The results of the analysis of the linear structural model (SEM) when compared with the conditions show that the study's model is suitable for analysis.

Factor affecting the intention toward healthy eating of young people in Hanoi

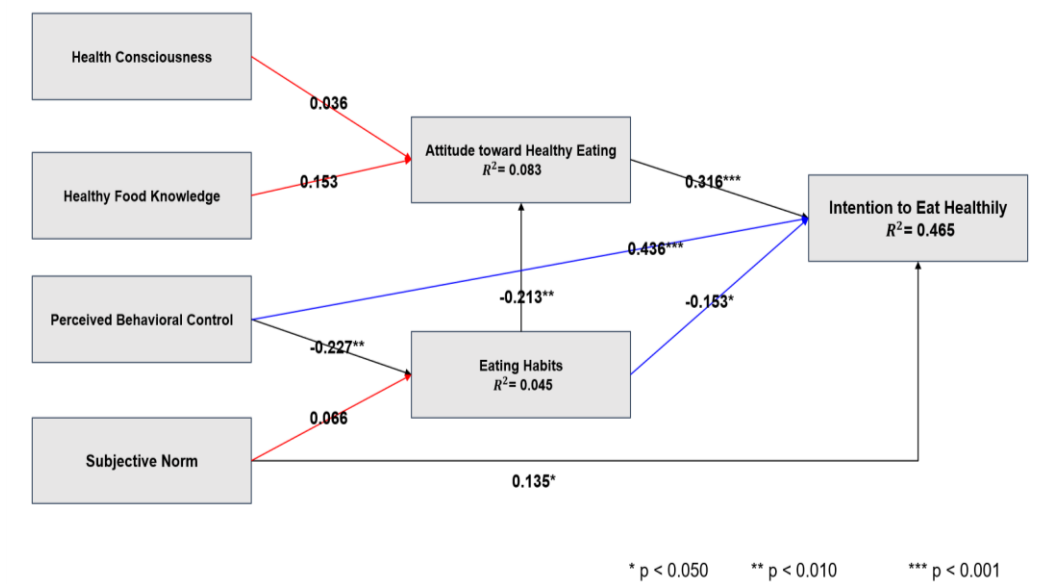


Figure 4. Impact model of factors on intention to eat healthily

Source: Research data 2021

After testing the data with the structural linear model - SEM, the research team used the analysis of variance (ANOVA) for the modified variables to test the mean difference in the intention to eat healthily for groups of the moderator variables. After conducting the Levene test, the results show that the modified variables groups of age, occupation, and income all have Sig. values greater than 0.05, showing that the variance of the groups of values are homogeneous, for the gender variable and education, Sig. values respectively are 0.040 and 0.024, less than 0.05, indicating that the variance of the groups of values are not uniform. After conducting the analysis of variance of the moderating variables age, occupation, income Sig. values are all greater than 0.05, showing that there are no statistically significant differences in the intention to eat healthy of the respondents belonging to different groups of regulatory variables by age, occupation, and income.

For two groups of variables that regulate sex, education, we conducted Welch test (Samuel et al., 2005; Andy, 2009) to determine the difference in healthy eating intentions between groups of modified variables. The test results show the Sig. values are all greater than 0.05 (0.424 for sex and 0.566 for education). This shows that there is no statistically significant difference in the intention to eat healthily of the respondents belonging to different control variable groups by gender, education.

5. Discussion and Conclusion

In terms of influencing factors, the impact model of factors on intention to eat healthily shows the direct influence of 4 groups of factors on the intention to eat healthily including subjective norm, perceived behavioral control, eating habits and attitudes toward healthy eating. This result has similarities in some influencing factors compared with some previous research papers: Subjective norm (Abdullah Al Mamun, 2020; Smith and Paladino, 2010); perceived behavioral control (Francesco Testa et al., 2018; Abdullah Al Mamun, 2020); attitudes toward healthy eating (Singh and Verma, 2017; Francesco Testa et al., 2018). The direct effect of eating habits on healthy eating intentions is new compared to previous studies which is believed to result from the difference in study location, Hanoi (Vietnam). Changing habits that have been deeply ingrained in people's lives in Vietnam, specifically Hanoi. Making people change their habits is still quite difficult due to the influence of traditions, concepts of previous generations.

In terms of scale, all 4 original scales: IN1, IN2, IN3 and IN4 are kept. In which, the scale IN2 (I intend to eat healthily in near future) is the factor that has the greatest influence on the observed variable of intention to eat healthy with a loading coefficient of 0.916; the scale IN3 (I will try to eat healthily in a period of time) is the least influential factor with a loading factor of 0.612. So it indicates that for young people in Hanoi, having an eating plan in the future is clearly a decisive factor in their intention to eat healthily.

In conclusion, the intention to eat healthily of young people in Hanoi is directly or indirectly affected by 6 factors including: health consciousness, healthy food knowledge, perceived behavioral control, subjective norm, eating habits and attitude toward healthy eating. In which, perceived behavioral control plays an important role and has a strong impact on the intention to eat healthily. At the same time, the study also found a relation

between eating habits and healthy eating intentions. The study results also showed that there was no difference between groups of demographic modifiers on intention to eat healthily.

In terms of recommendations, the government should focus on strengthening education in schools, highlighting the importance of healthy eating through information channels such as the Internet, TV, and radio. Implement strict food safety control. Food processing businesses and restaurants need to pay more attention to the healthy food segment.

Limitations: respondents may be inclined to give desirable answers to questions as healthy eating is increasingly seen as a socially desirable behavior in the epidemic situation. Because of limitations in data collection, the research sample is not representative. In addition, due to the Covid-19 pandemic, the survey was totally conducted online.

Further studies should build a larger sample of observations to ensure representativeness. Future research should also focus more on how young people manage their time and what interventions would be most effective.

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AN ANALYSIS OF FACTORS AFFECTING CONSUMER'S INTENTION TO USE O2O COMMERCE: A CASE STUDY OF SUPERMARKETS IN HANOI

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Abstract

The article aims to find out the intention to use O2O purchase form of Hanoi consumers through model analysis of influencing factors. This study clarifies and broadens the scope of influencing factors in the context of modern shopping channels in Hanoi, which has not been done by previous studies. The article uses in-depth interviews to build and complete the research model. Preliminary quantitative research was conducted through a pilot survey with 44 consumers to standardize questionnaires, formal quantitative research with a sample of 389 observations. Collected data and hypotheses were tested using SPSS 26.0 and AMOS 24.0 software. The article shows that consumers' intention to use O2O purchasing pattern at supermarkets in Hanoi is influenced by 6 factors, including: physical experience, perceived risk, perceived usefulness, perceived ease of use, perceived value, and attitude to use. In which, physical experience plays an important role, strongly influencing consumers' decision to participate in the O2O commerce process. Because of the research approach chosen, the observed behaviors can be influenced by culture, customs, and economics. Therefore, future studies can further exploit these factors. The study includes implications for retailers: should create opportunities for consumers to experience the goods and services provided at physical stores; Ensure consistency between the products described online and in the physical store; Optimize entire supply chain through applying automation technologies.

Keywords: *Supermarkets, O2O commerce, Physical experience, Intention to use.*

1. Introduction

With the rapid development of the Internet in the 4.0 technology era, together with the impact of the covid-19 pandemic, consumers' buying behaviors have changed a lot. Currently, offline shopping activities are gradually being transferred to the online environment through online purchasing apps on technology device platforms. However,

many consumers still affirm that the offline shopping experience at stores and supermarkets is still something that e-commerce platforms cannot replace. Therefore, the online to offline (O2O) purchase method has appeared in recent years with the desire to combine the advantages of both online shopping and offline transactions. The form of O2O purchase has been put into operation in Vietnamese supermarkets but has not received a high response and acceptance from Vietnamese consumers. The authors have carried out research in Hanoi, where there is a dense population, large shopping demand and high internet usage, with the research objectives as:

- Identify, analyze and evaluate the factors affecting the consumer's intention to use O2O purchasing method in supermarkets in Hanoi, through studying the models of previous related studies.

- Thereby making suggestions and recommendations for retail businesses to develop/enhance new forms of shopping.

2. Literature Review and Theoretical Foundation

The theory of reasoned action (TRA) is one of the theories developed and widely applied to social psychology by Fishbein and Ajzen (1975). TRA extended the relationship between attitudes and subjective norms to behavioral intentions before an action is performed. Technology Acceptance Model (TAM) was proposed and developed by Davis (1985, 1989) to assess the acceptability of the audience for information technology. The model is applied by two classical constructs: perceived usefulness and perceived ease of use. Perceived value theory (PVT) is proposed to predict consumer purchasing decisions in the context of innovation, combining the variables of expected benefits and expected costs incurred (Wood and Scheer, 1996). Due to TAM's limitations in explaining individual cell phone use, some studies build on PVT theory to highlight the role of consumers rather than technology adopters. (Kim, Gupta and Chan, 2007; Kleijnen, Wetzels and Ruyter, 2007).

To avoid the limitations of any single theory, studies often integrate several theories into the model to explore the complexity of applying innovation more holistically. Three theories TRA, TAM and PVT were combined by Yang et al (2019) to study consumer behavior with O2O purchasing patterns. Most of the studies on O2O commerce acceptance are based on TAM and combined with some other predictors such as convenience, feasibility and subjective norm (Rob and Park, 2019); service characteristics based on location (Cho, An and Hao, 2018). Wu, Zhao, and Tzeng (2015) combined mobile anxiety and user experience assessment as moderators into TAM to investigate mobile O2O commercial adoption of customers serving offline.

Research on consumer behavior with O2O purchases has exploded in recent years. Kang and Namkung (2018), conducted a study on Korean consumers' O2O food purchasing behavior, the results shows that the majority of customers believe that if O2O food commerce is built on a useful and convenient system then it is capable enough to make a successful transaction. In addition, research indicates that consumer's trust is a key determinant for the formation of attitudes and behavioral intentions. Consumers participating in O2O food commerce feel psychologically stable and continue to trade, then intend to use the service and

make a purchase. Chiang (2018) said that consumers buying goods through the form of O2O are attracted by the store's design and service quality. Xiao et al (2017), show that consumers' use of O2O purchases in China is influenced by three factors: relationship; trust of consumers with O2O purchasing method and trust in sellers. Along with research related to consumers' behavior on O2O commerce, the study conducted in Greater Jakarta city in Indonesia, Savila et al (2019) showed that trust about products and online stores greatly influence consumer's loyalty to offline stores, especially consumers' intention to repurchase products.

3. Method

3.1. Methodology of the study

The research was carried out through 2 phases, which are: Qualitative research and quantitative research.

Qualitative Research: conducted through group discussions and interviews to build and complete the research model and scale for measuring 7 factors in the model. The research team conducted in-depth interviews with 03 groups: Group 1: Included 5 Hanoi consumers with age evenly distributed among 5 groups from under 18 years old to over 40 years old. Group 2: Included 2 cashiers working at a hypermarket and supermarket in Hanoi. Group 3: 1 lecturer working at National Economics University. The questions in the in-depth interview focused on two issues: (1) Determining the factors affecting the intention to use O2O, (2) Clarifying the specific content of the observed variable, the scale, and the words used in the questionnaire. Through group discussions and interviews, the research team summarizes the comments as follows: Change the term "Shopping experience" to "Physical experience"; PR2 from "Privacy information leaking" to "Privacy information easily exposed"; "Test the offline offerings with the online description in a real store" to "Check the offline offerings with the online description in a real store"; PEU4 from "The operation processes of O2O commerce are understandable and simple" to "The operation processes of O2O commerce are understandable and clear"; "physical effort" in PV2 to "effort" and add the term "I can" to the variable PE4.

Quantitative Research: Preliminary quantitative research was carried out through a pilot survey with 44 consumers to standardize the questionnaire and be ready for the official survey. Through the pilot survey, it showed positive feedback from the respondents, the scales have good reliability.

The formal study was carried out using a quantitative method. The scales for measuring the questionnaires are adopted from previous studies (Yang et al., 2019; Ko et al., 2017; Kim et al., 2007; Jeong and Song, 2016; Kang and Namkung, 2018; Lee, 2018) and mostly (except for the questions about demographics) were measured using a 5-point Likert scale, ranging from 1, "Extremely disagree", to 5, "Extremely agree". Data was collected through an online survey, sent to respondents via social networking platforms including Messenger, Zalo and Email. Collected data and hypotheses were tested using SPSS 26.0 and AMOS 24.0 softwares.

To generalize the result across the population, the sample size was determined based on the formula of Cochran (1963), which is:

$$n_0 = \frac{Z^2 pq}{e^2}$$

Due to the property $p + q = 1$, so $p \cdot q$ will be maximum when $p = q = 0.5$ so $p \cdot q = 0.25$. If it is assumed that the change is maximum, then p will equal to 0.5. Therefore, we calculate the sample size with a confidence level of 95% and with an error of at least $e = \pm 5\%$. At 95% confidence level, the z value is 1.96 in the table of values, then the sample we need to choose will have the minimum sample size: $N = ((1,96)^2 \cdot (0,5) \cdot (0,5) \cdot (1 - 0,5)) / (0,05)^2 = 385$

Thus, the minimum sample size of the study is 385 observations to ensure that the sample size is large enough when conducting analyzes and tests to solve the research objectives. However, the research team built an initial expected sample of 500 observations because of the fact that there were people who answered incorrectly and incompletely, leading to invalid questionnaires and forced to remove. To ensure the high reliability of the study, the research team chose a large sample so that the number of questionnaires after rejection still ensures the minimum sample size.

A total of 475 fully answered online questionnaires were collected. After checking for inappropriate answers, 86 invalid answers were removed, therefore bringing the total number of valid responses down to 389. The descriptive analysis of respondents is shown in the table below:

Table 1. Descriptions of Samples

Variables	Frequency	Percentage	Variables	Frequency	Percentage
Age			Occupations		
< 18	78	20.05	Student	78	20.05
18-24	81	20.82	Employee	186	47.81
25-29	79	20.31	Retired	16	4.11
30-40	78	20.05	Housewife	48	12.34
>40	73	18.77	Others	61	15.68
Gender			Income		
Male	161	41.39	Less than 4.5	43	11.05
Female	199	51.16	4.5 – 7.5	65	16.71
Other	29	7.46	7.5 – 15	105	26.99
Education			15 - 30	82	21.08
High school	97	24.94	>30	94	24.16
Undergraduate	192	49.36			
Graduated or upper	100	25.71			

Source: Data analysis results compiled by authors

3.2. Research Model and Hypotheses Development

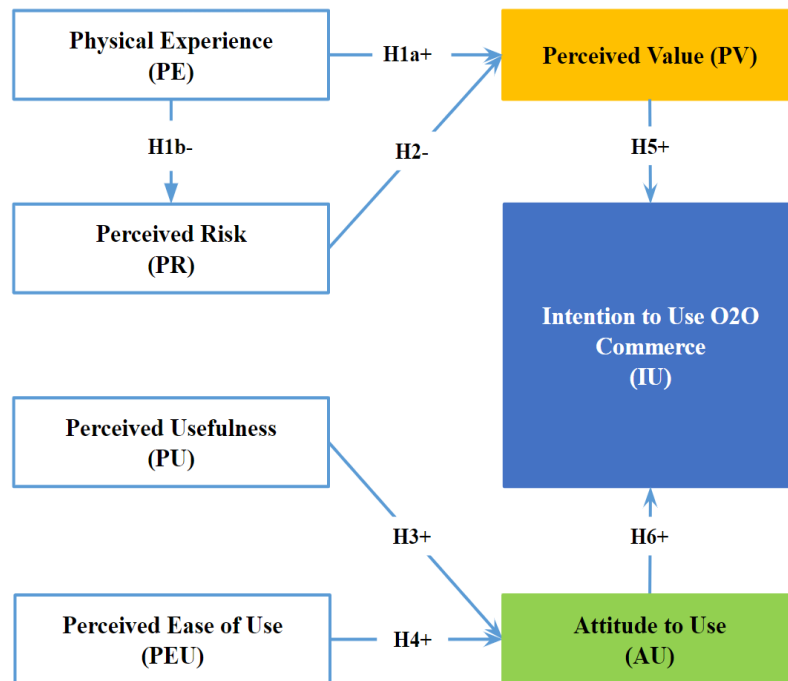


Figure 1. Research Model

Source: Authors design

Physical Experience

Pine and Gilmore (1998) introduced the concept of customer experience as one of the most important economic attributes in the consumption process. Experience refers to a memorable event created by a product or service through the individual customer's shopping process. In O2O commerce, this factor is considered to have the strongest impact on consumers' purchasing decisions (Huang et al., 2017). In 2019, research conducted by Yang et al confirmed that consumers' physical experience is an important factor affecting the decision to choose the form of O2O purchase. This factor has a significant influence on users' perceived value as well as perceived risk. In addition, the physical experience is a unique feature of O2O commerce compared to other patterns of shopping, which can create a direct interaction between the buyer and the seller, which can help create more value to consumers (Vargo and Lusch, 2004). Based on these findings above, the following hypothesis has been developed:

H1a: *Physical experience has a positive effect on the perceived value of O2O.*

A notable shortcoming of online sale platforms is that consumers do not have opportunities to experience the product directly before making a buying decision (Elven, 2019). Moreover, since the goods delivered may not be as described in the online store, it is understandable that customers may be dissatisfied or disappointed about their online purchases (Liao, 2017; Yang, Liu, Li, & Yu, 2015). However, for O2O commerce, in physical stores, consumers can feel the quality, experience the service, and confirm whether

the product meets their expectations or not. As a result, consumers' perceived risk is reduced (Yang et al., 2019; Huang et al., 2017). Therefore, we propose the following hypothesis:

H1b: *Physical experience has a negative effect on the perceived risk in O2O.*

Perceived Risk

Bauer (1960) was the first to introduce the concept of risk perception, defined perceived risk as the combination of uncertainty and severity of relevant outcomes. Perceived risk is also defined by Dowling & Staelin (1994) to describe "people's perception of uncertainty and adverse consequences of purchasing or using a product (or service)". In O2O commerce, as mentioned in hypothesis H1b, the physical shopping experience can reduce consumers' perceived risk. However, users are still worried about the risk of personal information disclosure, privacy, payment errors or product risks. Therefore, risk perception still has an impact on users' perception of value, in other words, risk perception reduces the beneficial value that users perceive when using O2O purchase method. (Yang et al., 2016; Liu et al., 2019). Therefore, the following hypothesis is proposed:

H2: *Perceived risk has a negative effect on the perceived value of O2O.*

Perceived Usefulness

According to Davis et al (1992), perceived usefulness refers to the consumer's perception of the outcome of the experience. In 1993, Davis defined perceived usefulness as an individual's perception that using new technology will enhance or improve their performance at work. Thus, it can be seen that users tend to accept new technologies when they find them useful. In particular, the influence of perceived usefulness on the attitude to use was first tested in the TAM model (Davis, 1989). In 2006, when studying the role of technology in explaining the influence of visual interaction technology on consumers, Lee et al. Confirmed that new technology will be considered useful in online shopping and it has a direct impact on consumers' attitudes towards purchasing decisions, usefulness is increased when sellers provide specific and rich information about the product (e.g., quality, price,...). In 2015, Wu et al. Determined the influence of perceived usefulness on the attitude of using O2O mobile commerce with the coefficient $\beta = 0.290$, $p < 0.001$. Studies conducted by Letchumanan and Muniandy (2013), Elkaseh et al. (2016), Ko et al. (2017), Yang et al (2019), Chung and Nam (2020) also confirm that perceived usefulness has a positive effect on the attitude to usage intention of consumers to O2O commerce. Based on the findings above, this article suggests:

H3: *Perceived usefulness has a positive effect on the attitude toward using O2O.*

Perceived Ease of Use

Rogers (1962) stated that perceived ease of use is a term that describes the extent to which an innovation is perceived as not difficult to understand, learn or operate. Similarly, when explaining that users' use of the system is influenced by the intention to use the system, Davis (1989) defines perceived ease of use as the degree to which potential users expect that the Using a particular system will require no physical and mental effort. With the perceived ease of use factor, many researchers have shown a positive influence of perceived ease of use on the attitude towards using O2O (Lee et al., 2006; Letchumanan and Muniandy, 2006).

2013; Ko et al., 2017; Riantini et al., 2018; Roh & Park, 2019). In addition to the impact on the attitude to use, perceived ease of use also shows a positive effect on the user's perceived usefulness. In the study of Yang et al (2019), this relationship is verified through quantitative research on 416 customers in China. Perceived ease of use showed a positive effect on perceived usefulness with an impact coefficient $\beta=0.118$ ($p\text{-value}<0.01$). Recently, a study by Chung & Nam (2020) on users' acceptance of O2O services also shows a positive influence of perceived ease of use on user attitudes with $\beta=0.288$ and $t\text{-value}= 3.57$. Based on the findings above, this article suggests:

H4: *Perceived ease of use has a positive effect on the attitude toward using O2O.*

Perceived Value

Kim et al (2007) defined perceived value as "Consumers' subjective evaluation of benefits and sacrifices". This study validated the strong impact of perceived value on customer's intention to use mobile Internet in Singapore with coefficient $\beta=0.539$ ($p<0.001$). In O2O commerce, many studies have shown that each value has a decisive influence on human behavior and motivates them to buy (Li et al, 2015; Hsu and Lin, 2018; Chang et al, 2018; Zhou, 2020). Chunxiang (2014) also confirmed that the development process of trade, integrated with the resources of the technology industry chain and the business model can meet the needs of consumers. According to research by Jeong and Song (2016), consumers feel that using the O2O form has many values in updating promotion information. They can use coupons easily, conveniently and have many benefits in purchasing products. This has motivated them to buy through O2O. When researching on the topic of factors affecting product repurchase intention by O2O service (2018), Che et al. Confirmed that perceived value can arouse consumers' intention to repurchase products over time with coefficient $\beta=0.43$. Based on the findings above, we propose the following hypothesis:

H5: *Perceived value has a positive effect on consumers' intention to use the O2O purchasing method.*

Attitude to Use

When building the TRA model, Fishbein and Ajzen (1975) introduced the concept of attitude as a positive or negative feeling of individuals about the system, which has a strong impact on the formation of intention to perform certain human behaviors. In O2O commerce, the attitudinal factor has a positive influence on the purchase intention of consumers (Moon and Armstrong, 2019) with the coefficient $\beta = 0.765$, $p < 0.001$. They feel satisfied when using O2O services at large shopping malls, motivating them to intend to continue the service in the future. A year earlier, Kang and Namkung (2018) also affirmed the importance of consumer attitudes towards the positive intention to use O2O food commerce. In addition, this factor has been concluded by Wu et al. (2015) about its positive impact on consumers' intention to switch purchasing methods. Based on the above, the following hypothesis has been developed:

H6: *Attitude to use has a positive effect on consumers' intention to use the O2O purchasing method.*

4. Results

Reliability Tests

The Exploratory Factor Analysis (EFA) was conducted to test the data reliability, using the Promax rotation method. Considering the KMO table and Bartlett test EFA for the first time, it shows that the factor analysis is appropriate with the KMO coefficient = 0.852 (satisfying the condition > 0.5) and Bartlett test for P-value (Sig.) = 0.000 should be statistically significant. The results of the first EFA exploratory factor analysis (PAF extraction method, Promax rotation, Criterion eigenvalue > 0.1) on 30 observed variables showed 7 different groups of factors, in which 4 observed variables, including: PEU1, IU1, PU5 and PE3 with factor loading less than 0.6. Therefore, the research team removed the above 4 observed variables. The second EFA test was conducted on 26 remaining variables with the same conditions as the first test. The results of the second KMO and Bartlett Test, the KMO coefficient is 0.854, still satisfying the conditions, suitable for factor analysis. The result showed that 26 variables were divided in 7 groups of factors with factor loading coefficients most greater than 0.6 except 2 variables PR4 and PR5, which the coefficients less than 0.6 would be removed. The third EFA test was conducted on 24 remaining variables with the same condition as the first and the second tests. The results indicated that all 24 variables have coefficients greater than 0.6 and the total variance extracted was 72.065, which explains over 72% of the real effect in real life. Specific results are indicated in the table below:

Table 2. Reliability Test Results: EFA Approach

	1st Test	2nd Test	3rd Test
KMO Coefficient	0,852	0,854	0,852
Sig.	0,000	0,000	0,000
Total Variance Extracted	65,023%	69,672%	72,065%
Number of Origin Factors	7	7	7
Number of Remaining Factors	7	7	7
Number of Origin Variables	30	26	24
Number of Remaining Variables	26	24	24

Source: Data analysis results compiled by authors

Confirmatory Factor Analysis – CFA

Conducting confirmatory factor analysis – CFA and comparing the model fit indicators obtained with the conditions provided by Hu & Bentler (1999), indicates the following results: The Chi-square test index $CMIN/df = 1.477 < 3$ means that it is at a good level, the GFI index = $0.931 > 0.9$, the CFI index = $0.982 > 0.95$ is at a very good level, the index is very good. $RMSEA = 0.035 < 0.08$ and $PCLOSE = 1.000 > 0.05$ are at a good level. Carrying out testing of convergence, discriminant and reliability shows that: the composite reliability indexes (CR) are all greater than 0.7, reliability is guaranteed; The AVE is all greater

than 0.5, convergence is guaranteed; The MSV is all smaller than AVE, the SQRTAVE values are larger than all the factor structure correlations, the discriminant is guaranteed.

Table 3. Results of Reliability and Validity Test of Research Model

	CR	AVE	MSV	MaxR(H)	AU	PU	PV	PE	PR	PEU	IU
AU	0.937	0.748	0.199	0.939	0.865						
PU	0.886	0.660	0.040	0.886	0.200***	0.812					
PV	0.878	0.643	0.199	0.879	0.446***	0.076	0.802				
PE	0.923	0.800	0.171	0.925	0.286***	0.087	0.413***	0.895			
PR	0.890	0.729	0.162	0.891	-0.136*	-0.018	-0.402***	-0.253***	0.854		
PEU	0.854	0.661	0.108	0.854	0.329***	0.076	0.158**	0.132*	-0.097†	0.813	
IU	0.874	0.777	0.119	0.890	0.345***	0.049	0.329***	0.159**	-0.246***	0.093	0.881

Source: Data analysis results compiled by authors

Structural Model Test – SEM

The results of the analysis when compared with the conditions of confirmatory factor test (CFA) show that the research model is suitable for analysis. As follows: with a CMIN/df = 1.484 < 3, the Chi-square test index is acceptable; The GFI index = 0.928 > 0.9 is at a good level. Besides, the CFI index = 0.981 > 0.950 is at a very good level. RMSEA index = 0.035 < 0.08, therefore qualifies. Finally, the PCLOSE index = 1.000 > 0.05, which is at a good level. The above results are suitable to use for testing the research hypothesis. The model used in this study is shown below:

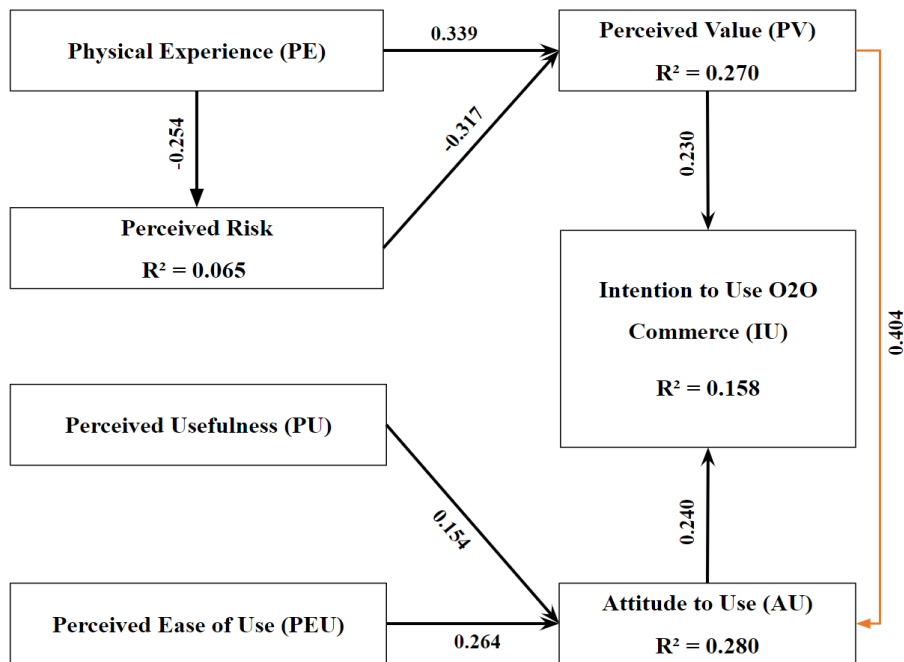


Figure 2. Theoretical Model Analysis: SEM Approach

Source: Data analysis results compiled by authors

Hypothesis Testing

The results of hypothesis testing in the research model show that, compared with initial expectations, hypothesis H1a shows the opposite effect, physical experience has a positive effect on perceived risk with the coefficient $\beta = 0.263$ (p-value < 0.001). Besides, there is a newly discovered relationship, perceived value shows a positive impact on attitude toward using O2O. The remaining hypotheses are accepted. As follows:

Table 4. Hypothesis Test Results and Coefficients of Impacts

	β	Standard Error	P	Hypotheses
PE → PV	0.339	0.047	***	H1a: Accepted
PE → PR	-0.254	0.052	***	H1b: Accepted
PR → PV	-0.317	0.051	***	H2: Accepted
PU → AU	0.154	0.054	***	H3: Accepted
PEU → AU	0.264	0.063	***	H4: Accepted
PV → IU	0.230	0.065	0.003	H5: Accepted
AU → IU	0.240	0.054	***	H6: Accepted
PV → AU	0.404	0.061	***	New effect

Note: *** indicates $p < 0.001$ significance level

Source: Data analysis results compiled by authors

Hypothesis H1a: Physical experience has a positive effect on consumers' perceived value ($\beta = 0.339$, p-value < 0.001), this result is consistent with the initial expectation. One of the weaknesses of online shopping is that consumers do not have the opportunity to experience the product before placing an order (Elven, 2019). Therefore, experiencing the actual product at the supermarket helps to increase the perception of value for consumers, in other words, they feel that buying in the form of O2O brings more value to them when they experience the product offline. Thus, it can be seen that the physical experience is an advantage of O2O commerce compared to other electronic commerce patterns.

Hypothesis H1b: Physical experience has a positive effect on perceived risk ($\beta = -0.254$, p-value < 0.001), which is consistent with the initial expectations and many previous studies. It can be seen that consumers' anxiety about products when shopping in the form of O2O at supermarkets can be reduced significantly if they have the opportunity to experience the products directly. Many products at supermarkets such as vegetables, fresh foods or seafood have great risks in terms of quality, size and color if users buy in the form of O2O because they are not sure about the products, whether the product they choose is correctly packaged and delivered or not. Experiencing the products directly at physical stores can eliminate the level of risk perception for customers. Therefore, improving service quality and ensuring accuracy in packaging and shipping are important factors in reducing the perceived risks of consumers.

Hypothesis H2: Perceived risk has shown a negative impact on perceived value ($\beta = -0.317$, p-value < 0.001), this result is consistent with initial expectations. Consumers'

perceived risk when using O2O purchasing patterns drastically reduces their perceived value. They still worry about the risk of personal information disclosure, privacy, payment errors or product risks. Therefore, perceived risk reduces the beneficial value that users perceive when using O2O purchasing patterns.

Hypothesis H3, H4: Among the effects on attitude to use, perceived ease of use shows the strongest impact with $\beta = 0.264$, $p\text{-value} < 0.001$. When consumers feel that O2O is easy to use and the operations are simple, they will tend to use more and have a more positive attitude towards O2O commerce. Perceived usefulness also shows a positive impact on consumer's attitudes ($\beta = 0.154$, $p\text{-value} < 0.001$). Buying goods by using O2O pattern brings consumers a lot of benefits, which help increase their positive attitude towards using this form of purchasing.

Hypothesis H5, H6: Both perceived value and attitudes to use show a positive impact on the intention to use O2O purchasing pattern with the coefficients of 0.230 and 0.240, respectively. This result is in line with initial expectations and is consistent with the results of many previous studies (Chung & Nam, 2020; Yang et al., 2019; Ko et al., 2017). Consumers tend to use the O2O purchasing method when they clearly see the benefits and value that this form of buying brings to them.

New effects: Besides the impact of perceived usefulness and perceived ease of use, consumer's attitude to use is also strongly affected by perceived value ($\beta = 0.404$, $p\text{-value} < 0.001$), which is a new finding of the study compared with the original expectations and hypotheses. Perceived value shows a positive impact on the attitude to use, which is reasonable and logical with consumer psychology. As they get more value from their O2O purchases compared to their costs and efforts, positive attitudes towards O2O purchases will increase (Yang et al., 2019).

5. Discussion and Conclusion

This study explores consumer's intention to use O2O commerce at supermarkets based on theory of reasoned action, perceived value theory and the technology acceptance model. Besides, it examines the role of the unique features of O2O commerce in consumer's behavioral intentions.

By integrating technological and economical attributes into the research model to explain users' behavior, we found that consumers' intention to use O2O at supermarkets in Hanoi is directly or indirectly affected by 6 factors, including: physical experience, perceived risk, perceived usefulness, perceived ease of use, perceived value, and attitude to use. In which, physical experience is found to be a crucial factor and plays an important and essential role that strongly influences the consumer's decision to participate in the process of O2O commerce. At supermarkets, consumers have the opportunity to experience the service and directly feel the quality of the product, thereby increasing the value and benefits of purchasing. Physical experience is also considered as a unique feature, which differentiates O2O from other pure forms of e-commerce. In this study, the results show that the level of consumer's risk perception will be reduced when they have chances to experience the products in physical stores, which requires retail businesses to come up with strategies to help reduce risks for consumers.

Recommendations

In O2O commerce, retail businesses and merchants are encouraged to create opportunities for consumers to experience the goods and services provided at physical stores. This is also an opportunity to help businesses make first impressions on their customers. For tangible products, O2O retailers can provide pre-sales services such as trial, consulting and after-sales services such as technology support, maintenance, delivery, distribution, and easy-return. In addition, the services or goods which consumers experience in real stores should be in line with their online specification. In other words, retailers need to ensure consistency between the products and services described online and in the physical store, which greatly reduces information asymmetry in O2O commerce. In terms of technology, businesses need to build a solid online platform and update marketing trends regularly to drive consumers to buy at physical stores. At the supermarket, retailers should introduce and promote new technology and automation, such as the application of artificial intelligence technology to create new experiences for users, thereby promoting customers' intention to use O2O purchasing patterns.

Limitations and Future Research Directions

Although our research has discovered factors that affect consumer's intention to use O2O commerce in supermarkets, we only used the data from Hanoi consumers, then observed behaviors can be influenced by culture, customs, and economy. Besides, since the Covid-19 pandemic, this study had to conduct a survey entirely on the Internet. This limitation possibly has minimized our sampling technique and sample size to ensure the generalizability of the results. Future research can expand the sample size and apply more data collecting methods, which includes both online and offline methods.

Based on our findings, future research may additionally investigate the effects of physical experience on merchant's operation and performance. Although physical experience is validated as a compelling predictor of O2O consumer behavior, its effects may vary within the different phases involved in purchasing activities. According to Yang et al (2019), how physical experience exerts influence within the different stages of future O2O commerce might be another future direction. Therefore, physical experience may play different roles in consumer behavior, which is additionally another future research topic for tangible goods and intangible services. Because there are many characteristics of O2O purchasing pattern, investigating the effects of other unique characteristics, such as Integration of Online and Offline Information (Yang et al, 2019), on consumer's intention to use this purchasing method can also be another future research topic.

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THE RELATIONSHIP BETWEEN LEARNING CULTURE AND INNOVATION IN VIETNAMESE ENTERPRISES: THE MEDIATING ROLE OF TRUST

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Abstract

As the importance of learning culture, innovation and trust is rising these days, this study seeks to provide empirical evidence of relationships among these three variables at the firm level in Vietnamese context. It aims to hypothesize a mediational model implying that organizational trust is related to the relationship between learning culture and innovation. The data were collected using online and offline survey from a cross-section of industries. A total of 170 surveys were carried out among Vietnamese companies. Hypotheses were tested using mediation analysis with multiple regression and bootstrap method. The results indicate that: trust partially mediates the relationship between learning culture and innovation. One of the limitations is cross-sectional data were collected only in Vietnam, so that it would be highly valuable to consider replicating this study in different settings using longitudinal designs and explore the effects of each dimensions in each variable. For practical implications, the findings accentuate to managers that Trust require Learning culture, which taken together result in innovations. Besides, this paper is the first attempt to find empirical support for the role of Learning culture in trust creation. Further, analyzing how organizational trust, learning culture and innovation are related to each other is also an important contribution.

Keywords: *Learning culture, Organizational trust, Trust, Innovation*

1. Introduction

Technological disruption and VUCA conditions fueled by the ongoing pandemic and evolving organizational architectures are just a few of the major challenges businesses face

today. As a leader, the main role is to equip the workforce with the capabilities needed to stay competitive amidst these changes. In other words, managers must build a transformation-ready organization. Being transformation-ready does not mean adopting the latest technology or rewriting the mission statement to keep up with current trends. Instead, it is about developing a learning culture that positions the entire organization to adapt to the inevitable unknowns the future will bring. In an extended discussion between Gary Hamel and Lowell Bryan, facilitated by Barsh (2008) (see also Barsh et al., 2008), the point is made that in order to transform outmoded competitive orientations and adopt new strategies based, in particular, on innovation, organizational leaders need to become much more concerned with the encouragement of organizational learning and the facilitation of greater autonomy for knowledge workers, than with control.

Unless the firm is willing to take on this risk, its innovation investment will bring only incremental results. Nonetheless taking the risk of innovation is not an irrational decision, but is based on the rationale of trust. It has to be made clear that an innovative organization has to create a trusting environment within the company, in order to foster collaboration, the generation of new ideas, creativity, and finally innovation. Fukuyama (1995) asserts that trust in organizations and communities is determined by culture, and organizational trust is one of the results of learning organizational culture. In the knowledge economy, trust has an important influence on the culture of sharing knowledge (Bakker et al., 2006) because an employee needs trust to respond to and exchange knowledge (Gruenfeld et al., 1996). Trust is needed to encourage the development and application of knowledge in organizations and build a learning culture.

Recently, economists have increasingly paid attention to the role trust plays in economic activity. From economic growth (Knack and Keefer, 1997) to the size of firms (Bloom et al., 2009), from financial development (Guiso et al., 2008) to international trade and investments (Guiso et al., 2009), many economic phenomena have been related to the level of trust. The concept of trust has been used in relationship with learning culture and innovation. Nevertheless, none of them mention its mediating role. This paper will fill the research gap by examining the mediating role of trust in cultural learning and innovation relationship.

2. Literature Review

Trust

The literature on trust depicts an understanding of trust from three perspectives namely; trust as a personality trait (Gabarro, 1978), trust as a behavioral intention (Rousseau et al., 1998), and trust as characteristic based (Butler, 1991). The early definition of trust (Deutsch, 1958) highlighted trust as a decision based on an expectation of a positive motivational consequence if a person is trusted as against a negative consequence if the person is not trusted. Rotter (1967) explains trust as a personality trait that accounts for people high on the trait are more likely to trust other individuals than people low on the trait. This personality-based factor of trust was later labeled as propensity to trust by Mayer et al. (1995). Propensity to trust is the same as trust as a personality trait and has been defined by Mayer et al. (1995) as “a stable individual difference that affects the likelihood that a person will trust”. Mayer et al. (1995) have

highlighted the importance of propensity to trust in a situation when the characteristics of the trustee (the person to be trusted) are unknown. However, the personality-based definition of trust was insufficient to explain why people trusted another.

For the purpose of our study, we will adopt Mayer et al. (1995) definition of trust which is as follows “the willingness of a party to be vulnerable to the actions of another party, based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party”. We adopt this definition of trust mainly because the objective of our study is not to focus on the individual determinant of trust or on interpersonal trust in social relationships but to understand the role of trust in an organizational perspective or what is called, organizational trust, and factors in the organization that enhance trust.

Innovation

Innovation is often characterized as a kind of “capital” for the organization and has been broadly defined as “an idea, a product, or process, system or device that is perceived to be new to an individual, a group of people or firms, and industrial sector or a society as a whole” (Rogers, 1995, p. 276). Organizations strongly oriented toward innovation develop innovative products and services thereby increasing firms’ innovative capabilities and offerings in the market (Heimonen, 2012; Rosenbusch et al., 2011). Firms may go for process, technology, product, and market innovations in order to create new opportunities (Wiklund and Shepherd, 2005), which require innovative capability (Tidd et al., 1997). Moreover, innovation firms can better facilitate entry into new arenas as well as renew their position in the current situation (Cho and Pucik, 2005). Thus, innovation becomes an essential tool for firms’ long-term success and survival (Deshpande et al., 1993). Innovation is a ‘multi-stage process whereby organizations transform ideas into new/improved products, services, or processes to advance, compete and differentiate themselves successfully in their marketplace’ (Baregheg et al., 2009).

Learning culture

The concept of learning culture is a combination of organizational learning and organizational culture. Nowakowski and Conlon (2005) state that organizational learning cultures are organizational phenomena that support the acquisition of information, the sharing of knowledge acquisition, and the consolidation and support of continuous learning and application to organizational improvement. Organizational learning culture can be defined as a set of norms and values about an organization's operations (Schein, 1985) that support in-depth, systematic approaches to the level of achievement of higher levels of learning and organizational research (Witrock, 1992). In the study by Garvin et al., 2008, a learning culture that emphasizes values, beliefs, and assumptions toward creating a collective learning process within an organization.

Trust – Innovation – Learning culture relationship

Developments in the organizational sciences have highlighted the crucial role of trust-based relationships in sustaining individual and organizational effectiveness (McAllister, 1995).

According to Alsharo et al. (2017), trust among individuals plays a crucial role in building and maintaining social relationships and promoting cooperative relationships and effective teamwork. Indeed, trust plays a crucial role in social relations it improves the quality of information exchanges, supports core capacity building, promotes mutual learning, and creates motivation for innovation (Murphy, 2002). Trust creates openness and sincerity in the interpersonal relationships which will foster a collaborative atmosphere and learning culture for flourishing the creativity and innovation capabilities (Barczak et al., 2010).

Individuals will not be able to share and manage knowledge effectively if they do not trust their colleagues. In contrast, they will have greater motivation to actively participate in the knowledge-sharing process and share more useful knowledge with others (Holste and Fields, 2010). In the same vein, Rutten et al. (2016) suggested that trust is the driving force of learning culture. It may seriously hinder the sharing of key information and knowledge, even damaging the effectiveness of business processes if employees lack trust in each other. Jain et al. (2015) believed that a higher level of trust among individuals creates a greater intention to willingly engage in learning. Trust contributes to the willingness to share knowledge and the successful implementation of the knowledge management processes (Koohang et al., 2017). Meanwhile, a learning culture encourages employees and organizations to develop knowledge and competence and that systems influence each other to trust their colleagues (Tala A., 2015).

An organizational learning culture becomes important in the consideration of innovation to the extent that the culture enables an organization to anticipate and adapt to the dynamics of a changing environment. For example, Bass and Avolio (1990) emphasize the value of innovative and adaptive cultures in their distinction between transformational and transactional cultures. The former support change and innovation while the latter tend toward the maintenance of the status quo. Both innovation and organizational learning are seen as emphasizing the free exchange of information and ideas in ways that facilitate learning and its application. Both focus heavily on the role of culture as a facilitator of creativity. The common threads that emerge from this and other literature underscore the importance of culture in promoting and supporting inquiry, risk-taking, and experimentation. In the same vein, Tidd et al. (2020) just argue that culture is the composition of what people believe and how they behave and, if appropriate, it activates and reinforces innovative behavior. On the basis of theory and previous empirical studies, the team expects that through a learning-oriented organizational culture framework, organizational and interpersonal trust can be strengthened so that innovative ideas in the business. The following hypotheses are suggested:

H1: Learning culture is positively related to innovation

H2: Learning culture is positively related to trust

H3: Trust mediates the relationship between the learning culture and innovation in Vietnamese enterprises.

3. Method

3.1. Sample and data collection

In this paper, data were collected from employees working at companies in Hanoi and Ho Chi Minh City with the convenience sampling method, with a maximum number of 3 - 5 employees per enterprise. The time of sampling is between September 1, 2021, and January 20, 2022.

The sample was conducted by the method of direct questionnaire distribution and distributed the questionnaire online via the online questionnaire on Google Form. After conducting a survey, data were filtered by eliminating the invalid reports that may affect research results.

Table 1. Demographic profile of sample

Demographic variables	Frequency	%
<i>Gender</i>		
Male	82	48.2
Female	88	51.8
<i>Education</i>		
High school	2	1.2
Graduates	155	91.2
Postgraduate	13	7.6
<i>Work seniority</i>		
Under 5 years	143	84.1
5 - 10 years	12	7.1
11 - 20 years	13	7.6
Over 20 years	2	1.2
<i>Work position</i>		
Staff	124	72.9
Team leader	27	15.9
Manager	18	10.6
Senior manager	1	0.6

Source: Data analysis results of the research team

Questionnaires were sent to employees with positions from staff to senior manager and education from High school to Postgraduate. The number of respondents is 350 and after eliminating the invalid, 170 responses are qualified to process.

Table 1 shows the characteristics of the sample, it shows that there are 88 employees taking the questionnaires is female, accounting for 51.8%. As can be seen from the table, most of the respondents' educational levels are graduate. The majority of the participants were under 5 years of work experience (84.1%). The results of descriptive analysis showed that 72.9% of the respondents are staff.

3.2. Measurement development

5-point Likert scale was utilized in the present study. The scale items were taken from English literature. Therefore, language validity was checked. The items were translated into Vietnamese via the back-to-translation method (Brislin, 1976).

The three trust variables, including organizational trust, affective trust, and cognitive trust, were measured using scales developed by Nyhan and Malowe (1997) and McAllister (1995). The scale includes 13 items. Learning culture was measured using the scale developed by Yang et al. (2004) and Garvin et al. (2008) with 5 items. Innovation was measured by a scale developed by López et al. (2004) and Jiménez-Jiménez, Sanz-Valle (2011). The scale is composed of 2 dimensions and 14 items.

These items were scaled by the Likert scale, from 1 – strongly disagree to 5 – strongly agree.

3.3. Data analysis

In this present paper, simple linear regression is used to test the relationship between the variables and bootstrapping is conducted to examine the mediating role of trust. Bootstrapping is a technique that involves repeated sampling from a sample data set and estimating the indirect effect in each resampled data set. By repeating this process, the distribution of the product $a*b$ is formed and creates a confidence interval of the indirect effects relationship (Preacher and Hayes, 2004).

Many studies have demonstrated that Bootstrapping is better than the Sobel Test and other techniques when it comes to evaluating intermediate relationships (Williams & MacKinnon, 2008; Zhao, Lynch & Chen, 2010). While Sobel Test requires a large sample size and normally distributed data, Bootstrapping overcomes these limitations (Hayes, 2009). Therefore, currently, the technique of handling intermediate variables with Bootstrap is more commonly used than Sobel Test.

4. Results

4.1. The Reliability and Validity Testing of Measurements

Cronbach's Alpha test showed that all variables have the corrected item-total correlation greater than 0.3 and Cronbach's Alpha coefficient greater than 0.8. Reliability testing results show that all measures and variables are qualified. The detailed results are as follows:

Table 2. Reliability Statistics of Variables in The Research Model

Variables	Sub-variables	Code	Cronbach's Alpha
Trust	Organizational Trust	ORGTRUST	0.842
	Affective Trust	AFFTRUST	0.897
	Cognitive Trust	COGTRUST	0.874
Learning Culture		LEARCULT	0.930
Innovation	Exploratory Innovation	EXPLORINN	0.938
	Exploitative Innovation	EXPLOIINN	0.959

Source: Data analysis results of the research team

The exploratory factor analysis method (EFA) was applied to test the validity of the measurements.

The analysis results by EFA indicated that trust, learning culture, and innovation scale are appropriate for the research data. Kaiser-Meyer-Olkin (KMO) coefficient is greater than 0.5, Bartlett's test has sig < 0.05, the factor loadings of observed items are all greater than 0.5, Total Variance Explained (TVE) is greater than 50%.

4.2. Results

To examine the impact of Learning Culture on Trust and Innovation, simple linear regression was conducted. The regression results are shown in the table below:

Table 3. Regression Analysis Between Trust, Learning Culture and Innovation

Variable	Model 1	Model 2
	Beta (β)	Beta (β)
Independent Variable		
Learning Culture	0.748***	0.665***
Adjusted R Square	0.583	0.653
F	237.490***	318.751***
Dependent Variable	Innovation	Trust
*: **, ***: Correlation is significant at the 0,5; 0,01; 0.001 level (2-tailed).		

Source: Data analysis results of the research team

The regression results show that learning culture has a positive impact on innovation (Adjusted R Square = 0.583, F = 237.490, sig<0.001). Learning culture explains 58.3% of innovation volatility in Vietnamese enterprises. Similarly, learning culture explains 65.3% of trust volatility in Vietnamese enterprises (Adjusted R Square = 0.653, F = 318.751, sig<0.001). Therefore, hypotheses 1 and 2 are accepted.

To examine the mediating role of Trust in the relationship between Learning Culture and Innovation, Process macro version 4.0 in SPSS developed by Hayes (2022) was used to analyze the mediating variable of the research model. Model 4 was chosen to analyze the direct impact of Learning Culture (MLEARCUL) on Innovation (MINNO) and the mediating role of Trust (MTRUST) with 95% confidence interval. Besides, the data is processed by the Bootstrap method with a sample number of 50000. The research results are as follows:

Table 4. Coefficients for Mediating Effect

Antecedent	Consequent											
	M (MTRUST)					Y (MINNO)						
	Unstandardized Coefficient		Bootstrapping			Unstandardized Coefficient		Bootstrapping				
	Coeff.	SE	Sig	LLCI	ULCI	Coeff.	SE	Sig	LLCI	ULCI		
X (MLEARCUL)	a	0.665	0.037	0.000	0.591	0.738	c'	0.448	0.078	0.000	0.295	0.602
M (MTRUST)							b	0.451	0.095	0.000	0.264	0.638
Constant	i _M	1.163	0.156	0.000	0.855	1.470	i _Y	0.214	0.221	0.333	-0.221	0.649
R ² = 0.6549						R ² = 0.6352						
F (1,168) = 318.751, p = 0.000						F (2,167) = 145.414, p = 0.000						
MTRUST = 1.163 + 0.665. MLEARCUL + e _M						MINNO = 0.214 + 0.448. MLEARCUL + 0.451. MTRUST + e _Y (4)						
(3)						(4)						

Source: Data analysis results of the research team

According to the regression results, model 3 is appropriate for analysis ($F = 318.751$; $R^2 = 0.655$; $p < 0.001$). Considering the results of linear regression analysis with the significance level of 5, it can be seen that Learning Culture (MLEARCUL) has a positive impact on Trust (MTRUST) and this effect is statistically significant ($\beta = 0.635$, $p < 0.001$). Similarly, model 4 was appropriate for analysis ($F = 145.414$; $R^2 = 0.635$; $p < 0.001$). The results show that Learning Culture (MLEARCUL) and Trust (MTRUST) have a positive impact on Innovation (MINNO) ($\beta = 0.448$; 0.451 , $p < 0.001$).

Table 5. Summary of Direct and Indirect Effects Between Variables

	Effect	SE	P	LLCI	ULCI
Total effect of MLEARCUL on MINNO	0.748	0.048	0.000	0.652	0.844
Direct effect of MLEARCUL on MINNO	0.448	0.778	0.000	0.295	0.602
Indirect effect through MTRUST	Effect	BootSE		BootLLCI	BootULCI
	0.300	0.085		0.138	0.473

Source: Data analysis results of the research team

In terms of direct and indirect effects through intermediate variables, BootLLCI (Lower-Level Confidence Interval) = 0.295 and BootULCI (Upper-Level Confidence Interval) = 0.602 does not contain the value 0. Similar to the indirect effect through the intermediate variable MTRUST when the confidence interval is [0.138;0.473] also does not contain the value 0.

From the above analysis, it can be concluded that Trust plays a partial mediator in the relationship between Learning Culture and Innovation. Therefore, hypothesis 3 is supported.

5. Discussion and Conclusion

5.1. Discussion

The present study has achieved its initial goal that is examining the relationship between Trust, Learning Culture and Innovation in the context of Vietnamese enterprises. The results of correlation and regression analysis supported and clarified that relationship.

Firstly, based on the theoretical background that has been synthesized and the results of model analysis, it shows that Trust, Learning Culture and Innovation are interrelated. In which, Trust plays a partial mediator in the relationship between Learning Culture and Innovation, the hypothesis that the study raises is supported.

In the knowledge base that we have synthesized, previous studies have shown a positive relationship between two out of three variables: Trust, Learning Culture and Innovation. With Trust acting as a partial mediator between Learning Culture and Innovation, the obtained results somewhat clarify the relationship between the three variables and complement previous studies. More specifically, the results of the above study have similar findings to the study of Lei et al (2019), the authors have shown that knowledge sharing plays a mediating role in the relationship between trust and confidence, interpersonal and organizational innovation. Therefore, with the motivating role of Trust, Learning Culture will

have a stronger impact on Innovation. This shows that, when employees have trust in the organization, they tend to learn more, thereby stimulating and developing innovation.

Secondly, due to the above findings, we make some recommendations for managers and organizations/enterprises in Vietnam. For managers, as a person who directly works and guide employees, it is necessary to improve employees' trust in the organization. Specifically, managers can communicate more with employees, then learn and assess the trust level of employees in the organization and the manager himself. Thereby, in case the level of trust is low or does not manifest specifically, managers can take appropriate measures to increase trust. When trust is strengthened, it would promote learning within the organization, which in turn increases innovation. In addition to fostering trust, an organization can enhance learning and establish a learning culture through activities such as periodic knowledge checks and organization-wide knowledge exchanges, rewards for individuals who have achievements in learning and contribute useful ideas for innovation, etc.

The research also has a number of limitations leading us to possible further studies. At first, the most significant limitation is associated with its data collection from Vietnamese enterprises only which makes it difficult to conclude the relations. The second limitation is causality cannot be established because all constructs were measured at a certain point in time. Third, the study focused only on the whole variable and did not explore the effects of each dimension in each variable.

With these above limitations, there are several areas for possible future research. The result of this study suggests future replications and extensions in different countries circumscribe the generalizability and applicability of the findings reported here. Finally, further study should investigate the influence of each dimension of the variable to get more specific results.

5.2. Conclusion

This study has examined the relationship between Trust, Learning Culture and Innovation for the first time in Vietnam. The results uncover that Trust plays a partial mediator in the relationship between Learning Culture and Innovation. These results help to increase understanding of organizational learning theory, especially how Learning Culture and Trust affect Innovation in organizations. The implications of the study outcomes for both managers and researchers are also mentioned in the paper.

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CHALLENGES FACING QUALITY APPLICATION IN HIGHER EDUCATION INSTITUTIONS IN VIETNAM

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Abstract

This paper aims to review the main challenges which are facing quality application in higher education institutions and universities in Vietnam. These challenges became as obstacles, in ensuring the quality of the output of the educational process, to achieve the objectives of sustainable development, and meet the needs and requirements of labor market, locally and internationally. Therefore, the paper has stated the constraints and challenges in these institutions and provided some suggestions to deal with them.

Keywords: *Education; Higher education; Quality; Vietnamese universities; Quality challenges.*

1. Introduction

There is a quick quantitative and qualitative development going on, in the field of higher education. The numbers of higher education institutions are increasing, including various programs and specialties, with developed techniques and educational patterns. Knowledge is growing necessary in life and essential for the progress of contemporary societies. It is considered as an economical free standing. So, there is a great need for developing knowledge and working hard to make good spending on it. Despite the current situation of knowledge society and the great development happening around, and its impact on higher education especially with regard to consolidate the concepts of competitiveness in the open market. And the phenomenon of standards for the quality of institutions and programmes not only at national level but also at the regional and global.

The lack of attention to the quality of programmes and institutions at the national level may lead to the failure of these institutions by civilization and progress, which in turn leads to perish completely and replaced by cross-border education institutions. This will necessitate the need to reformulate the curricula, teaching methods, the quality of management and financing. Also, to revitalize the role of the state in the provision of these services and work for appropriate change to suit the global context and its requirements. The fact is that the graduates from higher education institutions are not competing for jobs with

local Vietnamese market specifications, but with world markets (MOET, 2015). This requires a radical change in the content of curricula, teaching methods, and training in higher education institutions to ensure high quality and characteristic of the teaching programs, according to international standards. Which may lead to output that can meet the requirements of sustainable development.

2. Method

The process of measuring the quality of higher education institutions can be carried out through several actions, beginning with a study of self-assessment in accordance with the adopted quality assurance standards. Then setting up a committee of experts whose task is to study the self-evaluation of educational institution. This is considered as a main step in measuring quality been achieved in the educational institution. The committee of experts will ensure that the educational institution provides proofs, evidence, and all the necessary information for issuing judgments on the degree of achievement of the institution's quality assurance standards. Through descriptive gradients with several levels of performance, on the subject of item so gradually. These levels have been reached, depending on dimensions of the design, implementation and effectiveness of the item of interest and the degree of its indicators on the enterprise position in term of evaluation and attention (Paunder, 2006). Accurate estimates of the degree of availability of items of quality assurance standards can be provided according to these narrative gradients. And each item will have its own degrees. At the end of this step the form of recording the scores deserved by the enterprise to the various items of quality assurance standards should be filled. After that each degree of these scores should be put independently on a graphic page (profile), showing the degrees of the quality been achieved by the Enterprise. And then write the final report and submit it to the authority or related entity. After getting the estimates obtained by the enterprise on the items included in the quality assurance standards, extract the degree that is deserved by the enterprise about every quality assurance standard, that is through finding the sum of the scores been obtained by the enterprise on each item of that standard. These estimates are used to determine the quality grade achieved and interpreted according to each item of quality assurance standards and each criterion, in addition to the possibility of translating these estimates in the form of graphs illustrating quality achieved by the enterprise. Thus, one can find out the weaknesses and strengths in the degrees of quality standards been achieved and the appropriate decisions, to determine the degree of its quality and building plans for quality assurance and improvement.

3. Results

3.1. Quality and higher education

Quality has received considerable attention in most countries of the world as one of the fundamental pillars of education systems that must keep pace with global changes and adaptation. It is also considered as the starting point of human resources scientifically qualified to participate in the development of different dimensions, and confront the negative impact caused by the engines of change down to practical solutions that will benefit the communities. In order to achieve this, the quality assurance process should work to apply

advanced methods so as to improve the higher education, activation of existing practices with its development, and achieve the highest possible level at the output of higher education institutions to satisfy the local, regional, and global needs (Paunder, 2006). The application of the quality assurance standards can help in achieving the following benefits:

a) The continuous development of the educational institution message and its objectives

The application of quality assurance standards causes the higher education institutions to review their messages and objectives which will enable them keep pace with the rapid changes in the globalization and the knowledge economies and meet the requirements of comprehensive development. Particularly that the quality assurance standards are not a specific ceiling but are constantly evolving, which makes educational institutions pursue this development and seeks to achieve all its levels.

b) Optimal investment of financial and human resources

The higher education institutions suffer from wasting of manpower. And the financial resources are either incapable of achieving the requirements and implementing the programmes or they are drained in areas not serving the educational process directly. Therefore, the applications of quality assurance standards are considered as best method for using the human and financial resources optimally.

c) Achieve community involvement of higher education institutions

The message of institutions is not only concerned with educational goals, but goes beyond that to include the broader surroundings. Which is called the community and humanitarian role. Thus, the quality of education will influence directly through its outputs (students). These students are considered as inputs for other operations and roles such as scientific researches, practical advices, help decision-makers, contributing to propose solutions to social problems, economic, political, environmental, technological, industrial and others. This would limit the effects of global change engines.

d) Develop skills in higher education

The quality assurance standards required of workers in educational institutions: High levels of professionalism, continuous training, better use of modern technology, and provision of leadership skills, reflected on the performance and work productivity and contribute to development in various dimensions.

3.2. Challenges facing the quality in higher education institutions

There are many challenges facing the quality in higher education institutions in Vietnam, these challenges can be grouped as follows:

a) Massive expansion in higher education

There is a huge and significant expansion in universities in Vietnam and an increasing number of students enrolled. In addition to the approach of the private sector investment and its involvement in higher education, and the emergence of new patterns of education, such as open learning and distance education. The educational institutions have been over the past few years relying on sufficient quantity of outputs without much interest in the adequacy of quality, which plunged the Vietnamese labour market with large numbers

of output that have caused an imbalance in the balance of supply and demand for labour (MOET, 2015). The steady growth in student numbers in higher education institutions has not been accompanied by a parallel growth in buildings and equipment, devices and techniques, as well as the preparation and qualifications of faculty members and also in student services, which entail adverse consequences in terms of the quality of graduates.

b) Weak demand for technical education

Vietnamese labor market faces a clear inflation in the numbers of university graduates from different programs, significant shortages of professionals and technicians which led to the emergence of social and economic problems. The educational decision makers should reconsider the admission policies so that there will be a wider share in technical education.

c) The output of higher education not adapting the labour market needs

There is no harmony between national needs and requirements for licensing academic programmes. The absence of correlation between academic and practical learning outcomes skills. And the lack of institutional coordination methodology between the output of higher education and the requirements of the local and regional market.

d) The curriculums

The current curriculums have the lack of courses that help develop intellectual skills, such as analytical thinking, communication, leadership, and institutional initiatives, therefore, there should be a modernization by providing curriculum that stimulates the mind and illuminate the leading thinking and stimulate creativity.

e) Financial challenges

This aspect can be summarized with the following dimensions:

- Low budgets of universities and low spending on tertiary education and the difficulty of securing adequate and stable funding sources to maintain the educational level.
- Lack of financing the activities that aim to develop a comprehensive strategic plan for higher education outputs which prompted universities to rely on their own limited resources and so dented its output.

Table 1. Major reasons of challenges facing the quality in higher education institutions

Admission policies	<ul style="list-style-type: none"> - Weak alignment between student performance in high school and their choice of specialization, where the rate of high school is the only factor taken into consideration for admission to academic programs, thereby restricting institutions in providing inputs to the programs, regardless of quality achieved. - Ignoring the quality factor in admission policies in universities, private colleges and admission programs. - Customizing special admission policies for some social groups has led to a lack of uniformity in the criteria for admission.
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Teaching staff members	<ul style="list-style-type: none"> - Difficulties to provide faculty members with specialties and expertise. - The absence of a clear policy of human resources capacity-building, such as training of faculty members, support for new members, and the lack of transparent and fair assessment system. - Brain drain, as are many minds working in Vietnamese universities working in neighboring States with higher salaries and incentives.
Scientific research	<ul style="list-style-type: none"> - Focusing on theoretical research rather than focusing on applied research which investigating the payoff. - Weak spending on scientific research. - Most researches that provided by faculty members at universities were with the aim to upgrade and not with the aim to offer a research product that can be applied and provide a practical benefit. - The actual research activity of faculty member at universities does not exceed (5%) of his/or her academic duties, because of the weight of the teaching burden. - The absence of clear regulations and stimulating career scholar dedicated to research and development, may cause many researchers prefer to stay in universities, or go to other occupations for earning a higher return, or joining a convoy brain drain abroad. - Weak collaboration between the sectors of agriculture, industry and higher education institutions that might contribute to putting unrealistic researches which do not include value for the development of the national economy.
Management Challenges in management	<ul style="list-style-type: none"> - The lack of harmony between the style of university management and the requirements of the development of modern higher education institutions, and the lack of strategic planning. - Low balancing scholarship. - Increased competition due to the entry of foreign universities and colleges on the local and regional levels. - Complicated procedures faced by foreign students - The weak guidance and counseling for students in universities and colleges. Fifth: Perception of quality importance It is as follows: - Lack of vision, mission and clear objectives to direct the work of Vietnamese higher education institutions. And to translate into strategic plans, academic approaches and syllabus contributing to desired learning outcomes for each specialty area. - Failure to allocate sufficient budgets for investment in the field of quality assurance. - No development of quality assurance systems at universities and colleges. - The absence of a classification system for universities and academic programs. - Some private higher education institutions increase attention towards profitability, while the norm is the discrepancy between quality standards and maximum profit.

Source: Author's summarization

3.3. Mechanisms and working methods for the proposed solution

- Institutional and community awareness of the importance of quality in the field of higher education.
- For the State to attract private investment and to encourage them to invest in the field of quality.
- Commitment to strategic planning method which focuses on the development of future concepts, to prepare for anticipated problems and develop capacity to address and find solutions to them. And predict the effects of the resulting repercussions with attention to the effective implementation of the strategic plans, and follow-up its implementation and progress.
- The National Council (upper council) should exercise its oversight role and to follow the work of the self-evaluation units and centers, quality assurance and accreditation of universities while providing incentives for public and private institutions that are committed to quality assurance standards recognized internationally and disseminating national experiences in the area of quality assurance to all higher education institutions.
- To activate the mechanisms of student participation in assessment of academic programs and the application of quality systems at universities and take their opinions seriously, the literature of accreditation indicates that the views and perspectives of students is considered as one of the sources of evidence that the provisions are issued on its basis.
- Activation and application of decisions and regulations concerning the selection and appointment of faculty members and university staff with strict standards of efficiency and excellence in the selection processes without taking into account any other effects.
- Formation of quality committees in all departments and develop guidelines and follow up work periodically.
- Keeping up with the rapid changes in techniques and methods of teaching and the development of knowledge and skills with attention to quality in submission.
- Raise the level of scientific research and the development of knowledge outside the framework of the promotion of science.

4. Conclusion

The higher education quality assurance has an effective role in sustainability and meeting the global challenges by providing communities with efficient outputs that can meet the needs and requirements of the labor market, which requires clear mechanisms to link the change occurring in the fallout of the higher education sector in line with the requirements of the knowledge society (Mukhopachyay, 2010). The process of development and quality assurance in higher education institutions in our country will only be achieved with the availability of supportive infrastructure for change and development of qualified human resources, material, technical infrastructures, and renewable resources for education and learning that commensurate with the capacity of these institutions. The success in achieving the objectives of the upgraded performance and quality assurance is dependent on the presence of active units for self-evaluation by institutions of higher education. All educational institutions and its components should have a sincere desire to work and implement the standards that can represent a permanent strategy.

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PROMOTING CULTURAL VALUES OF RELIGIONS WITH SUSTAINABLE DEVELOPMENT OF THE COUNTRY IN THE CURRENT PERIOD

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Abstract

Religion in Vietnam is not only an element of culture but also an important resource contributing to the development of the country. In particular, exploiting the cultural values of religions with the sustainable development of the country in the current period is of great importance. The article focuses on clearly identifying the roles and cultural values of religions; current status of promoting cultural values of religions. On that basis, the author proposes some solutions to effectively promote the cultural values of religions in our country in the coming time.

Keywords: *Cultural values; religion; role.*

1. Introduction

Religion is an important part of Vietnamese culture contributing to Vietnam's cultural identity. Religion not only contributes to satisfy the spiritual, spiritual, belief and religious life of the majority of people and society, but also to develop the country. This is a view that has been acknowledged and confirmed by the Party. Vietnam has many religions, with 43 organizations belonging to 16 religions recognized or registered by the state. Among them, there are religions that were introduced to Vietnam for hundreds of years and blended with the nation, and endogenous religions imbued with regional cultural imprints. Therefore, culture, religious ethics also have a long history, not only directly affecting a part of the people but also contributing to the process of building morality and culture in Vietnam. Resolution No. 24-NQ/TW dated October 16, 1990 of the Politburo on strengthening religious work in the new situation confirmed the suitability of religious morality to the construction of a new society; Directive No. 37-CT/TW of July 2, 1998 affirmed the need to promote the moral and cultural values of religions; The Resolution of the 5th Party Central Committee, term VIII on building and developing an advanced Vietnamese culture imbued

with national identity, continues to affirm the viewpoint of respecting and promoting cultural and ethical values of beliefs and religions. Religion "encourages ideas, justice, charity, and goodwill... in religion, and at the same time propagates and educates to overcome superstition, to oppose the abuse of religion and belief to carry out political intentions bad treatment"²¹⁶. Most recently, the Document of the 12th National Party Congress of the Party once again affirms that "Promote good cultural and moral values and resources of religions for the country's development"²¹⁷. It can be affirmed that our Party has recognized and appreciated the great contributions and resources of religion in country's development.

Besides, in order to successfully implement the national construction and development in the new situation, the Party directs to mobilize all resources. Religion is culture; Religion is a resource, so the resources of religions are also "cultural resources". The 13th Party Congress also affirmed: "Increasing the investment, exploitation and maximum promotion of cultural resources" (Communist Party of Vietnam, 2021a, page 146). The systematic approach to those viewpoints shows that our Party recognizes clearly the important role of religion more clearly - religion (organizations, dignitaries, followers, facilities, religious activities) religion...) has been gradually becoming one of the important constituents of the overall resources for national construction and development, including the development of spiritual tourism.

Although religious culture has contributed to the development of the country, in reality, the contribution of religious culture depends a lot on specific policies, mechanisms and regulations. Therefore, it can be said that at present, we have not fully promoted the role and values of religious culture for the development of the country, which makes us waste valuable "resources". On the other hand, to be able to promote the role of culture in general and culture of religions in particular, we need to build a healthy culture, prevent and remove negative aspects, limitations, even the counterculture that is taking place like the spirit of the Resolution of the 5th Plenum of the Party Central Committee (8th tenure). The issues and contents are mentioned in this essay with the desire to bring a more thorough awareness of the cultures of religions, values, roles and contributions to the development of the country. We point out the limitations, inadequacies and problems facing the current religious culture. Because of the broad topic, the article only focuses on presenting the heritage value of religious cultures.

2. Method

The content of the article uses the following specific research methods:

- Method of data research: The authors have researched and collected documents and articles related to the content of the article.

- Method of analysis and synthesis: On the basis of documents, texts and articles on current culture, beliefs and religions, the authors have summarized the theory and practice to supplement and complete the article.

²¹⁶ Communist Party of Vietnam: Document of the Fifth Conference of the Central Committee, term VIII, Publishing House. National politics, Hanoi, 1998, pp.66-67.

²¹⁷ Communist Party of Vietnam: Document of the 13th National Congress of Deputies, Publishing House. National politics, Hanoi, 2021, t.I, p.171.

- Method of summarizing practice: Assessing and summarizing practice to clarify the achieved results, limitations and point out the causes. At the same time, make forecasts and suggestions to help promote efficiency in the coming time.

- Expert method: Discuss with leaders, officials directly doing religious work, who know the situation, understand the fact that this is a real person, true to the actual content of the article. write.

3. Results

3.1. Cultural values of religions in the development of different fields

Firstly, the cultural values of religions are hidden in architectural works

Talking about the culture of religions, we often refer to two basic aspects: tangible culture and intangible culture. In terms of tangible culture, religion has created many works that are national and world cultural heritages. Since its formation, introduction and development in Vietnam, religious architectures have always been an important criterion to evaluate the growth of a religion. Today, when society is increasingly changing, developing strongly and rising up in the era of the industrial revolution, religious architecture has many continuous changes, but still carries specific cultural values. Cultural values represent the philosophy of the world, the religious outlook on life. These works have existed for hundreds, even thousands of years, spread across localities and regions in the country. For example, relics of One Pillar Pagoda, Tran Quoc Pagoda, Perfume Pagoda, Thay Pagoda, Quan Thanh Temple, Kim Lien Temple, Phu Tay Ho, Phat Tich Pagoda, Dau Pagoda, Vinh Nghiem Pagoda, Hung Temple Relics (Phu Tho).), Phat Diem stone church, Thien Mu pagoda, Hon Chen temple (Hue), Di Da Thap pagoda (Binh Dinh), Chuc Thanh pagoda (Quang Nam), Indochina Buddhist academy relic (Quang Nam), the area My Son relic, Hanoi Cathedral, Sapa stone church, La Vang church (Quang Tri), Notre-Dame Cathedral Basilica of Saigon, Temple of Ba Chua Xu Nui Sam, Cao Dai Temple in Tay Ninh, Mosque of Islam Mubarak (An Giang), Cham temples in the central provinces²¹⁸, etc. Currently, in Vietnam, there are about 30,000 places of worship of different religions, and thousands of belief establishments across the country²¹⁹.

It is worth noting that religious monuments not only exist independently but also create a cultural space, a cultural complex as extensive as the Yen Tu landscape relic complex (including Quang Ninh, Hai Duong, Bac Giang). This kind of relic complex bears the strongest religious beliefs and contains many historical and cultural values of the nation. This complex also attracts a large number of visitors and tourists.

Not just famous monuments, religion also created and left many valuable relics such as inscriptions, ancient statues, bells, ancient days, woodblocks, horizontal paintings, couplets, reliefs, carved plaques, valuable ancient works and scriptures... For example, Thanh Mai stele (Thanh Mai temple), Sung Thien Dien Linh stele, Buddha statue of Phat

²¹⁸ Po Klaong Garai Tower, Ponagar Tower, Banh It Tower, Hoa Lai Tower, etc..

²¹⁹ Chu Van Tuan, Nguyen Thanh Trung: "Building tourism products associated with exploiting religious and belief heritage in the context of industry 4.0 in Vietnam today", Vietnam Science and Technology Magazine, no. 11-2018, p.61.

Tich temple, Buddha statue of thousands Eyes of a thousand hands (But Thap pagoda), Woodblocks of Vinh Nghiem pagoda, Bo Da pagoda, Indochina Buddha statue, etc., many of these relics have become national treasures, recognized by the world as Woodblocks of Vinh pagoda Nghiem, Bo Da, which have been recognized by UNESCO as a memory heritage of mankind.

Secondly, the cultural values of religions are expressed through festivals

In addition to tangible culture, religion also contributes to the creation of intangible culture, which is moral and humanistic values, philosophies in dealing with people, nature and society, art, festivals, and religious ceremonies. It can be mentioned that many religious festivals have existed for a long time, preserved and developed from generation to generation such as Huong Pagoda festival, Yen Tu festival, Phu Day festival, Kate Festival, La Vang Festival, etc. According to statistics of the Cultural Industry, the country has about 8,000 festivals, of which 600 are religious festivals. The rest are mostly associated with beliefs.

Religious festivals themselves have created cultural values including: sacredness, community and self-governance. To form a religious festival, it is always necessary to find a certain “sacred” reason, the value of balancing the spiritual life emphasized in the festival. Through festivals, people can satisfy their needs for spiritual life. In addition, community characteristic in religious festivals is also highly appreciated. This value is reflected in the nature of all activities taking place during the process of organizing, operating and managing the festivals. Community strength associated with specific communities, whether large or small, still demonstrates the cultural strength to create great cohesion among individuals in the community. In today's society, this value has even greater significance and important status. In addition, other values of religious festivals such as self-governance, democratic spirit in creativity and cultural enjoyment are also highly promoted. Religious festivals of believers, which are acquired by believers and returned to serve the practical needs of believers' cultural and religious life. Believers self-organize, self-administer and arrange for festivals to take place smoothly, well and joyfully for many people in the community.

Thirdly, cultural values of religions are expressed through literature, music, and cuisine.

Those are literary and musical values imbued with humanity. Buddhist literature has a long history and has become familiar to the Vietnamese people. In particular, the combination of Buddhist thought with the art of language - national literature has produced a kind of literature that honors the impermanent beauty and imbued with the humane spirit of the Vietnamese nation; Catholic literary heritage includes works whose content is taken from the Bible, rituals, and deeds of saints and is composed in a poetic style (A Life of Consecration, New Earth, Companion, Journey to Heaven...); Hoa Hao Buddhist teachings are expressed mainly in the form of rhymes so that believers can easily memorize and remember, in order to cultivate themselves and study Buddhism, both with Buddhist characteristics and with folklore. Besides, the heritage of religious music in our country is very unique, in which “Buddhist music”, “Christian music”, “Cao Dai music”... contribute to enriching the national music scene.

In addition, religious cuisine is also a typical cultural feature that attracts a large number of tourists in spiritual tours. Among them, the most prominent is Buddhist cuisine. When it comes to Buddhist “food”, many people think that Buddhist cuisine is just “vegetarianism”, even just a matter of eating and drinking of “Buddhist monks”. So there is nothing special with that. In fact, Buddhist culinary culture is very meaningful, and nowadays, the culinary needs of many people are interested in each of their meals. Vegetarian dishes present in luxurious banquets of businessmen are not entirely religious and are increasingly known to international diners thanks to luxurious vegetarian buffets in the middle of Saigon (Venerable Giac Toan, 2018).

It can be said that thousands of religious relics and festivals are extremely valuable tangible and intangible cultural heritages. These heritages are clear evidences of the national culture and history reflecting the tradition of productive labor as well as the richness and diversity in the cultural and spiritual life of the people as well as the creation of many generations in history. This is an invaluable resource for us to exploit and serve the socio-economic development of the country in general, localities and regions in particular.

In short, the cultural values of religions are the synthesis, the crystallization of the tangible and intangible elements as described above, which are the product of the process of formation, development of the national history. The culture of religions contributes to the richness and diversity of the national culture. It not only satisfies the cultural life of society at each historical period, but also has many meanings for the development of the country in the current period.

3.2. Cultural values of religions with the development of the country in the current period

There was a time when the culture of religions was not considered as a contributing factor to the development, but a factor that hindered social development, or had a negative impact on social life. In this period, religions were considered superstitious; religious activities were restricted and prevented and many religious buildings were demolished. However, that has changed along with the renewal process of the country. According to our Party, culture is the spiritual foundation of society, both a goal and a driving force for socio-economic development. Without this spiritual foundation, there will be no sustainable socio-economic development. So, what does religious culture contribute to the development of social life? Does religion only contribute in the field of morality and spirituality? Does religion contribute to socio-economic development?

To be able to answer this question, we need to look at the culture of religions as a resource. To develop the country, we need a lot of resources, a total of resources such as natural resources (resources, minerals, land, sea...), human resources (labor force, intellectuals, talents...), human resources (thoughts, philosophies, experiences, ethics, solidarity, patriotism...). In other words, to develop the country, we need material resources and spiritual resources. Culture in general and the culture of religions in particular contribute not only to material resources but also to spiritual resources for social development.

Therefore, religion contributes to the creation of cultural relics, relics are national treasures, relics and scenic spots contain many historical, cultural and artistic values. .. This

is a valuable “resource” for the development of the country. Notably, this “resource” can be both conserved and exploited in a sustainable way without worrying about “running out” like natural resources. The core of sustainable development is the need to exploit more cultural, human, and human resources, rather than natural resources. The reasonable structure of sustainable development should probably be: exploitation of natural resources from 20-30%, exploitation of cultural, human and human resources: from 70-80%. If we look at this structure and ratio in Vietnam today, we can see that we are exploiting too much natural resources, but are exploiting little (or inefficiently exploiting) cultural resources, human resources.

Currently, the values of religious culture have also been initially exploited for tourism purposes. As we all know, Resolution No. 08NQ/TW of the Politburo on developing tourism into a spearhead economic sector has shown the importance of tourism in the development of the country. In recent years, spiritual tourism has become a trend that attracts a large number of domestic and foreign tourists. Famous tourist sites and festivals such as Huong Pagoda, Yen Tu, Temple of Ba Chua Xu Nui Sam, Nui Ba Den Tay Ninh, Kate Festival in Ninh Thuan, Binh Thuan, La Vang Sanctuary (Quang Tri), Di. My Son area (Quang Nam), etc., attracts millions of tourists every year. Many localities have exploited belief and religious heritages (tangible and intangible) to build attractions and tourism in order to attract domestic and foreign tourists. Many localities not only exploit and develop from existing heritages, but also build new works of belief and religion. Before the success and effectiveness of a number of spiritual tourism models, encouraged many localities to propose plans to develop this form, even had plans to invest and build spiritual tourism projects on a very large scale. A few years ago, the press reported on a number of “terrible” spiritual tourism projects such as the Perfume Pagoda Spiritual Project, the Nui Coc Lake eco-tourism area in Thai Nguyen with an expected investment capital of tens of thousands of dollars. thousand billion dong.

Localities interested in developing spiritual tourism not only because of the annual budget revenue, but also expect spiritual tourism to bring other positive impacts to the local socio-economic development. direction. Through the development of spiritual tourism, a large local workforce can get jobs by participating in many accompanying services such as goods, products for tourists, services. transportation, food service, rest and entertainment. Through tourism development, when the number of domestic and foreign tourists come to visit and tourism is large, other economic sectors of the locality are also stimulated to develop such as agriculture, handicrafts (such as the agricultural and handicraft industries). traditional crafts: bamboo and rattan knitting, weaving, ceramics, carpentry, etc.). Products of local industries have the opportunity to promote more widely, consume more, have the opportunity to sign and cooperate in production, business, and product consumption with domestic and foreign partners. Thus, if localities know how to exploit religious and belief heritages to develop tourism in a strategic way, with clear goals and towards sustainable development in the locality. can stimulate local socio-economic development very effectively. Not only tourism-related industries are newly developed, but all other industries and fields are also stimulated to develop. Through that, the local infrastructure is also built and developed, the investment opportunities of domestic and foreign enterprises for the locality are also expanded.

3.3. Problems posed to the culture of religions in the development of the country in the current period

Firstly, a part of the religious culture that shows signs of degradation

The decline of culture in general is a concern, but the culture of religions is even more worrisome because this is a sacred, precious and deep aspect of human spiritual life. Religions' cultures have degraded manifestations, which are reflected in: deviations in perception, in beliefs, excessive and blind behaviors and practices. The space of belief and religion is a place for people to awaken their conscience, repent of wrongdoing, a place to evoke the good seeds in each person, a place to spread noble human values, is a place for people to find serenity and purity in their souls... But a lot of people come here to pray for fame and fortune, for promotion, for wealth, for trading and trading. expensive, praying for others to be harmed so that they can benefit, even those who do illegal and sinful businesses also come to pray for their work luck. Many people realize that just by making a ceremony to offer the stars to release the term, they can neutralize all bad luck, there are people who believe in the “wrong home of the bondholder” and believe that just spending some money and asking a master will help them. help solve...

According to the actual survey, there are ceremonies where people burn hundreds of millions into votive coins. It is the distorted perceptions and practices of such a large number of people that have degraded religious culture. Unfortunately, this problem is “assisted” by a part of monks who lack virtue, have a pragmatic lifestyle, contrary to the spirit and principles of religions. Among the monks today, there are some who are not real monks but those who consider this a profession for a living. Therefore, they always have to rely on the ignorance of the people and believers to profit.

Secondly, the inadequacies in exploiting and promoting the values of culture, belief and religion in socio-economic development.

The culture of religions plays a significant role in socio-economic development, and many localities have also promoted this well. However, the methodical approach does not pay attention to sustainable development. To promote the culture of religions for the sustainable development of the country, we need to preserve and well preserve the culture of beliefs and religions. To promote well, we must have a scientific way of doing things, must have a sustainable purpose, cannot promote culture but turn into cultural destruction. In fact, there are many worrying issues surrounding this story.

One of the worrisome issues is that the space of belief and religion is being encroached on by “follow-up” services. Because of profits and the weak management of the government, services crowded around the space of relics, festivals, even services and products that are not suitable for the space of culture, beliefs, and religions. like selling wild game meat (like at Huong Pagoda), making the space here no different from a market. The number of visitors to the cave, the lack of strict management, the lack of tourist awareness, the lack of infrastructure, etc., have caused problems such as littering, environmental destruction, etc. ruins were destroyed, objectionable actions such as looting, fighting for fortune, activities such as divination, worshipping, and superstitious rituals also developed.

These problems have caused the space of belief and religion to become chaotic and chaotic, losing the beauty of sacred space and traditional cultural space.

In addition, for reasons of profit and only interested in profit, many localities have turned monuments as tools to make money, in other words, taking advantage of religious relics to collect money from people. They attach great importance to the issue of benefits without paying commensurate attention to the preservation and preservation of the values of culture, belief and religion. This is an issue that needs much attention from the Culture sector, and needs attention from governments at all levels in the socio-economic development of their respective localities. It is also a fact that, in some localities, the benefits from exploiting religious and religious values are falling into businesses. The State allocates land to mining enterprises to invest in the construction of infrastructure, but the budget revenue is insignificant. This is a phenomenon that needs to be fully evaluated and considered in order to avoid wasting state resources and wasting cultural resources in general, culture of religions in particular.

3.4. Solutions to promote the cultural values of religions in the sustainable development of the country in the current period

Firstly, raising awareness for Party committees and local authorities at all levels; departments, branches and unions; people about the cultural values of religions in sustainable development. The document of the 13th Congress of the Communist Party of Vietnam affirms: “Promoting good cultural and moral values and the resources of religions for the cause of national development” (Communist Party of Vietnam, 2021a, page 171). This is an important basis for deeply understanding the resources of religions in the development of the country. On that basis, party committees and local governments at all levels need to develop programs, plans and master plans. This program and plan must be based on the natural and religious characteristics of each locality and must be agreed upon by the departments and agencies together with the people in order to promote the cultural values of religions in the region. develop.

Secondly, preserving cultural values at religious institutions and festivals contributes to promoting the values of religions in sustainable development. Currently, due to the economic development of the country, the spiritual life of the people has been improved, so they have the conditions to repair and remodel architectural works, special cultural festivals of the religion. religion, contributing to honoring precious spiritual and cultural values. But for that process to be implemented effectively, the authorities need to have a clear direction so that the renovation and embellishment both retain the traditional values and bring the direction of the times. In addition, it is necessary to promote the role of religious organizations in preserving and promoting the cultural values of religion. In particular, especially the role of dignitaries and monks, it is necessary to regularly meet, contact, grasp needs and aspirations, create close, friendly and open relationships. Develop regulations on coordination between agencies, departments and branches and religious churches in the implementation of patriotic emulation movements and cultural movements, in order to promote the values of religions.

Thirdly, focus on exploiting cultural values of religions into community spiritual tourism activities, such as: Pilgrimage to spiritual places, temples, holy buildings, temples, radios, mausoleums, and mausoleums. , palace, memorial area, conducting worship activities... Activities of worshiping, praying, chanting, meditation, yoga, Dharma talk, tea meditation, consultation, Dharma talk, meditation song, relaxation meditation... ; sightseeing, sightseeing, enjoying landscape space and architectural space, sculpture associated with spiritual points; learn about culture associated with religious history and indigenous way of life, cultural heritage values associated with spiritual points; participate in traditional religious and folk festivals.

Fourthly, invest and attract investment capital for infrastructure to serve the exploitation of cultural values of religions in sustainable development of the country. Concentrating investment from the State budget in a synchronous direction, with focus and focus; prioritize investment in infrastructure development in key areas. Besides, implementing socialization and development of religious establishments with tourism elements, encouraging economic sectors to participate in investing in spiritual tourism activities in different forms.

Fifthly, promote training and human resource development, contributing to promoting the cultural values of religions. The force of spiritual tour guides is still lacking in number and weak in professional expertise. Guide human resources to understand religion; must understand deeply the meaning of each religious architecture and festival. Therefore, in the coming time, it is necessary to promote training, develop human resources, increase the effectiveness and efficiency of human resource management, renew training programs, study religious cultural characteristics, especially points, economic and social strengths, development potential.

4. Conclusion

Cultures of religions need to be realized more fully and properly so that they can promote positive values in the cause of national development. Through this article, we also hope that the manifestations of degradation in the culture of belief and religion in Vietnam today need to be fully identified and remedied. At the same time, inadequacies in promoting cultural values of religions for socio-economic development in many localities also need to be fully recognized and evaluated in order to have solutions to overcome.

Religions culture for socio-economic development in a sustainable way because this is a valuable resource of the country. In the future, it is necessary to change the rate of exploitation of natural resources to avoid the current rate of natural resource exploitation being too large. It is necessary to develop strategies, programs and plans in a scientific way to be able to promote this resource in a sustainable way. Promoting the role and values of beliefs and religions for the development of the country, in our opinion, is also preserving and preserving the values of beliefs and religions.

Promoting the role and values of culture, belief and religion for the development of the country, in our opinion, this is not only the story of the State, but also the story of localities and organizations. religion and of the whole community and society.

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CHANGE OF PRODUCTIVE FORCES IN DIGITAL ECONOMY AND RECOMMENDATIONS TO VIETNAM

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Abstract

On the basis of an overview of the digital economy, the author of this article identifies the change of the productive force factors in the digital economy in Vietnam to propose recommendations for the development of the productive forces in the context of the industrial revolution 4.0 developing rapidly and our country's deeper and broader integration into the world economy.

Keywords: *Industrial revolution 4.0, digital economy, productive forces, employees, relations of production, means of labor, Vietnam.*

1. Introduction

Karl Marx discovered the compatibility between the relations of production and the level and character of the development of productive forces – the objective and fundamental rule of movement and development of human society. It can be seen that the productive forces and the relations of production in Vietnam have all changed as a result of the implementation of the Party's Renovation (Doi Moi) Policy and Vietnam's deeper and broader integration into the world economy as well as the impact of the modern scientific and technological revolution.

In Vietnam, there have been quite a lot of studies on the productive forces or the digital economy, but there are not many studies on this topic. This article analyzes the change of factors of the productive forces in the digital economy model in Vietnam and recommends science-based solutions to boost the development of the productive forces in the coming time.

2. Method

The authors have collected the data and information on the transformation of productive forces and the digital economy in Vietnam, then have used statistical analysis methods combined with data analysis and processing to propose solutions and recommendations to develop productive forces.

3. Results

3.1. Overview of digital economy

The digital economy is a broad concept and difficult to measure. There has not been a unified and official definition of "digital economy" in the world so far. In Vietnam, at the "Vietnam Private Economic Forum 2019", digital economy is understood as all economic activities based on a digital platform, and the development of digital economy is the use of digital technology and data to create new business models. Digital economy includes all

sectors and economies (industry, agriculture, services; production, distribution, circulation of goods, transportation, logistics, finance and banking...) in which the digital technology is applied. The typical feature of digital economy is that the operation of all economic activities is mainly based on the digital technology. Economic and social activities are operated mainly on the basis of the use of information and communication technologies. Digital knowledge is the key element to conduct electronic transactions through the Internet, mobile networks and sensor networks, whose speeds and performance that are far superior to previous economies. The digital economy makes traditional production tools more powerful, promoting areas of innovation and saving the cost. The backbone of the digital economy is hyper-connectivity, which is the foundation of cooperation to create new ways for knowledge production. Information systems, especially the Internet of Things (IoT) are capable of generating powerful, high-speed direct streams of information. Information at the time of creation is more valuable than any old knowledge. Artificial intelligence (AI) and other advanced analytic technologies rapidly reduce the cost of information processing. All knowledge only has real competitive value at the moment it is created and rapidly decays into legacy knowledge. The only way to find a competitive advantage in the digital economy is to directly learn how to use available information to make decisions that are responsive to market demand. The digital economy plays an important role in all areas of economic, political and social life. It not only strongly supports economic activities of enterprises to maximize profits, but also strongly supports State management to find solutions to maximize social benefits faster and more effective. It not only helps to improve the life quality of consumers, but also to create a platform for people to access new knowledge faster, more accurately and more effectively, meeting the needs of learning and scientific research better.

Southeast Asia is the region which has the most internet users in the world. Google, Temasek and Bain & Company announced that Singapore's digital economy decreased by 24% from 12 billion USD in 2019 to 9 billion USD in 2020 while Vietnam and Indonesia have still maintained double-digit growth. Vietnam leads Southeast Asia in growth, with its digital economy expanding 16% from 12 billion USD in 2019 to 14 billion USD in 2020. The digital economy of Indonesia, the most populous country in the region, grew 11% from 40 billion USD in 2019 to 44 billion USD in 2020.

Table 1. Digital economy of several Southeast Asian countries

Unit: Billion USD (US \$-B)

	2015	2019	2020	2025
Indonexia	8	40	44	124
Malaysia	5	10.7	11.4	30
Phillippines	2	7.1	7.5	28
Singapore	7	12	9	22
Thailand	6	16	18	53
Vietnam	3	12	14	52

Source: "E-Conomy SEA 2020" Report by Google, Temasek and Bain & Company, 2020

According to the Southeast Asia’s Digital Economy 2021 Report – Roaring 20’s: The SEA Digital Decade by Google, Temasek and Bain & Company, Vietnam's digital economy was forecasted to reach 220 billion USD in gross merchandise value (GMV) by 2030, becoming the second largest one in Southeast Asia behind Indonesia. In 2021, Vietnam's digital economy was expected to grow by 31% to 21 billion USD compared to 2020 and was expected to continue to reach 57 billion USD in 2025.

Table 2. Forecast of Vietnam’s Digital Economy Growth

Unit: GMV, Billion USD

2019	2020	2021	2025
12	16	21	57

Source: "E-Conomy SEA 2021" Report by Google, Temasek and Bain & Company, 2021

3.2. The transformation of the productive force factors in the digital economy in Vietnam

Entering the twenty-first century, the productive forces of the world have moved to a new development level with the occurrence and development of the Fourth Industrial Revolution with the new digital technology as a decisive role, in which artificial intelligence (AI) and big data lead the way. The two key technologies are followed by the third evolution of the Internet, Internet of Things (IoT), Blockchain, the sharing economy, 3D and 4D printing, and cloud services. Nowadays, modern productive forces are based on new technologies, which are characterized by high productivity, high efficiency, cause less damage to the ecological environment, and consume less energy and materials for production, as well as create more the knowledge proportion in each product.

3.2.1. Employees in the digital economy

Human capital is an important source of capital in the modern productive forces. Human capital includes not only the folk knowledge accumulated by each person in their life (knacks, skills, techniques, long experience, skillful workmanship...) but also scientific knowledge also known as knowledge that can be codified, encrypted, and disseminated over computer networks. Employees are becoming the most important and decisive factor in the modern productive forces. They create modern working tools, new objects of labor, increasingly advanced means of production, and constantly improve their qualifications, skills and knowledge.

When science became a direct productive force, scientific knowledge drastically changed the level of modern productive forces. Modern productive forces not only occur in new manufacturing sectors; but also influence, renovate and renew old manufacturing sectors of the economy. The more efficient and faster the promotion and exploitation of the available knowledge and the generation of new knowledge are, the higher the economic growth is.

As the scientific knowledge is global, the modern productive forces based on scientific knowledge are also globalized. Because the strong development of the internet and science in particular, and knowledge in general are spread rapidly, almost instantaneously all over the world; the knowledge flow, the technology flow, as well as the capital flows are circulating at unprecedented speeds.

In the manufacturing process, there are not only blue-collar workers, but also an increasing number of direct production managers, engineers and technologists creating scientific and technological products. At present, it is the high development of the productive forces at the high level of intellectualization in the manufacturing process making the distance between workers and managers closer. Corresponding to different levels of production tools, the experience and skills of Vietnamese employees are also very different from manual and simple workers, mechanical workers to workers with modern machines and automation. Since then, the level of labor organization, and the level of application of science and technology to production in different manufacturing facilities are also very various.

According to the latest figures from the United Nations, the current population of Vietnam is 98,788,357 people (as of April 15, 2022). Vietnam's population currently accounts for 1.24% of the world's population. Vietnam is ranked 15th in the list of countries and territories by population. The average age in Vietnam is 33.3 years old. (<https://danso.org/viet-nam/>)

Although the proportion of trained, skilled and qualified workers has increased significantly in recent times; it is still quite low, so cannot meet the current demand of the economy. According to the assessment of the World Bank (WB) 2019, Vietnam is 11th out of 12 Asian countries in the ranking of quality of *human resources* with 3.79 points out of 10 because of the deficiency in highly qualified experts and skilled workers. Besides, the knowledge economy index (KEI) of our country is still low with only 3.51 points, ranking 106 out of 133 classified countries. Most rural workers have not received vocational training, causing low labor productivity. These issues are making huge challenges for Vietnam in the process of developing a modern productive force.

The comparison of the population pyramids in 2009 and 2019 shows that in 2019, the group aged 70-74 and above tends to increase, which confirms the trend of aging population growing rapidly in Vietnam. The change in age structure with the proportion of children under 15 years old decreasing and the proportion of people aged 60 and over increasing has made the aging index of Vietnam tend to grow rapidly in the past two decades. The aging index in 2019 is 48.8%, going up 13.3 percentage points compared to 2009 and more than twice as large as in 1999. The aging index is forecasted to continue to increase in the coming years (Nguyen Thuy Quynh, 2021).

In addition, the human resource development, especially high-quality human resources, is still limited and has not met the requirements. The proportion of untrained workers is still large, and the quality of training is low. The industry structure is not reasonable. There is also a shortage of qualified, capable and skilled workers...

3.2.2. Means of production in the digital economy

If workers are the most important factor of the productive forces, the tools of production are the most dynamic factor. The fundamental change in the tools of production contributes to the change of economic eras. Nowadays, the object of labor has also changed a lot. If in the agricultural civilization, the main object of labor is land; the labor object of the mechanical civilization is expanded. In addition to land, there are raw materials (coal, fuel, oil and gas, fossil materials, mines,...) and raw materials required for such industries as

iron, steel, yarn, textile, automobile, mechanical engineering, ... The object of labor in this modern era is mainly information.

At present, science and technology have become a direct productive force, which is the direct cause of many changes in production. It has been widely applied in production and has become an indispensable element of the production process. It has penetrated the factors of the productive forces; and has brought a qualitative change in the productive forces. Besides, it has made the main production process become a process of science and technology application, which is quite vital to many manufacturing processes.

In general, labor tools in Vietnam are various with many levels, which include manual labor, mechanization, modernization, and automation. The current levels of science and technology in our country are also very diverse and uneven. Most of its levels are low and have a slow development; however, there are also elements of modernity going ahead and taking the lead.

The real situation of applying modern science and technology achievements to the development of productive forces in Vietnam:

The survey results on processing and manufacturing enterprises in 2015 showed that about 57% of these enterprises had low technology; 31% of these enterprises had medium technology, but only 12% of these enterprises had high technology. While the regional countries had a high proportion of science and technology investment in production, Vietnam's investment level was still low. In the 2006-2016 period, the proportion of Vietnam's GDP invested in science and technology was about 0.6%. Within 10 years, this rate only increased from 0.48% to 0.51%. Therefore, after 35 years of renovation, Vietnam's industry still only stops at the processing level.

In 2021, Vietnam's expenditure on science and technology reached 7,732 billion VND, accounting for only 0.934% of the total expenditure of the Central Budget which was 827,550 billion VND (Hong Linh, 2022).

The real situation of Vietnam's infrastructure for the development of productive forces:

In recent years, the application of modern science and technology achievements in production, improvement of production tools and in expansion of the labor force and means of labor in our country have also made significant progress. Although great achievements have been made, the construction of infrastructure for manufacture in our country still reveals many weaknesses such as the significantly asynchronous and unbalanced infrastructure system across regions. The infrastructure system in big cities such as Hanoi and Ho Chi Minh City is quite modern while in rural, mountainous and island areas, it is still backward, weak, and has limited quality. Besides, there are many shortcomings in the management, exploitation and use of infrastructure services.

4. Discussion and Conclusion

Proposals and recommendations for the growth of the productive forces to develop the digital economy in Vietnam

Firstly, it is necessary to improve the quality of human resources - the most important factor of the productive forces in order to meet the requirements of industrialization and modernization of the country and international integration, with an emphasis on the rapid

development of human resources for the digital economy, especially human resources for artificial intelligence. The advantage of the "golden population" period needs to be turned into the advantage of digital capabilities in global integration and division of labor. Besides, it is important to focus on training qualified human resources of international technology. Employees must be equipped with diverse skills to easily adapt to the 4.0 era and the market needs.

Secondly, the government needs to raise the awareness and responsibility of cadres, party members and people on science and technology development, actively seizing opportunities and taking full advantage of the industry 4.0 to develop the social economics of Vietnam. The first necessary thing is to thoroughly study the contents, operation methods and impacts of the Industrial Revolution 4.0, task orientation and specific solutions in several industries, fields and localities to integrate and blend into the flow of this industrial revolution. The next things are to promote creativity in scientific and technological innovation; to develop mechanisms and policies to create a favorable environment to increase the level of operation and the number of science and technology service organizations and technology application units; and to increase the investment in building a number of research and development organizations to reach modern and advanced levels to promote the integration process. Besides, creating close links between science and technology organizations, universities and enterprises; linking scientific research, training activities with production – business is also very important.

Thirdly, the government should continue to amend, supplement and complete mechanisms, policies and laws to liberate, maximize and improve the efficiency of using existing resources, and to promote socio-economic development according to the market principle; ensuring the socialist orientation publicity and transparency in the management, exploitation and use of the country's resources. It is also essential to review and urgently reduce business conditions that are barriers to the operation of enterprises and individual business establishments. In addition, appropriate policies and solutions should be made to encourage individual business establishments to turn into enterprises; to create favorable business conditions for individual establishments to do stable, long-term business and comply with the law.

Fourthly, it is important to drastically restructure the economy in association with renovating the growth model, improving productivity, efficiency and competitiveness of the economy; to renovate the economic structure of sectors, regions and product structure in the direction of modernity, promoting comparative advantages and deeply participating in the global value chain, in which focusing on restructuring the agriculture and fishery industries in the direction of improving the quality of plant and animal products on the basis of applying modern technology, biotechnology and bringing high economic efficiency; to focus on developing the processing and manufacturing industries, especially the deep processing industry, the processing of agricultural products, the supporting industries, the production of consumer goods and export goods; to improve the quality and efficiency of service industries, to put the emphasis on the development of service industries with high labor productivity, high value-added services, and modern tourism services. Besides, it is also

necessary to concentrate resources on developing products with comparative advantage, competitiveness, high added value and consumption market.

Fifthly, it is essential to renovate the socio-economic development model from mainly relying on the exploitation of resources, investment capital and labor to the integrated and efficient usage of the economy's resources and using science and technology, innovation for sustainable development. Focusing on synchronously implementing solutions to improve labor productivity, considering this as the most important content in improving competitiveness and sustainable development of the economy is also crucial.

Sixthly, it is vital to increase the exploitation of growth opportunities through deeper economic integration, including the promotion of free trade agreements with ASEAN countries and other major partners in Asia such as Japan, Korea and China. Besides giving the opportunity of market access, the integration process also supports Vietnam's institutional reforms, putting it on the right track to create a more competitive and innovative economy. The government needs to promote enterprises to be more proactive in exploring FTAs to build innovative business plans, overcome challenges and take advantage of most of the opportunities from international economic integration. They should also focus on supporting associations and businesses to actively respond to the new wave of protectionism in major economies around the world.

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DEVELOPMENT OF LECTURER RESOURCES TO MEET THE REQUIREMENTS OF TRANSFORMING INTO INNOVATION-ORIENTED UNIVERSITY MODEL IN VIETNAM TODAY

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Abstract

It is inevitable that Vietnamese universities are to transform into an innovation oriented model in the context of increasingly drastical globalization and the Fourth Industrial Revolution. It is the lecturer resources that plays an important and decisive role in, and as a result, the development of this resource is the key step of the transforming process. The development of teaching staff work force must meet the requirements of transforming the university model towards innovation. Over the years, despite positive changes in teaching staff work force in Vietnam, there are still shortcomings, taking into account the requirements of innovation. Therefore, in order to develop the teaching staff work force on a par with the new period, it is necessary to implement synchronous solutions, of which the second solution is most important.

Keywords: *Lecturer resources, university model, innovation.*

1. Introduction

Presently, Vietnam is “strengthening the renewal of the economic growth model, strongly transforming the economy to a growth model based on productivity, scientific and technological progress, innovation, high-quality human resources, economical and efficient use of resources to improve the quality, efficiency and competitiveness of the economy. Improve the investment and business environment, promote creative start-ups, develop industries, sectors and enterprises on the basis of strong application of scientific and technological achievements, especially from the fourth industrial revolution; develop products with competitive advantages, high-tech products, high value-added products, environmental-friendly products with effective engagement in the global production network and value chain” (Vietnamese Communist Party, 2021, pp.120-121). Renovating the growth model, restructuring the economy; accelerate industrialization, modernization, and developing nations in such a rapid and sustainable manner are placing new demands for universities in Vietnam nowadays.

Education, therefore, ought to adapt to the context of socio-economic development. Accordingly, transforming into the innovation oriented university model is an inevitable trend in the context of drastical development of the Fourth Industrial Revolution that has been creating breakthroughs in many fields, brings both opportunities and challenges to every university.

The lecturer resource is decisive factor in the success of transforming into the innovation oriented university model. After all, any transformation of the universities are rooted in the teaching and research activities of the lecturers. Innovation is a core feature of lecturer resources. The development of lecturer resources to meet the requirements of transforming into an innovation-oriented university model in Vietnam today, is the key step.

2. Method

In order to conduct the study, the structural system method, the statistical method, the socio-economic analysis and synthesis method are employed based on the specific conditions of Vietnam.

3. Results

3.1. Transforming into an innovation-oriented university model is an inevitable trend to improve the quality of human resource training in Vietnam today

Innovation is a prerequisite for improving competitiveness, for survival and development. Innovation is application of new knowledge into practice to create added value, through practical activities to realize the power of knowledge and commercialize it. For this purpose, it should also be further defined that the concepts of “innovation”, “creation” and “creative innovation” are closely related, but not identical.

Innovation is to leave behind the existing way of thinking and doing, and to come up with a new way of thinking and doing in accordance with the new situation. Therefore, innovation is deemed as the trend of development. Creativity is coming up with new ideas but not necessarily bringing value. To get value, those new ideas must be applied into practice, realized and accepted by the market.

Creative innovation is the creation of new knowledge in a creative way, associated with the application of such knowledge in practice in a creative way and accepted by the market. The creation of new knowledge may not be immediately put into practice. Therefore, compared to the creative innovation, it often takes a time lag for the creation to apply creative ideas into practice. Late application will result in loss of opportunity, loss of advantages, loss of room for development, and the consequences of stagnation and lagging behind.

In the context of increasingly drastical globalization and the Fourth Industrial Revolution, universities are to innovate their models to adapt for survival and development. Transforming into an innovation-oriented university model is an inevitable trend, a vital requirement, and a prerequisite for them to catch up fast and sustainable development in the digital era.

In Vietnam, “based on capacity and requirements for socio-economic development, higher education institutions determine development goals and operation orientations as follows:

- a) Research-oriented higher education institutions;
- b) Application-oriented higher education institutions” (National Assembly of the Socialist Republic of Vietnam, 2019, p.15).

Both models have made positive contributions in training high-quality human resources serving the cause of industrialization and modernization of the country. However, in the face of the requirements to strongly shift the economy to a growth model based on

scientific, technological and innovation progress, the models of the aforementioned higher education institutions revealed many shortcomings. Therefore, education and training have not really become a key driving force for socio-economic development; higher education institutions have not commercialized knowledge; knowledge assets have not been capitalized and contributed to the increase of value in the market economy; the university autonomy mechanism has many shortcomings; the quality and effectiveness of education and training is not high; “The contents and curriculum of education and training show a huge gap between theory and practice. The link between training and scientific research, production and business and the needs of the labor market is limited” (Vietnamese Communist Party, 2021, p.82). The inadequacy of higher education shows the need to transform the university model into an innovation-oriented model.

In light of the industrial revolution 4.0 in Vietnam today, it is essential to renovate the university model to match the new economic growth model which is based on science and technology advancements, innovation, creativity and high-quality human resources. The fourth industrial revolution leads to a smart economy known as a digital economy (a digital economy operating on a digital technology platform is a specific form of a knowledge economy) and a smart higher education system. Accordingly, the university model 4.0 - an innovation-oriented university model is developed.

Higher education ought to meet the requirements of socio-economic development and it is the socio-economic development that facilitates the innovation of higher education. Reforming the growth model and restructuring the economy to ensure fast and sustainable growth is Vietnam's socio-economic development strategy at present, which is posing urgent requirements for innovation of the university model. It is a reform of the innovation-oriented university model that can “meet the new requirements of socio-economic, scientific and technological development. Adapt to the Fourth Industrial Revolution” (Vietnamese Communist Party, 2021, p.136). Not only that, reform of the innovation-oriented university model is also a solid foundation for universities to promote fundamental and comprehensive innovation and improve the quality of education and training, modernize and change the mode of education and training.

Contents of innovation-oriented university model reform in Vietnam, including: synchronously reforming goals, contents, programs, approaches and methods of education and training in the direction of modernity, international integration; synchronously reforming, improving of the effectiveness and efficiency of state management, professional management and administration, expertise in education and training, step by step effectively implementing the autonomy mechanism associated with the accountability of universities; promoting innovation, transfer, application and strongly developing science, technology and digital transformation to create breakthroughs in quality, efficiency and competitiveness; reforming and strengthening cooperation and international integration in education - training, linking international cooperation in education - training with all fields of socio-economic life. “Effectively developing and implementing a strategy for international cooperation and integration in education and training; Striving to make our country a strong

country in education and training in the region, catching up with the advanced level of the world, participating in the international human resource training market” (Vietnamese Communist Party, 2021, p.140).

In the context of increasingly extensive globalization and international integration; the industrial revolution 4.0, especially the strong development of digital technology, Vietnam's higher education, in that context, only by reforming the universities' model in innovation-oriented direction will support for the adaptation to social requirements and make a positive contribution to: improve innovative and creative competency, modern management; promote the transfer, application and development of science and technology in line with the general trend of the world and the conditions of Vietnam; improve the quality of human resources, develop an innovative startup ecosystem; effectively implement the policy of integration education and training together with science and technology as top policy, a key driving force for the development and enhancement of the economy's competitiveness.

3.2. Lecturer resources - that plays an important and decisive role in the transforming into an innovation-oriented university model creative

Higher education plays an important role in the national education system of Vietnam. It is where to train high-qualified human resources with university, master and doctoral degrees - who are able to work independently, creatively and have the ability to detect and solve problems posed by practice. At universities, the lecturer resources plays a decisive role in improving the quality of education and training high-qualified human resources; and this is also the core force to carry out fundamental and comprehensive reform of higher education in Vietnam.

The objectives of higher education in Vietnam today are: “a) Training human resources, raising people's knowledge, fostering talents; performing scientific and technological research, creating new knowledge and products, serving the requirements of socio-economic development, ensuring national defense and security and international integration; b) Training learners with political and moral qualities being equipped with knowledge and skills for professional practice, having the capacity to research and develop science and technology applications commensurate with the training level; having a healthy body; having creative ability and professional responsibility, adapting to the working environment; consciously serving the people” (National Assembly of the Socialist Republic of Vietnam, 2019, p.12).

To achieve these objectives, higher education must use many resources such as financial resources, physical resources, scientific and technological resources and lecturer resources. In which, the lecturer resources is the decisive, the most important one to exploit and effectively use other resources. Therefore, the development of lecturer resources is a key step that determines the success of transforming into an innovation-oriented university model. The Fourth Industrial Revolution has created many unprecedented changes compared to before and has a strong impact on the entire education and training process. Under that impact, it is required that universities must fundamentally reform the contents, programs,

approaches and methods of teaching and learning in the direction of modernity and international integration.

The wave of industrial revolution 4.0 and the current process of globalization are promoting Vietnam's deeper international integration to develop higher education; at the same time, higher education must meet the requirements of globalization and international integration to develop the country. However, the challenges and difficulties that are posed for higher education in Vietnam are resources, including financial resources and lecturer resources, which are still inadequate and limited. According to current regulations, for a university to become a research-oriented higher education institution, the ratio of lecturers with doctoral degrees over total number of lecturers must reach 50% or more. According to statistics of the Ministry of Education and Training in 2020, there are 56,990 full-time lecturers, including 436 professors; 3,795 associate professors; 18,317 doctorates; 34,054 masters and 4,433 staff with university degrees out of total number of higher education institutions in Vietnam. The above figures indicate that the ratio of lecturers with a doctorate degree out of total number of lecturers is $18317/56,990$ (32%). Thus, in order to actively and positively integrate into the world to promote the reform of higher education in Vietnam, first of all, it is necessary to focus on developing lecturer resources. Development of lecturer resources is the golden key to open the door for Vietnamese higher education to firmly step into the digital era.

The reform of curriculum needs to embrace the educational philosophy of “provide learners with what they need, not what the school is able to do”. Providing learners with what the school is able to do but unnecessary for the learners also means no education or training at all. At universities, only lecturer resources play a decisive role in researching, selecting the courses that are really necessary for learners and putting them into the training program in the direction of streamlining, modernity and practicality. The lecturers are the persons who directly instruct the learner's knowledge acquisition process, so it requires the lecturers to have the capacity to develop the training program. The current reality has shown us that, due to the limited lecturer resources, especially the capacity to develop training programs, the training programs of many Vietnamese universities have not updated to keep up with the requirements of the times; are under the situation of heavy theory, light practice; lack of connection with scientific research, production, business and labor market needs. The training programs and content are subjective, imposed, formal, coping, invalidated, not drawn through research not as an isolated case. The situation that some universities still provide learners with unnecessary knowledge for the learners that are unable to practically apply is still ongoing. This is one of the reasons why some universities' outcomes have not been accepted by the market; The adaptability of human resources and the capacity of the innovation ecosystem at all levels from central to grassroots levels are still inadequate.

The real innovation should be performed through activities to create added value. The value is the standard, the measure of innovation. Learning is to practice, getting knowledge is to do - the educational philosophy of “knowledge and practice go hand in hand” has not been fully mastered by universities and lecturers. It is responsibility of the

lecturers, first of all, to reform the curriculum and training contents. It is defined that the transformation into innovation-oriented university model is to be rooted from the lecturers. Development of lecturer resources is the key step to realize the innovative university model.

Robusting innovation is the university's mission for which to be accomplished, the prerequisite is to develop lecturer resources. The the lecturers' innovation result in the learners' innovation; Only those who approach with creativity will have creative learners; the lecturers with capacity of developing new knowledge with help the learner be able to develop new knowledge; the teacher with capacity of effectively solving the problems posed by practice, will equip their learner with the same ability - like lecturers, like students. Good teaching and good learning are inextricably linked. Never before has the educational philosophy of good teaching and good learning has been as profound as it is today. In the flat world, the amount of human knowledge increases very rapidly and also quickly becomes obsolete, the new replaces the old, but then this new will be replaced by the newer, so on forever and in progress. The process is getting shorter and shorter in terms of time unpredictably. Therefore, it is important for the lecturers to give learners the ability to innovate, to find new things and apply them to practice to achieve the highest efficiency without being constrained or stereotyped according to the existing ones; Lecturers must focus on teaching how to learn, how to think, create a basis for learners to update and renew their knowledge, skills, and capacity development. This is also the requirement, content and mission of the innovation-oriented university model. To accomplish this task, first of all, there must be lecturer resources of lecturer on par with the requirements of the new period.

According to the announcement of the World Intellectual Property Organization (WIPO), in 2021, Vietnam was ranked the 44th out of 132 countries/economies on the Global Innovation Index (GII). This index to some extents reflects the current state of innovation capacity of teaching staff work force. Over the years, the Global Innovation Index in Vietnam has continuously improved. However, in consideration of the development goal by 2030 when Vietnam becomes “a developing country with modern industry and high average income” (Vietnamese Communist Party, 2021, p.112), the Global Innovation Index is still inadequate. Therefore, it is necessary to continue to focus on improving innovation capacity in human resource development, especially lecturers in higher education institutions to a new development level; contribute to making a breakthrough in improving productivity, quality, efficiency and competitiveness of the economy.

3.3. Approaches to develop lecturer resources to meet the requirements of transforming into innovation-oriented university model

The first, creating a strong change in people's awareness about developing lecturer resources as the top task of transforming into an innovation-oriented university model. Lecturers are a key factor determining the success of developing an innovation-oriented university model. The development of lecturer resources in innovation activities is a breakthrough solution. High-qualified lecturer resources are both a requirement and a prerequisite to ensure that universities transform into an innovative university model with development in depth.

The second, is training and fostering teaching staff work force according to the requirements of transforming the university model into innovation-oriented universities. Professional capacity and expertise of lecturers should be improved, especially the training program development capacity, teaching capacity according to modern methods, scientific research capacity, foreign language proficiency and information technology competency. Organizational forms and methods of training and fostering lecturers should be renovated and diversified. Training and fostering in the form of traditional education (conventional education) should be combined with the modern form of education (online education). The application of information technology to training, scientific research, management and administration activities should be enhanced according to the model of innovation-oriented and smart university; digital transformation should be realized in all university activities.

The third, strengthening international cooperation and integration in education, training and scientific research. Giving a policy of cooperation in exploiting common infrastructure such as laboratories and modern equipment; giving policies to support lecturers in international academic exchanges and activities; Prioritizing investment in lecturers' research and innovation. The integration of Vietnamese higher education into the world higher education system should be enhanced to keep up with the times. "Improve the capacity of the national innovation system, restructure scientific and technological research programs in enterprise-centric direction with the goal of effectively serving the cause of national construction and defense" (Vietnamese Communist Party, 2021, p.141).

The fourth, is forecasting and developing strategies for developing teaching staff work force satisfying new requirements of socio-economic development, science, technology and adaptation to digital transformation. In the higher education development strategy, it is necessary to associate the goal of transforming the university model into an innovation-oriented university model with the goal of lecturers' personal development. University autonomy should be promoted. First of all, higher education institutions exercise autonomy in recruiting, employed, planning, training, evaluating, appointing, rewarding, disciplining, and compensations for lecturers. "Synchronous innovation is promoted to improve the effectiveness and efficiency of state management, professional and expertise management and administration in education and training, gradually and effectively implementing the autonomy mechanism associated with accountability of education and training institutions. Build a healthy educational environment, rectify uncompromisingly the achievement diseases, prevent and strictly handle negatives in education and training. Complete and stably implement methods of assessment and accreditation of quality of education and training" (Vietnamese Communist Party, 2021, p.139). Policies should be issued to support the commercialization of scientific and technological research findings of lecturers.

The fifth, creating an environment and conditions to promote innovation. Encouraging lecturers to perform scientific research, transfer and apply scientific and technological advances; dare to think, dare to do, dare to breakthrough, dare to take responsibility for improving the quality of training, in order to meet the requirements of high-quality human resources of the Fourth Industrial Revolution and international

integration. Building a healthy educational environment, overcoming achievement ideology and taking the quality and efficiency of output as a standard. Harmoniously developing between public and non-public education. “Improving mechanisms and policies for the development of non-public training institutions in accordance with the trend of the world and Vietnam's conditions on the basis of ensuring social justice and the basic values of socialist orientation” (Vietnamese Communist Party, 2021, p.138). “Push up the socialization of education and training, firstly for higher education. Encourage healthy competition in education and training, encourage enterprises to participate in activities to support training activities; encourage links with prestigious foreign higher education institutions in training, research, application and transfer of science and technology. Promote international cultural and academic exchanges. Create conditions for international experts and overseas Vietnamese to participate in lecturing and research at domestic educational and training institutions” (Vietnamese Communist Party, 2013, p.138). Prioritize resources, have special mechanisms and policies to develop lecturers human resources to meet the requirements of reforming the university model towards innovation-oriented directions.

4. Discussion and Conclusion

In the current context, education and training, together with science and technology, are becoming the most important driving forces for socio-economic development and enhancing Vietnam’s position. Actively and actively engaging in the fourth industrial revolution is an indispensable and objective requirement, an urgent and long-term task of special strategic importance of the university setting in Vietnam, which is closely associated with the intensive international integration process.

Transforming into an innovation-oriented university model is inevitable for universities in the digital era. It is a lecturer resources that plays an important and decisive role in such a process. Lecturers are the most advanced sections in the high-quality human resources – they are the pattern of high-quality human resources.

Therefore, developing lecturer resources with sufficient quantity, high quality and suitable structure must be given priority ahead of other resources. In order to have lecturer resources on a par with the innovative university model, it is necessary to synchronously implement the above approaches. Develop the lecturers’ resources to meet the requirements of reforming the university model towards innovation-oriented directions, which is considered as a breakthrough in the fundamental and comprehensive innovation of higher education in Vietnam nowadays.

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VIETNAM'S TRADITIONAL ENVIRONMENTAL ETHICS AND MEANING IN CONSTRUCTION OF ENVIRONMENTAL ETHICS TODAY

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Abstract

Vietnam's traditional environmental ethics are built on the smooth connection between human philosophy and are deeply influenced by Eastern philosophy along with the practical way of life in labor close to nature. Vietnam's traditional environmental ethics are all the ideas, feelings, customs, habits, and behaviors of Vietnamese people toward the natural environment that are relatively stable and deeply ingrained in psychology and social practices, having a positive impact on the community, passed down from one to another generation and followed by everyone. Traditional environmental ethics are clearly expressed in the life of the ancient Vietnamese and have meaning in building environmental ethics today, contributing to the country's sustainable development.

Keywords: *Construction, Environmental ethics, Traditional, Vietnam.*

1. Introduction

Today, the strong development of the modern scientific and technological revolution has led to great changes in many fields, especially the economic field. However, the miraculous successes in economics, science, and technology lead to the negative side of environmental pollution. For a long time, when discussing environmental issues, people usually only pay attention to, technological, economic, medical, and legal aspects, while other aspects such as cultural and traditional factors of the nation, and lifestyle ethics have not been paid much attention to, although they are basic and very important factors in regulating human behavior in the process of exploiting and using natural resources and environmental protection.

The Vietnamese have traditionally had a very significant sense of environmental protection. This consciousness is expressed in the conventions, customary laws, proverbs, and folk songs, but even higher is found in some laws of the Vietnamese feudal dynasties. Human behavior with the natural environment is expressed by each community through conventions

and customary laws to regulate each individual in the community they live and follow, and these are environmental ethical factors highest in the history of the Vietnamese community.

Currently, the environment in Vietnam is at an alarming level because of the heavy destruction of the natural environment by humans. Large environmental cases are increasing day by day with serious consequences affecting the economy. Faced with that situation, Vietnam has come up with many solutions to solve environmental problems and sustainable economic development but has not yet solved the root of the problem. Because for the protection of the environment, people in addition to the awareness of the importance of the environment in their lives also need more attitudes, emotions, and behaviors to implement it. The sustainable and long-term environmental solution is to improve environmental ethics. In that process, it is required that we know how to promote traditional environmental ethical values and contribute to improving environmental ethics for everyone to protect the ecological environment in Vietnam today.

1.1. Environmental Ethics concept

Discussing the concept of environmental ethics has many different conceptions depending on the approaches of researchers from the perspective of philosophy, sociology, and psychology, especially there are many studies on environmental ethics come from philosophers.

In both the East and the West, there have existed many different views on environmental ethics, reflecting different worldviews and human views, as well as showing different levels of awareness of human society through each historical period. Environmental ethics is also known as environmental ethics or ecological ethics. From the perspective of ecological ethics, the term "ecology" in Greek is "Oikos" which means housing, residence, and living place of living beings from inorganic to organic, from small to big, from plants, animals to humans. From another perspective, ecology can be expressed as the interrelationship between living organisms and the environment, including the interaction between human society and the entire biosphere. The term environmental ethics appeared in the 60s of the twentieth century, so far around the term "environmental ethics" there is much controversy about its definition as well as its connotations and characteristics.

In the framework of the article, the author's concept: *of environmental ethics includes perspectives, concepts, principles, standards of work adjustment, assessment, guidance, and impaired control of the behavior of all voluntary and voluntary social action toward the environment toward sustainable development (sustainability for humans and sustainability for the natural environment).*

Firstly, environmental ethics is the whole set of rules and standards to regulate and evaluate human behavior and behavior with the environment to bring benefits, and happiness for present and future generations. Not only that, but environmental ethics also contribute to sustainable development. Second, through these rules and standards, people adjust their behavior to the environment voluntarily and voluntarily. Third, environmental ethics represents the harmonious relationship between humans and nature. This is a relationship that shows respect and responsibility of people towards the environment. After all, environmental ethics is the expression of people's very high self-consciousness towards the

environment, which reflects the conscience, responsibility, goodness, and obligations of people towards the environment. Environmental ethics consists of environmental ethical awareness and environmental ethical behavior.

Environmental ethics is expressed in the consciousness and behavior of people toward the environment, which is both mandatory and voluntary. It is mandatory because these standards and rules reflect the demands and requirements of society. These requirements and requirements are not legal, but the scope of impact and adjustment is inevitable and regular through public opinion to evaluate, so any move related to the environment one must also adopt the rules of environmental ethics to act. On the other hand, the environment is not the property of anyone alone, it involves many people, is community and human. Therefore, implementing environmental ethical standards is the responsibility, obligation, and conscience of all individuals, organizations, and social subjects. It is voluntary because individuals and communities implement rules and standards for the environment motivated by conscience, self-consciousness, and goodwill towards the environment, not because of a commitment. legally required. They are aware of the need to protect the environment for their own life, for their benefit, so they act, and even feel happy and happy when performing environmentally ethical behaviors.

Thus, environmental ethics consists of environmental ethical consciousness (including environmental ethical standards, environmental ethical knowledge, and environmental ethical sentiments) and environmental ethical behavior.

Environmental ethics has some basic characteristics such as:

Environmental ethics of self-discipline, and voluntary are very high in humans. In environmental ethics, people voluntarily set forth principles and rules of environmental ethical standards to adjust their behavior within the framework of that principle; that shows compliance with environmental ethics due to the urge of conscience, self-consciousness and they see their responsibility and obligation in environmental protection, and they feel happy when protecting the environment.

Environmental ethics is the expression of human social responsibility towards the environment (environmental responsibility). Because humans are playing a leading role in the process of exploiting and transforming nature, people have soon become aware of their responsibility in improving nature and protecting the natural environment. Human environmental responsibility toward nature is formed on the basis that people have a sense of environmental ethics and have a sense of environmental rule of law. Human social responsibility towards nature is expressed by people being aware of the consequences caused by their actions to nature and taking responsibility for those consequences.

Thus, there are many forms to protect the environment, however, protecting the environment by ethical means creates the ability to restrain and prevent evil acts, harming nature and society. It also has the ability and motivation to motivate people to fight against acts of destroying resources and polluting the environment.

1.2. Literature Review

Currently, there have been many research works on traditional Vietnamese environmental ethics, some typical works such as:

Ecological issues have now received a lot of research, both from a theoretical and a practical perspective, both from a single-disciplinary to an interdisciplinary perspective. However, from the perspective of humanities and social sciences, it can be seen that there have been the following basic works:

Pham Thi Ngoc Tram, “*Ethical ethics: From theory to practice*” (1999); Pham Thi Ngoc Tram (Editor), *State management of natural resources and environment for sustainable development from a socio-humanistic perspective* (2006); Ho Sy Quy, “*On Environmental Ethics*” (2005); Nguyen Van Phuc, “*Environmental protection from an ethical perspective*” (2010); Basic investigation project “*Ethical assessment of the environment in our country today*”, implemented by the Vietnam Academy of Social Sciences (2009-2010); National Workshop “*Environmental Education in Schools*”, Center for Research on Natural Resources and Environment and Hanoi National University in collaboration to implement; Nguyen Van Phuc, “*Environmental Ethics*” (2013); Nguyen Thi Lan Huong, *Environmental Ethics and Utilitarianism* (2016); Le Van Khoa, *Environmental ethics - from thinking to action* (2016) ... In the above works, the need to improve the environmental ethics has been argued. Accordingly, environmental ethics is a factor contributing to overcoming the situation of over-exploitation of nature and is one of the solutions to preserve the harmonious relationship between humans and nature, ensuring sustainable development. Innovation is expressed in all aspects and fields of activities of the society and people from production, tourism, and entertainment to daily life. That requires raising the environmental ethics for everyone, regardless of social status and age. Degradation in environmental ethics manifests itself not only in cities and industrial zones but also in rural areas and schools. Therefore, in the above works, the proposed solutions to improve the environmental ethics include national-level solutions related to laws and policies, socio-economic development projects, and programs. national education program; At the same time, it also includes direct and specific solutions for regions, areas of activity, or specific subjects such as industrial parks, craft villages, rural areas, and schools.

More focused and more systematic research on biodiversity in our country is currently carried out by the following works: Basic investigation project “*Ethical assessment of the environment in our country today*”, by the Institute of Science and Technology. social studies in Vietnam (2009 - 2010); Vu Dung, “*Environmental ethics in our country: theory and practice*”, (2010); Hoang Thi Thanh, *Building environmental ethics in Vietnam today* (2019), Tran Thi Thuy Ha, *Culture of behavior with the natural environment in Vietnam today* (2018)... In these works, the regulation rationally and harmoniously adjusts the relationships of interests between people at all levels in exploiting and protecting the environment for sustainable development, which is recognized as the essence of environmental ethics. The authors also analyze the basic standards of innovation, such as Respect and protecting the harmony of human (society) and natural systems; use of resources economically and

effectively; voluntarily and voluntarily elevating legal requirements on environmental protection to ethical requirements; fairness in exploitation and environmental protection; improve the spirit of mutual assistance and coordinated action to solve environmental incidents; maintain a green, clean and beautiful living environment in daily life.

The article *The problem of building ecological ethics in the market economy conditions* by the author Pham Thi Ngoc Tram (2002). Through the analysis of traditional ecological ethical values of Vietnam such as the goodness of the Vietnamese, the love of people for nature, the love of labor, and the love of people are always expressed in nature. community, solidarity, a way of life of gratitude, and kindness. The author has given some ways of behavior of the Vietnamese toward the ecological environment. Under the influence of the current market economy, which has gradually changed the way people behave in the past, the relationship between people living in harmony with nature (the union between God and Man) is now not more, but gradually turning into the ideal (Human intends to overcome God). The author also offers a solution that we must build, which is environmental ethics suitable for a market economy. This new environmental ethics must be based on Vietnam's traditional environmental ethics, but with changes to suit.

Customary law of environmental protection of some ethnic minorities in Vietnam by authors Pham Quang Tien, and Nguyen Thi Hoi (2010) analyzed the role of custom and customary law in the development and implementation of the law. The authors have analyzed the customs and customary laws of some ethnic minorities on environmental protection such as customary laws on environmental protection of the Ede, the M'ngong in the Central Highlands, and the Thais in the central highlands of Son La, Lai Chau, Hoa Binh provinces... In the customary law of these ethnic minorities, there are things that the community cares about to protect the environment, that is: protecting forests, birds, animals, land, and water sources. In the customary law, there are also forms of propaganda and dissemination of environmental protection factors in the community and especially in the family through generations.

Author Nguyen Hieu Tin (2010) in the article *Dealing with the natural environment requires ecological ethics*. The article has analyzed the conceptions of ecological ethics in the world with a human-centered or anthropocentric perspective derived from modern science in the seventeenth and eighteenth centuries. The author also analyzes that in the Western during this period the human-centered view was very popular because at that time it was a mechanized worldview and metaphysical mechanical thinking. The author gives this is how humans treat nature from an ethical perspective. The historical fact also proves that, after many decades after humans exploited nature indiscriminately, despite all the laws and their existence, nature has "revenge" on humans. Humans have exhausted natural resources, polluted the living environment, and exploited them indiscriminately, making natural resources unable to recover in time. Until now, when people are aware of the serious problem of environmental pollution in their own lives, people have taken measures to overcome them. The author also analyzes the previous Vietnamese concept of nature, which is the relationship "Heaven-Earth-Human unity", this is a very beautiful concept in the Vietnamese

way of life toward the environment, but nowadays that is being gradually disappeared due to the pressure of the market economy, due to population growth leading to behaviors that are harmful to the environment.

There are many papers on environmental ethics. Some typical papers such as "*Some theoretical issues about environmental ethics*" by Vu Dung, and "*On environmental ethics*" by Ho Si Quy, are directly related to ecological ethics. The Japanese researcher Tomnobi Imamichi has the article "*The concept of ecological ethics and the development of ethics ideology*", the translator Nguyen Thi Lan Huong. That papers have focused on clarifying the concept of environmental ethics, the constituent elements of environmental ethics, and the factors affecting environmental ethics in general. Although there are still different notions about the concept of environmental ethics, these works are generally united in the assumption that environmental ethics is formed in the process of human impact on nature, it is a system of views, concepts, thoughts, feelings, principles, rules, norms... regulating and adjusting human behavior in the process of natural gender transformation to serve the human life, ensuring the development of both human beings and the natural world.

2. Method

The article is based on the theoretical basis of Marxism-Leninism, Ho Chi Minh's thoughts, viewpoints, and lines of the Communist Party of Vietnam, policies, and laws of the State of Vietnam on environmental ethics, construction environmental ethics, and related issues. Selectively acquire research results published by scientists on traditional environmental ethics, and construction environmental ethics. To study the topic, the authors base themselves on the actual achievements and limitations, and inadequacies in implementing environmental ethics, and construction environmental ethics in Vietnam through 35 years of renovation.

The research is based on the methodology of Marxism-Leninism and Ho Chi Minh's thought to deploy research tasks. Focus on using interdisciplinary methods of social sciences and humanities. Using a combination of methods: History, logic, combining history with logic, analysis, synthesis, comparison, forecasting... These specific research methods are used flexibly and appropriately to have an analysis, comments, and assessments on the issue that the Communist Party of Vietnam continues to promote environmental ethics on constructing environmental ethics on sustainable national development.

3. Results

3.1. The concept of traditional environmental ethics in Vietnam

Over thousands of years of building and defending the country, the Vietnamese have created their own culture rich in identity. Inhabitants living in different geographical areas have different rules and ways of dealing with people, and people with the natural world. The rules of behavior between people and the environment also come from the standards and ethical regulations between people in society. Therefore, ethics towards the natural environment is also part of the ethics of people in society. In Vietnam in the past, there was no system of doctrine or a separate law stipulating the rules and standards of human behavior

towards the natural environment. The customs and customary laws of the ancient Vietnamese village conventions, over time, were elevated to the law. Through conventions and customary laws, the laws of dynasties in Vietnamese history have shaped environmental ethics. "Vietnam's traditional ecological ethics are formed based on conceptions and folk philosophies, reflecting on different levels of the relationship between humans and nature" (Vu Trong Dung, 2009, p.105).

The basis for the formation of traditional environmental ethics in Vietnamese

The culture of the Vietnamese is built on a smooth connection between the philosophy of life and is deeply influenced by Eastern philosophies such as Confucianism, Buddhism, and Taoism, along with a practical lifestyle of close labor. The closeness to nature has been reflected in different degrees in the relationship between man and nature. These theories all associate humans with nature and have greatly influenced the behavior of traditional Vietnamese. That also helps to protect the ecosystem of the Vietnamese people and has become a part of the Vietnamese culture. That culture of dealing with the natural environment is expressed through some basic concepts as follows:

First is the concept of harmony between nature and humans. This is the earliest concept of the relationship between humans and nature. Humans and nature are a solid, integral part. With this concept, the Vietnamese have gone through many difficulties, arduous still living in harmony with nature, relying on and following nature. This concept is consistent with agricultural life, low-level rice cultivation, dependent on nature.

Second is the concept of "Man proposes, God, disposes". In an underdeveloped society, especially with the too outdated productive forces, humans do not have the capacity and conditions to exploit nature enough to earn full-living. This concept makes humans worship nature: "thank god for sunshine and raining enough," and "please rain down". The name of the gods such as "Land has the land gods, rivers have river gods ", mountain, forest, sea, sun, thunder, and fire also have gods showing that not only Vietnamese love but also gratitude, respect, even depend on natural forces blindly. According to folklore, worshipping the gods is worshipping nature, protecting nature. And customary law - which may be the human law of natural environment protection has appeared based on worshipping the gods, worshipping that nature.

The third is the concept of "The human wins the nature". Different from the previous two concepts, this concept gives humans certain dynamics with nature, not waiting for natural gifts, but in a certain way, they can overcome natural disasters by themselves power. Humans fight natural disasters and win against natural calamities to live in harmony with nature rather than away or opposite to it. That is the logical conquest of nature, within its limits of it and such conduct demonstrates an open love of nature.

Vietnamese love nature, and live in harmony with nature because they understand the values and the great benefits that nature brings to them. Comparing nature to gold, as silver shows not only means rich nature but also proves that nature in the Vietnamese's heart is extremely precious, the source of life, the source of material things that humans need to respect and protect.

When studying the traditional concept of environmental ethics of the Vietnamese, an important data is the customary laws and village conventions in the community in the past. Because these are authentic evidence that still exists, they are still applied by some localities in parallel with the current law. However, the role of customary law and village conventions is still noticed when combined with the law, together with the law to better play its role, especially in environmental protection. Because before the law, each community had its regulations, and those regulations were put into writing in the customary law. Therefore, when studying environmental ethics, it is necessary to find out the concepts of the ancient Vietnamese through these documents.

The village conventions and customary laws of the ancient Vietnamese have reflected the rules and standards of people in villages, hamlets, and ethnic groups in preserving the natural environment or ethical issues of people in dealing with the environment. Village conventions are usually rules set out in villages in North and Central Vietnam, typically: in the village convention of Minh Duc, Minh Hoa commune, Yen Lap district (Phu Tho), regulations on protection are provided. historical and cultural relics, revolutionary culture in the area. Or, the convention of Hung Nhi village, Cu Thang commune, Thanh Son district stipulates that 50-year-old stilt houses cannot be sold out of the village to prevent "bleeding on stilt houses", regulations on Tet holidays, people in the village wear traditional costumes of their people... In the village convention of Lang village, Xuan Son commune, Tan Son district, there are clear regulations not to cut trees or collect firewood in Xuan Son primeval forest. Do not cut down or exploit stalactites in caves and caves. Protect water flows and waterfalls in local forests. The convention of several villages in Dong Think commune, Huong Long commune, and Yen Lap district clearly states that the Muong people must preserve and restore the "mõi" dance, swing drum dance of the Muong.

But for localities in highlands such as the Northern mountainous region or the Central Highlands, these rules and regulations are made by customary laws, such as The customary law of human communities such as Ede, M'ngong Thai, and Muong, have certain rules in the protection of the natural environment which are expressed in the daily life of their ethnic groups.

In the things prescribed by customary law and village conventions, there are rules to protect the environment and towards long-term and sustainable natural exploitation for future generations. Thereby, we can see that our ancestors were aware of the importance of the natural environment in their lives. More importantly, turning those perceptions into actions, the highest manifestation is the written regulations in the customary law and village conventions.

In addition to the customary law and village conventions, in Vietnam, there have been studies on the protection of the natural environment through surveys on geography, geology, biology, medicine, economy, and society of our country, such as the research works of Tue Tinh in the 14th century, Le Quy Don and Hai Thuong Lan Ong in the 18th century. The above works have recorded natural products and previous experiences of Vietnamese people in grasping the laws of nature, how Vietnamese live with nature and rely on nature to survive and develop. Through research and surveys, previous researchers have also given

vivid examples of different natural regions where people have different production methods and are suitable for the natural conditions of each region.

In particular, the issue of environmental protection in our country has existed since 1483, when King Le Thanh Tong brought environmental issues into the law of the country. The Hong Duc Law was promulgated in the feudal period, but there were regulations on environmental protection such as: keeping the environment in place of residence, protecting wild animals, etc. This law consists of 13 chapters with 722 articles. In the Hong Duc Law, article 580 provides for the protection of traction mainly for agriculture such as prohibiting the arbitrary killing of buffaloes and cows. In Gia Long Law, book 21, article 7 regulates the repair and protection of dykes and field banks. During the Nguyen Dynasty, the king and mandarins had the custom of planting pine trees in the Nam Giao herd (Hue) to encourage the custom of planting trees and causing forests. The trees planted by the king and the mandarins were all taken care of by them.

The relationship between man and nature is governed by moral codes and norms of behavior, which are most commonly endorsed by each dynasty's code of law. This demonstrates that the ancient Vietnamese had rules governing human behavior about the natural environment, or environmental ethics as we know it today. This approach to coping with the natural environment has a long history in the Vietnamese culture of natural behavior, which we study now as traditional environmental ethics.

As a result, *traditional environmental ethics in Vietnam can be defined as the sum of Vietnamese attitudes, feelings, customs, habits, and behaviors regarding the natural environment that are relatively stable and stable. It's profoundly embedded in psychology and social norms.*

3.2. Some traditional Vietnamese environmental ethics standards

In the course of the nation's life and growth, the Vietnamese have developed traditional environmental ethical principles. The Vietnamese productive forces, in particular, are responsible for the behavior of people and nature. People's attitudes regarding the environment used to be very different from what they are now. Because Vietnamese society has changed so much throughout the centuries, socioeconomic developments have also influenced people's ethics, particularly how they treat the natural environment. course. The most basic traditional Vietnamese environmental ethical criteria in the production style characterized by wet-rice agriculture are: Vietnamese love nature, live in harmony with nature

This is the Vietnamese philosophy of life, which is influenced by Confucianism, Buddhism, and Taoism and is smoothly combined with Eastern philosophy. Vietnamese rely on the natural environment to labor and produce in order to survive and flourish. A lifestyle in harmony with nature is mentioned and practiced by Vietnamese people in daily life, such as in production, in the method of eating and dressing, and living.

First and foremost, in constructive labor.

Man's love for animals, as expressed in folk songs and proverbs, reflects the link between man and nature. For farmers, the buffalo is both an asset ("the buffalo is an investment") and a buddy who works alongside them and shares the benefits of their effort.

This bond is also emphasized when people recognize the importance of nature in the production process, as in "one inch of golden land," "golden forest, silver sea," and so on. Vietnamese people adore nature and are committed to it. Recognize the significance and benefits that nature provides.

Traditional proverbs in folk songs have compared the richness and beauty of nature to what people consider the most valuable, such as gold, silver, and other precious metals. People in Vietnam live off the land and gather basic minerals. They appreciate the worth of natural resources better than anyone else, which contributes to the ancient Vietnamese's love of nature and happy lifestyle.

Second, in daily life.

Geographical considerations and living environments have created a lifestyle in harmony with nature for the Vietnamese people throughout their history. This way of life is reflected in the way people live and dress in the workplace and in everyday life.

Vietnamese homes are made up of bamboo and wooden stilt structures that are well-suited to the country's hot and humid climate. The banyan tree, the water wharf, and the common home yard have all contributed to the cultural characteristics of the wet rice culture village. Due to the hot and humid tropical climate, the Vietnamese house combines the elements of Land, Water, and People. Vietnamese people construct their residences to fit their self-sufficient way of life. Depending on the family's economic situation, Vietnamese houses are often built from locally available materials such as leaves, thatch, bamboo, hewn wood, stone for column foundations, baked or unbaked clay, mud combined with straw, and so on. The residences of the Vietnamese people reflect their environmentally conscious lifestyle.

The agricultural aspect of Vietnamese clothes, which is most obvious in the fabric, is a distinguishing feature of their dressing style. As one of the cradles of agricultural civilization, the Vietnamese prioritize the usage of plant-based garment textiles. Those are farm-related things.

Cultural events are used to express Vietnamese culture. Harvest festivals, plowing ceremonies, the Long Tong festival, the new rice festival, or the new rice festival, all have the symbolism of being full and hoping for a bountiful crop and are related to Vietnam's wet-rice cultivation. The celebration honors buffalo and other farm animals. Gods of nature such as Thunder, Lightning, and the Sun are revered.

When it comes to dealing with nature, the Vietnamese know how to exploit it intelligently and flexibly

Vietnamese people utilize nature to support their survival and progress in life, stemming from a love of nature. Discover natural laws and the influence interaction between nature and humanity, which is dialectics: "Knowledge, experience, and sentiments are derived from an ethical attitude of loving nature. The calculations have been accumulated and passed down through generations, and Vietnamese people have gradually learned to grasp nature, which, while not comprehensive or detailed, has a high degree of generalization and, in particular, reason (Vu Trong Dung, 2009, p.114).

The flexibility of the ancient Vietnamese people's lives is represented in their eating habits and utensils, such as chopsticks made of natural materials (bamboo is a close relative of the Vietnamese people). everyone in the Northern Delta Vietnamese The use of everyday food as medication reflects human flexibility in relations with the natural world. To employ these plants as preventive and curative medicines, Vietnamese people must be very knowledgeable about them, study them attentively, and comprehend their properties. On the other hand, adapt to "variable changes" in natural elements with sensitivity and flexibility. This is evident in all human activities, from the way people work, eat, stay, and travel to the way they create buildings and seek treatment..." (Vu Trong Dung, p.115, 2009). The yin-yang equilibrium between humans and the natural world reflects this dialectic. Because Vietnam has a hot (yang) temperature, most of the food is cold (yin), and people consume a lot of plants (yin) in their meals, contributing to the yin-yang balance between humans and animals, as well as the environment, as shown in seasonal foods in nature.

Nature rationally exploited: People must be aware of the laws of nature to serve their products, which stems from the ancient Vietnamese people's production method of wet rice farming as the major force. output and longevity The Vietnamese realized and utilized the laws of nature in living in that situation. Recognizing plant and animal growth rules, and so exploiting nature while also caring for and recreating it, exploiting and safeguarding natural goods, and establishing circumstances for them to grow and thrive. Because the Vietnamese recognize the importance of nature in the survival and prosperity of their country, they rationally utilize it. This is mirrored in ethnic communities' environmental agreements and customary laws.

The ancient Vietnamese's thrift, industrious disposition, and love of labor show their reasonable approach toward nature.

Environmental ethics, as well as thrift, industriousness, and work love, are moral values in general. Material creation is the most important activity in practical human activities.

The ancient Vietnamese's passion for labor stems from material-producing producing activities. People establish relationships between people and nature, as well as relationships between people in society while working. Vietnamese individuals must work hard and diligently in order to improve their lives. Vietnamese people value the benefits of their labor even more since they work hard to produce finished products to feed themselves and their families. As a result, the Vietnamese hold rice grains in high regard, considering them "genuine pearls" that are also derived from the wet-rice agricultural production system, which has given rise to a traditional culture: "Traditional cultural values". This is the Vietnamese people's greatest defining virtue. After all, this value is derived from and conditioned by the relationship between humans and nature" (Vu Trong Dung, 2009, p.124).

The ancient Vietnamese were industrious and economical because they worked hard to create items. Vietnamese people constantly remind themselves and their communities to live frugally in their daily lives. Any ethnic group must work hard to obtain financial wealth, and they can be proud of their accomplishments, but the Vietnamese people are an exception. Wet rice is the main production industry in Vietnam due to the country's geographical

factors, which include a hot and humid environment, tropical monsoon, and agricultural production method, therefore making rice grain requires a lot of effort.

3.3. The role of traditional environmental ethics in the development of contemporary environmental ethics in Vietnam

Traditional environmental ethical principles must be considered in the formation of Vietnam's guidelines and policies for socio-economic development and environmental protection.

We currently need to consider environmental protection factors while developing guidelines and policies, so we inherit traditional environmental ethics that are still applicable in today's modern society. Because traditional Vietnamese environmental ethics are based on excellent ideals, this is how individuals and the Vietnamese community as a whole treat the natural environment.

Resolution 41 of the Politburo on environmental protection in Vietnam in the process of industrialization and modernization states: "Environmental protection is the rights and obligations of all organizations, every family and of each person, which is the expression of cultural lifestyle, morality, which is an important criterion of civilized society and a continuation of his father's tradition of loving nature, living in harmony with nature" (Politburo, 2004). Many historic ethical ideals are still true today, and they have provided the theoretical foundation for the Party and State to inherit, implement, and promote in order to establish environmental rules and policies. Protect the environment in light of the country's new circumstances while being compatible with Vietnamese culture and lifestyle. Furthermore, there are old and long-standing beliefs that have become firmly established in our thinking and habits of living, but which are no longer consistent with modern environmental ethics, and which we must gradually eradicate.

Currently, Vietnam is gradually improving its environmental regulations, however, the laws are prescribed with consequences that are insufficiently effective and deterrent for violators. As a result, conventional ethical standards must be applied as one of the primary strategies for adjusting human behavior; this is a wholly voluntary, non-self-interest adjustment within a limited scope (a region, a nation). Using conventional environmental ethics to safeguard the environment also helps people live better lives and contribute more to society.

Inheriting and fostering the rational aspects in the Vietnamese ethnic groups' customary laws and regulations, as well as the law, to build the current rules of human behavior toward the environment.

Traditional environmental ethical principles can be promoted through the promotion of customary conventions and laws, with the law serving as the foundation for promoting and inheriting the good of traditional environmental ethics. Vietnam's best option for environmental conservation. The Party and the State have also grasped that the environment and the economy are inextricably linked: the natural environment is a precondition for economic development, and economic development is the foundation for economic growth. As a result of changes in the natural environment, economic development laws and policies must go hand in hand with environmental protection. The state has enacted laws and sub-

law papers to guide environmental protection, but the outcomes are still insufficient, and the number of environmental cases is increasing, with grave repercussions. As a result, the law's provisions will be more effective when combined with the customs and behaviors established in village conventions and customary laws.

Traditional environmental ethics education helps people, particularly the young generation, pupils, and students - the country's future owners - develop environmental ethics

Environmental ethics education is one of the most significant ways to create knowledge about environmental conservation and activate all societal forces to help improve the environment. to overcome past pollution impacts by making the ecological environment cleaner, better, and more carefully maintained, so that the ecological environment is better and more beneficial to humans, and to bring people and the natural world into harmony, rather than "hostile" as it is today. Current environmental ethics will be shaped in part by traditional environmental ethics.

Students are a powerful force in society and the masters of tomorrow. Moral education, including environmental ethics education, is therefore required in addition to the transmission, creation, and improvement of creative thinking capacity and professional qualifications. It is especially significant for students. Because: first, environmental ethics is an integral part of ethics and social moral education; second, environmental ethics education for students contributes to the development of student personality - the subject of the country's industrialization and modernization process; and third, environmental ethics education for students is important for the long-term development of people and the natural world.

4. Discussion and Conclusion

Traditional Vietnamese environmental ethical standards are established on the basis of human notions and philosophies and are influenced by Confucianism, Buddhism, and Taoism ethical ideas. It is vital to inherit and develop traditional moral principles to suit the country's conditions, as well as to construct environmental ethical values in the direction of combining tradition with modernity, the nation with modernity, international, individual to society, and human to nature.

Previously, man's behavior in relation to the natural world was only demonstrated at a low level, in a passive method of exploiting and using nature-based on experience and the concept of "Heaven - Earth - Human harmony," "A plan formed by people, but how it is carried out will be determined by God." People lose their energy and innovation as a result, stifling societal progress. This is no longer relevant in today's culture, and a new ecological ethical standard is needed to govern human ecological ethical behavior.

Traditional environmental ethical standards are chosen, inherited, and developed in light of present development conditions. The contemporary idea of living in harmony with nature is still viable, but its content needs revision. People nowadays live in peace with the environment, relying on natural resources to support their lifestyles and the country's development. That is, people are not only aware of how to exploit the use-values of nature with modern instruments and procedures, but also how to do it efficiently. People must also recreate, maintain, and safeguard the natural world in order to meet their requirements, as

well as their own lives. To put it another way, people must be able to compensate for nature, comprehend its tolerance level, and ensure nature's ability to regenerate and heal. Furthermore, living in harmony with the environment must adhere to the principle of sustainable development, which is what we strive for in the growth of science and technology and the construction of a socialist-oriented market economy.

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THE ROLE OF VIETNAMESE FATHERLAND FRONT IN ENCOURAGING THE RELIGIOUS UNITY IN THE GREAT NATIONAL UNION TO MEET THE COUNTRY'S SUSTAINABLE DEVELOPMENT REQUIREMENTS

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Abstract

The great national unity is a precious tradition of the Vietnamese people, considered a fundamental, long-term and cross-cutting strategy that determines every success of the Vietnamese revolution. Religious unity is one of the contents of the religious policies of the Party and Vietnamese government. It is also a strategic content in the Vietnamese great national unity. Encouraging for religious unity in the great national union is both a right and a responsibility of the Vietnamese Fatherland Front and demonstrates its role in hereto. Beside the presentation of the religious unity and the great national unity issues in Vietnam, this article outlines the role of the Vietnamese Fatherland Front before the requirements of sustainable development of the country, especially analyzes and elucidates the role of the Vietnamese Fatherland Front in encouraging the religious unity in the great national union.

Keywords: *Vietnamese Fatherland Front; religious unity; great national unity; sustainable development*

1. Introduction

This study is based on Marxist-Leninist dialectical materialism; Ho Chi Minh's Ideology, the Communist Party of Vietnam's views on the religious unity, the great national unity and the position and role of the Vietnamese Fatherland Front in the country's development. This study aims to clarify the role of the Vietnamese Fatherland Front in encouraging the religious unity in the great national union to meet the requirements of sustainable development of the country. Researches on the religious unity, the great national unity and the Vietnamese Fatherland Front's position and role are quite diverse. Those are valuable references to help the author complete this study.

2. Method

This study aims to answer the following questions:

Questions 1: What is the religious unity and great national unity in Vietnam?

Questions 2: What is the role of the Vietnamese Fatherland Front in meeting the country's sustainable development requirements?

Questions 3: What role does the Vietnamese Fatherland Front play in encouraging the religious unity in the great national union to meet the requirements of the country's sustainable development?

In the scientific research methods, this study uses the scientific inheritance method from previous studies, the method of synthesizing and analyzing information and data from scientific journals and newspapers and magazines to bring an objective assessment of the concerned issues.

3. Results

3.1. The religious unity and the great national unity in Vietnam

Great national unity is a precious tradition of the Vietnamese people, forged through thousands of historical years of building and defending the country. Since ancient times, for survival, Vietnamese people have often had to struggle to overcome nature and fight with many invading enemies. That has made members in community stick together, soon forming the will, spirit, and unity strength. Thanks to the strength of great solidarity, the Vietnamese people have conquered nature, taken measures to adapt and lived in harmony with the harshness of nature. Based on the strength of great unity, the Vietnamese people have defeated many brutal invaders and had many glorious victories in the national and the human history. The national arduous struggle has helped foster love for the homeland, country and solidarity in every Vietnamese citizen. Currently, taking advantage of the process of integration and globalization, hostile forces enhance the “Non-violent action” strategy; inciting to divide among nations and religions; inciting people to riot, causing socio-political instability; spreading fabricated information to defame the Party, State and High-ranking cadres in order to reduce trust and sow division of the close relationship between the Party, State, cadres and people. Promoting the great national unity tradition and strength will help us defeat all the evil plots of hostile forces, ensuring the sustainable victory of the Vietnam’s revolution.

Great national unity is considered an fundamental, long-term and cross-cutting strategic content, determining the success of the Vietnamese revolution. This was determined early on by President Ho Chi Minh and the Communist Party of Vietnam. President Ho Chi Minh affirmed: “Without unity, we lose and lose. If there is unity, then there will be prosperity and survival. We must rely on unity as our destiny, preserve the nation and defend the country” [5]. According to President Ho Chi Minh, in order to the revolution get success, it is necessary to gather all possible forces to build a great national union in a sustainable way. Over the revolutionary periods, the Communist Party of Vietnam's viewpoint on building the great national union has been increasingly improved and developed. The Party has always identified "solidarity" as the core value, "great national unity" as the strategic line, the strength source and the main driving force of the Vietnamese revolution. It determines all the victories of the Vietnamese revolution in the cause of building and defending the socialist of the nation. History has proven: President Ho Chi Minh and the Communist Party of Vietnam and the Vietnamese people have been successfully building a great national union, leading the Vietnamese revolution to continuously gain many great achievements. The 13th Congress of the Communist Party of Vietnam continued to express the guiding viewpoint: "Strongly awake the patriotism, the will to strengthen, the strength of the great national unity and the aspiration for developing the national prosperity and happiness” [3].

Great national unity is a decisive factor for in the renewal process and in the promoting industrialization, modernization and international integration of Vietnam. Commenting on the 35-year process of conducting national renewal, industrialization, modernization and international integration, General Secretary, Nguyen Phu Trong, has made many speeches and the Communist Party of Vietnam has also affirmed in the proceedings of the 13th Congress: "We have achieved great achievements of historical significance, stronger and more comprehensive development compared to the previous years of renovation. Our country has never had the opportunity, potential, position and international prestige as it does today. These achievements are the product of crystallized creativity, the result of a whole process of persistent and continuous efforts over many terms of the entire Party, people and army" [3]. This shows the solidarity, consensus and agree of the entire Party, army and Vietnam people in the pursuit of the goal of "rich people, strong country, democracy, justice and civilization".

Overall assessment of 35 years of innovation and 20 years of implementation *The building the country credo in the transition to socialism* in Vietnam, forecasting the situation of the world and the country in the coming time, the 13th Congress of the Communist Party of Vietnam proposed five guiding directions [3] and development goals [3]. Accordingly, many contents in the guiding directions are common denominators and similarities in benefits for the creation, implementation and promotion of the great national union, such as: "consistent application and creative developing of Marxism-Leninism and Ho Chi Minh's Ideology"; "consistent with the goal of national independence and socialism"; "ensuring the highest interests of the nation and country"; "having aspiration to develop a prosperous and happy country"; "promoting the socialist democracy"; "making the most inner strength, especilally, human resources are the most important". Moreover, from the general goal to the middle of the 21st century, our country have become to a developed country with socialist-oriented". The 13th Congress of the Party has identified specific goals associated with each milestone. This is the basis for creating social consensus and national unity, contributing to promote production development, improving people's material and spiritual life, step by step towards socialism.

The Vietnamese great national unity is a great solidarity union between classes, segments, ethnic groups, religions, patriotic organizations and individuals in domestic and abroad. Each class, segment, ethnic group, religion and different social sections, whether living in Vietnam or living abroad, have a certain role to play in creating the common strength of the great national union. President Ho Chi Minh stated many times: "Our solidarity is not only broad, but also enduring...We unite to fight for reunification and defense of the nation; We also must unite to build our country. Those who are talented, virtuous, strong, have the heart to serve the nation and serve the people, we stand in solidarity with them" [6]. The Party and State of Vietnam always respect and praise organizations and individuals that have contributed to building the great national union. The 13th National Congress of the Communist Party of Vietnam affirms the irreplaceable importance of all classes, social sections but does not identify the "foundational" role of the great national union for any class or segment. That does not reduce the solidity, invincible strength of the

great national union, as well as affecting the orientation and goals of building the great national union but on the contrary also makes the great national union is more and more solid, constantly expanding and bringing into full play its strength [7].

Religious unity is a strategic content in the great national unity in Vietnam. Religion is an entity, part of society. The Vietnamese great national union includes the unity of religions, and the implementation of religious unity must work towards the common goal of the Vietnamese great national union. The vast majority of religious compatriots in Vietnam are labor force and patriotic people. They are always nurtured by the good traditions and qualities of the nation. Therefore, they not only have faith in their religion, but they always stick with, unite, accompany and make many positive contributions to the national construction and defense. Right at the first meeting of the Provisional Government of the Democratic Republic of Vietnam (September 3, 1945), President Ho Chi Minh has given six urgent tasks, including the one on religious unity: “The colonialists and feudalists implemented the policy of dividing the religious and non-religious people for easy domination. I ask our Government to declare: Freedom of Faith and the Unity of Religion” [4]. President Ho Chi Minh said that being a Vietnamese, whether religious or non-religious, regardless of religion, they all share the same ethnic group, the same Lac - Hong lineage. Therefore, religious unity in the great national union is an inevitable issue and a decisive factor for the success of the Vietnamese revolution.

Religious unity and freedom of faith and religion are the basic viewpoint and main content of the policy towards religion of the Party and State of Vietnam. In order to unite religions, there must be religious freedom within the legal framework and freedom and equality among religions is the basis for religious unity, towards the Vietnamese great national union. Some contents of Vietnam's religious policy today clearly show the spirit of religious unity in the great national union, such as: First, ensuring the rights and protection of all religious freedoms. Second, equality before the law between religious and non-religious people. Third, people of all religions are an important part of the great national union. Uniting religious compatriots with non-religious compatriots to build and defend the nation. Fourth, fight with hostile forces that take advantage of religion to divide the great national union and oppose the Party and State of Vietnam.

3.2. The role of the Vietnamese Fatherland Front in the face of the country's sustainable development requirements

From early time, President Ho Chi Minh paid attention to bringing the masses of the people into patriotic organizations suitable for each class, segment, age, gender, profession, religion, etc. It were Friendship Associations, Unions, Farmers' Associations, Women's Associations, Elders' Associations, Youth Unions, Children's Youth Team, Catholic Patriotic Associations, and Buddhist Associations for National Salvation, etc. But the most overarching was the National United Front. After the Communist Party of Vietnam was born on November 18, 1930, the Standing Committee of the Party Central Committee issued a Directive Notice on the establishment of the Allied Anti-Imperial Association – the predecessor organization of the Vietnamese Fatherland Front, the first form of the

Vietnamese National United Front with the desire to rally the masses to realize the revolutionary goal. Over the past 90 years, under the leadership of the Communist Party of Vietnam, the Vietnamese National United Front has operated with many forms and measures, aroused patriotism and brought into play the great national union, combined with the strength of the times, contributed to bringing the Vietnam gaining from one victory to another.

During the revolutionary period, the Vietnamese Fatherland Front encouraged, gathered and united widely all classes, segments, parties, ethnic groups, religions, patriotic and progressive intellectuals people to successfully carry out the revolutionary goals and tasks. In the renewal process and in the face of the current sustainable development requirements of the country, the Vietnamese Fatherland Front continues to promote its role, which is reflected in the following:

First, the Vietnamese Fatherland Front gathers, builds and firmly consolidates the great national union, promotes democracy and strengthens social consensus. At the central level, the Vietnamese Fatherland Front has 47 member organizations, which are socio-political organizations, religious organizations, professional associations and hobby associations, etc. Thereby gathering and collecting a large number of people to promote democracy and strengthen social consensus. The Vietnamese Fatherland Front Committees at all levels are increasingly expanded in structure and composition in the direction of increasing representatives of all classes, segments, ethnic groups, religions, outside Party members and Vietnamese living abroad. The Vietnamese Fatherland Front gathers the strength of great national unity in various forms, such as: Held a conference praising "Promoting the role of prominent people representing ethnic minorities in the movement of the entire people to participate in the protection of territorial sovereignty and national border security in the new situation"; organizing the program "Spring in Hometown " to meet and capture the thoughts and aspirations of overseas Vietnamese returning home to celebrate Tet holiday and to encourage overseas Vietnamese to contribute to the country; organizing the Great National Unity Day [8] (on 18th November every year - This is the founding day of the Vietnamese National United Front). According to the author's knowledge, in the world, there is no country in the world that has a day that is considered the Great National Unity Day, organized from the central government to each residential village and hamlet like in Vietnam.

Second, the Vietnamese Fatherland Front promotes propaganda and encouraging the people to exercise their right to mastery and implement the Party's guidelines and the State's policies and laws. The Vietnamese Fatherland Front always encourages people of all walks of life to promote their mastery, through people's conferences as well as through contact with organizations and individuals so that they can contribute ideas and participate in building, amending and supplementing the Constitution, legal documents and sub-law documents. The exercise of the people's mastery right is closely linked with the implementation of the Party's guidelines and the State's policies and laws. The Vietnamese Fatherland Front at all levels has always actively propagated and mobilized the people to be well aware of the Party's guidelines, policies and resolutions. The Vietnamese Fatherland Front Committees at all levels organizes for the people to study and research the Party's

policies and resolutions as well as to disseminate the laws so that the majority of the people can understand, implement and strictly abide by the laws of the State. Along with propaganda and dissemination, the Committees at all levels coordinate with the authorities and mass organizations to call the people to well implement the guidelines, policies and laws of the Party and State [9].

Third, the Vietnamese Fatherland Front is increasingly promoting its role as a representative organization, protecting the legitimate and justifiable rights and interests of the people. At the regular meetings of the Government, the Chairman of the Vietnamese Fatherland Front Central Committee was invited to attend and give comments reflecting on the thoughts and aspirations of the people of all classes and other issues regard to the national people's livelihood. The coordination with state agencies in settling complaints and denunciations of citizens is also of interest to this organization. Complaints, denunciations, reflections and petitions from citizens are received, studied by the Front at all levels and promptly transferred to competent agencies for consideration and settlement in accordance with regulations. In addition, the Vietnamese Fatherland Front Committees at all levels perform the task of promoting democracy at the grassroots through the activities of the People's Inspection Committee and the Public Investment Supervision Board [8].

Fourth, the Vietnamese Fatherland Front actively participates in the construction of the Party and State. Recently, the Vietnamese Fatherland Front Central Committee has issued an action plan to implement the Resolution of the 4th Central Conference (XII Term) of the Party on “Strengthening the building and rectification of the Party; preventing and reversing the deterioration of political ideology, morality, lifestyle and expressions “self-evolving”, “self-transform” in internal; launching and awarding the National Press Award with the topic “Journalism with the fight against corruption and wastefulness”. Thereby contributing to building an increasingly pure and strong Party. The Vietnamese Fatherland Front at all levels shall make regular, irregular and periodic comments on the activities of agencies and organizations of the Party and the administration and give suggestions to officials and Party members. The role of the Vietnamese Fatherland Front in the election of deputies to the National Assembly and People's Councils at all levels has been increasingly confirmed. The Vietnamese Fatherland Front participates from the formulation and issuance of regulations and guiding documents on the election to the stage of election organization, closely supervises the elected organization activities of agencies and organizations to promptly discover and minimize errors in the implementation process. Vietnamese Fatherland Front participates as a member of the National Judges Selection Council and the Procurator Selection Council of the People's Procuracy at all levels in accordance with law. Over the past time, many contributions of the Front in this field have been highly appreciated by the Selection Council and Office of the President [8].

Fifth, the Vietnamese Fatherland Front has increasingly strengthened its supervision and social criticism. Over the past time, surveillance has become a regular and main activity of the Front. The Standing Committee of the Vietnamese Fatherland Front Central Committee and the Central Agencies of Socio-Political organizations have presided over or

coordinated with member organizations and agencies and organizations of the Party and State to implement monitoring programs. A number of monitoring programs have been implemented over the past time, focusing on the implementation of the Party's guidelines and the State's policies and laws in various fields: supervising the settlement of complaints and denunciations at the grassroots level; administrative reform; complying with the law of medical facilities; Health Insurance; Social Insurance; ensuring food safety; tax and customs, etc. The Vietnamese Fatherland Front Committees at local levels have presided over and joined agencies and organizations to supervise many contents related to the people's legitimate rights and interests such as: the implementation of the regime, land compensation policy, site clearance when the State recovers land; the arrangement of resettlement and temporary residence for people whose houses and land have been recovered [8]. In addition, the Vietnamese Fatherland Front at all levels actively social criticism for legal regulation before they are promulgated. Thanks to those criticisms and suggestions, the quality of the law has been improved and the role of the Front has also been confirmed.

Sixth, the Vietnamese Fatherland Front gathers, synthesizes the opinions and recommendations of voters and the people to reflect and propose to the Party and State. The collection of opinions and recommendations of voters and people by the Presidium of the Vietnamese Fatherland Front Central Committee over the past time, honestly and objectively reflects the thoughts and aspirations of voters and the people that sent to the National Assembly, the Government, ministries and central branches. The Standing Committee of the Vietnamese Fatherland Front Central Committee has a periodical report every 3 months once to the leaders of the Party, the State and relevant agencies on the situation of the people of all classes. At meetings of the People's Council, the Vietnamese Fatherland Front Committee at the same level actively gathers opinions and recommendations of voters and the people to send to the People's Council and State agencies in the locality to solve it [8]. Through the opinions and recommendations of the people, the Vietnamese Fatherland Front promptly proposes difficulties and problems so that the Party and State can take timely solutions to improve the efficiency in practical results in people's lives and learn from experience in making specific decisions [9].

Seventh, the Vietnamese Fatherland Front strengthens the implementation of people-to-people diplomacy. The Vietnamese Fatherland Front Central Committee and its member organizations have well performed their role of connecting, providing information, coordinating in organizing Vietnamese delegations to visit and work abroad and vice versa; exchanging with international friends at the celebrations of the countries or important International Conferences, etc. Thereby contributing to strengthening solidarity, friendship and cooperation with the people of neighboring countries, expanding international relations. Through people-to-people diplomacy activities, mass organizations and people's organizations call and take advantage of valuable resources for socio-economic development, hunger eradication and poverty reduction, towards sustainable development. With the motto "proactive, flexible, creative and effective", the people's foreign affairs activities of the Vietnamese Fatherland Front have been increasingly enhanced and renewed, contributing to the realization of the policy and guidelines for the Vietnamese Fatherland

Front in independence, self-reliance, peace diplomacy activities, cooperation for mutual development of the Party and State, facilitating the process of national renewal, enhancing the prestige and position of Vietnam in the international arena.

Eighth, bringing into play the great strength of the people of all classes and member organizations in the national construction and defense mission meeting the requirements of sustainable development. The Vietnamese Fatherland Front is increasingly promoting its role "as an organization of political alliances, voluntary unions of political organizations, socio-political organizations, social organizations and typical individuals of all classes, social classes, ethnic groups, religions, overseas Vietnamese; is the political basis of the people's government" [10] ; is "common house" to promote the great national union. The Front gathers the entire people through campaigns: "The whole people unite to build a new countryside and a civilized city"; "Day for the poor"; Emulation Movement "Unity and creativity to improve productivity, quality, efficiency, international integration", etc. When the Covid-19 pandemic occurred, spread and broke out in Vietnam, the Vietnamese Fatherland Front and its member organizations were proactive and creative to promote the core role and coordinate with other State agencies making appeals, propagates, mobilizes and promoting the strength of the great national unity and of the entire people and encouraging the strength, wealth and material supports to the front lines of anti-epidemic, supplementing the Government's funds to buy vaccines, prevent and control the increase and repelling the Covid-19 pandemic.

At the 13th National Congress, the Communist Party of Vietnam determined that the goal of our country's revolution was to: "Promoting the will and strength of great national unity in combination with the strength of the times; comprehensively and synchronously promote the renovation, industrialization and modernization; firmly defending the Fatherland, maintaining a peaceful and stable environment; striving to make our country to become a developed, socialist-oriented country by the middle of the twenty-first century". That goal is also the destination, the convergence of the strength of the great national union. To accomplish this goal, the position and role of the Vietnamese Fatherland Front should be enhanced more than ever.

3.3. The role of the Vietnamese Fatherland Front in encouraging the religious unity in the great national union to meet the requirements of sustainable development of the country

Religion is the spiritual need of a part of the people, which is and will exist with the nation in the process of building socialism in Vietnam [1]. Vietnam is a multi-religious country. Religions in Vietnam are constantly developing in terms of the number of followers, dignitaries, positions and activities becoming more and more diversified. According to the Government Committee for Religion, by the end of December 2020, the Vietnamese Government recognized 36 religious organizations of 16 religions and 04 organizations and 01 branch of religion were granted Certificates of registration of religious activities [2]. Incomplete statistics show that the whole country has nearly 27 million followers of religions, accounting for about 27% of the population; more than 55,000 dignitaries, 145,000 positions and 29,000 places of worship.

Religion plays an important role in the sustainable development of the country. As an important part of the ethnic community, people of all religions always stick with, unite and accompany the compatriots across the country, striving for the common interests of the nation and the Vietnamese revolution. The Vietnam's Party and State has identified that religion as an important resource, making contributions in many fields. In recent years, activities of social security, socialization of health care, education (especially preschool education), social protection, vocational training, charity and humanitarianism activities of religions have been promoted and contributed together with the Party and State and Vietnamese Fatherland Front taking care of the poor, people with meritorious services to the country, lonely old people, orphans and disabled children, building charitable house and great unity house; taking care of and helping people infected and affected by HIV/AIDS, providing relief to people in areas affected by natural disasters and floods, protecting the environment and responding to climate change, etc. People-religious foreign affairs of organizations and dignitaries, positions are increasingly being expanded with fellow believers in countries, in the region and the world, actively supporting the Party's foreign affairs and the State's diplomatic activities. Religious activities of overseas Vietnamese play an important role in connecting the community and preserving the national cultural identity. Many religious organizations and dignitaries have promoted their roles and responsibilities in fighting the plots of religious division and undermining the great national union of hostile forces.

With its functions and tasks, over the past years, the Vietnamese Fatherland Front has really promoted its role in encouraging the religious unity in the great national union to meet the requirements of sustainable development of the country, reflected in some of the following contents:

First, the Vietnamese Fatherland Front makes an important contribution to the task of mobilizing, rallying and uniting religious and non-religious compatriots, uniting religions to build great national unity and building the country. The Vietnamese Fatherland Front at all levels acts as a bridge for dialogue between religious and non-religious people and between religions and between religious people living abroad and people in the domestic country. Thereby, the Vietnamese Fatherland Front mobilizes and gathers all people in the great national union, regardless of class, status, gender, age, ethnicity, religion, in domestic or abroad. Currently, the Vietnamese Buddhist Church and the Vietnamese Protestant Church are participating as members of the Vietnamese Fatherland Front. In many fields and for many religions, the Front has shown its role as a bridge between religion and the Party, State and people of all classes. Along with that, the Vietnamese Fatherland Front at all levels always focuses on mobilizing religions to actively participate in the social-economic development process, promoting good cultural and moral values and natural resources of religion to contribute to building cultural life in residential areas and at religious establishments, thereby contributing to the process of building and developing the country in a sustainable way. In 2019, Prime Minister, Nguyen Xuan Phuc and high-ranking officials of the Party and State met to commend dignitaries and religious positions for their contributions to the national defense and construction mission. Organizing such programs is an effective way to call, gather and unite religions in the Vietnamese great national union.

Second, the Vietnamese Fatherland Front has stepped up propaganda and mobilization of dignitaries, positions, priests, believers, religious followers, religious organizations and the people to implement the guidelines and policies of the Party, policies and laws of the State, including guidelines, policies and laws on religions. Every year, the Vietnamese Fatherland Front at all levels coordinate with relevant agencies to organize propaganda for the Party and State's guidelines, policies and laws and mobilize officials, people to follow the true religion. The purpose of propagating and mobilizing people to implement the guidelines, policies and laws is for the people to clearly see the benefits of solidarity, the rights and interests associated with the obligations and interests of individuals must be in accordance with the law. Accompany with the interests of the community, religion must be consistent with the common interests of the nation and country. This is also the core point to mobilize the unity of religions in the great national union. At the same time, the Vietnamese Fatherland Front at all levels has continuously promoted the propaganda, explanation and enlightenment for believers, dignitaries and officials of religions to understand their responsibilities towards the country, contributing to strengthening the consensus between religious compatriots and non-religious compatriots as well as between followers of different religions. Since then, the people have clearly understood and well implemented the Party's guidelines and resolutions, the State's policies and laws on religion. This is the basis for the people to realize illegal religious activities and clearly understand acts of taking advantage of religion to incite division of the people and devastate the great national union.

Third, the Vietnamese Fatherland Front is increasingly promoting its role as an organization that takes care of and protects the legitimate and justifiable rights and interests of people of all religions in accordance with the common interests of society. Coordinating with Party and Government agencies, over the past time, Vietnamese Fatherland Front Committees at all levels have always taken care of the material and spiritual life of people of all religions. Thereby contributing to consolidating and promoting the strength of the great national union, successfully implementing political tasks and developing socio-economic in the locality. In order to take care of the material and spiritual life of the people in general and the religious people in particular, the Party, Government, Front and mass organizations always pay attention to direction and promoting the work of hunger eradication and poverty alleviation, investing in the construction of infrastructure in the locality and creating all favorable conditions for religious compatriots to improve their lives; facilitating people and religious compatriots to actively transform economic structure, developing trade and services; create conditions for them to access loans for production and business development. Along with that, the Front at all levels cares about protecting the legitimate and justifiable rights and interests of people of all religions. The Front receives and studies letters, feedback, recommendations, complaints and denunciations from religious compatriots and promptly transfers them to competent agencies for consideration and settlement in accordance with regulations.

Fourth, the Vietnamese Fatherland Front mobilizes, encourages and promotes the role of prominent and prestigious people in religions and coordinates with the State to have

a mechanism for them to participate in State power agencies and Socio-political organizations. Over the years, the Vietnamese Fatherland Front at all levels has presided over and coordinated with functional agencies of the Party, State and Socio-political organizations in mobilizing and gathering people of different religion and promoting the role of a representative and reputable person in religions. Prestigious people in religions have a great role and influence on the community, collective and family line. They promptly capture people's thoughts, feelings and aspirations and send them to the Party and State; It is a connector tool of the Party and the people. They are trusted by people, shared all aspects of social life, kept contact with, are the center of solidarity between Party, authorities and religious compatriots. Along with that, the Front at all levels mobilizes, selects and creates favorable conditions for dignitaries, monks and typical followers of different religions to participate as a Members of the National Assembly and members of the People's Councils of at all levels, the Vietnamese Fatherland Front Committees at all levels and its member organizations such as the Red Cross Society, the Elderly Association, the Study Promotion Association, the Association for the Protection of the Disabled and Orphans, etc. Therefrom, dignitaries, priests and typical followers of religions can speak out and express their personal and religious views on economic, political, cultural and social issues and can participate in building the Party and the State, making a significant contribution to the solid construction of the Vietnamese great national union.

Fifth, the Vietnamese Fatherland Front actively mobilizes the people to participate in the process of monitoring and social criticism of the Front, thereby strengthening social consensus and religious unity in the great national union. The Vietnamese Fatherland Front at all levels mobilizes the people to supervise the activities of agencies, organizations, elect representatives and officials, public servants and public employees in the implementation of policies and regulation on religion. People in general and religious people in particular, in the process of carrying out supervision, if they have detected the agencies, organizations and individuals fail to strictly follow the guidelines, resolutions, policies and laws on religion, they can reflect it to the Vietnamese Fatherland Front Committees at all levels, from which the Committee will receive the feedback and settle it according to its functions, tasks and powers. In addition, the Vietnamese Fatherland Front at all levels always mobilizes the people to actively participate in the process of commenting on policies draft and laws of the State related to religion. Contributions of the people will help the State increasingly improve policies and laws on religion; it is the basis for the Front to strengthen social consensus, mobilize and unite religions in the great national union.

Sixth, through policy advocacy, the Vietnamese Fatherland Front gathers, synthesizes the people's opinions, recommendations and aspirations on issues related to religion and promptly reflects and proposes to the Party and Government. The Front has performed the task of grasping the people's situation, "the Front listens to the people's opinions" and regularly, irregularly and periodically reflecting and proposing to the Party and State. Periodically and on National holidays and religious holidays, the Front at all levels coordinates with relevant agencies to organize visits and meetings with typical religious dignitaries, positions and priests. Leaders of the Front Committees at all levels regularly visit

and congratulate religious organizations in Vietnam on important occasions such as the Buddha's Birthday Celebration and the Catholic Christmas. Notable recent events can be mentioned that in 2019, Prime Minister Nguyen Xuan Phuc and high-ranking officials of the Party and State met to commend religious dignitaries and positions for their contributions to the Fatherland defense and construction. Through these meetings, the Front gathered and grasped the legitimate thoughts and aspirations of religious dignitaries and religious compatriots in the region to have appropriate solutions. This is also an effective way to mobilize, gather and unite religions in the Vietnamese great national union.

Seventh, the Vietnamese Fatherland Front has increased mobilizing religions to carry out people-religious foreign affairs to contribute to implement the Vietnam's foreign policy and demonstrate the spirit and strength of great national unity. Over the past time, religious organizations in many localities have increased their religious foreign affairs associated with people diplomacy activities through the Vietnamese Fatherland Front Committees at all levels, especially the Central and Provincial levels and has achieved certain achievements. People diplomacy activities are most clearly demonstrated by religions in specific things such as: organizing delegations for dignitaries and religious followers to study abroad, attending conferences and seminars for dialogue on beliefs, religion; organizing charity activities such as free medical examination and providing medicine, giving gifts to the poor in some countries (for example: Laos, Cambodia..); welcoming and working with foreign delegations and religious organizations to coordinate the implementation of projects in Vietnam sponsored by non-governmental organizations.

Eighth, the Vietnamese Fatherland Front actively and effectively participates in the implementation of religious policies and contributes to the realization of religious unity in the great national union. The Vietnamese Fatherland Front propagates and mobilizes religions to respond and actively participate in patriotic emulation movements, emulation movements in religious areas, campaigns to strive for homeland construction getting richer and more beautiful. The Vietnamese Fatherland Front Committees in all localities across the country regularly mobilize and unite religious organizations, dignitaries and believers to "live a good life and a good religion"; organize religious activities in accordance with the provisions of law; build and replicate self-governing models for environmental protection, security and social order and building the "Bright-Green-Clean-Beautiful" residential areas, sophisticated and civilized worship establishments. During the campaign of advocacy, the Vietnamese Fatherland Front at all levels always ensures to respect the religious freedom right of the people and to equality between religions. In order to improve the effectiveness of the implementation of the religious policy and the strategy of the great national unity, the Presidium of the Vietnamese Fatherland Front Central Committee had a special program on: Renovating contents and modes of operation of the Vietnamese Fatherland Front in ethnic and religious affairs. It can be seen that the effective implementation of religious policy is thanks to the important contributions of the Vietnamese Fatherland Front at all levels. Since then, religious unity has been raised and the great national union has become more and more solid.

4. Conclusion and Recommendations

From the study results, the author of the article makes the following observations for discussion:

First, each religion in our country, although having a different history of formation and characteristics, exists in the hearts of the whole people; The interests of each religion are also associated with the interests of the nation and country. It is proved that religions have made many contributions to the national construction and defense. It is necessary to further promote the resources and values of religions, thereby contributing to improving the synergy of the great national union to meet the goal of sustainable development.

Second, promoting the great national union is one of the main, consistent and throughout the entire Vietnamese revolutionary process. In specific situations and circumstances, the promotion of the great national union must always ensure the harmonious settlement of issues of interests, create a common denominator and building and forming similarities with each other for each class, segment, ethnic group, religion, as well as for each specific region and area towards realizing the revolutionary goal that the Communist Party of Vietnam and the people have chosen.

Third, religious unity in the great national union is an important content in the Vietnamese great national unity strategy. Solidarity between religions and between religious people and non-religious people, resolutely fighting and strictly handling those who abuse religion to oppose the Party, State and socialist regime. This will contribute to strengthening and promoting the strength of the great national union in the current of national construction and defense.

Fourth, the Vietnamese Fatherland Front has always had an indispensable position and role in each revolutionary period. Promoting the strength of the great national unity is the responsibility of both the political system and the Vietnamese people, in which the Vietnamese Fatherland Front plays a very important role. The Vietnamese Fatherland Front is a "common house" that gathers and unites the entire Vietnamese people, including the unity of religions. Ensuring the right to religious freedom, equality between religions, uniting religions in the great national union, contributing to the promotion of democracy, strengthening social consensus, towards building an increasingly democracy, justice, civilization society.

Some recommendations to further promote the role of the Vietnamese Fatherland Front in mobilizing the religious unity in the great national union to meet the requirements of sustainable development of the country in the coming time:

First, it is necessary to continue strengthening the leadership role of the Party in promoting the great national union, the State's management of religion and religious work; strengthen coordination between Party and State agencies, Vietnamese Fatherland Front and socio-political organizations for the mobilization of religious unity in the great national union.

Second, it is necessary to strengthen cooperation in participating in theoretical research on religious work. Continuing to participate in developing, supplementing and perfecting the Party's guidelines and resolutions, the State's policies and legal regulation on religion and religious work, serving as a basis for strengthening the mobilization and religious unity in the great national union.

Third, need to be proactive, creative and innovative in content and forms of religious unity. Strengthening the mobilization of religions, religious compatriots to respond and participate in programs and campaigns in a substantive manner, avoiding formality. Regularly review, summarize and evaluate to increasingly improve the quality of religious unity mobilization tasks in the great national union.

Fourth, it is necessary to strengthen the collection of recognized religious organizations participating as members of the Front; attracting typical individuals of religious organizations to join the Vietnamese Fatherland Front Committee, the Executive Committee of Socio-political organizations, Social organizations and elected office at all levels with a suitable number of quantity and structure.

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BUILDING VOCATIONAL TRAINING MODELS FOR LOCAL ETHNIC MINORITIES WOMEN AT DISTRICT-LEVEL CONTINUING EDUCATION AND VOCATIONAL EDUCATION CENTERS IN THE DAK NONG PROVINCE: STATUS AND SOLUTIONS

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Abstract

Vocational training for ethnic minorities women in general and local ethnic minority women in particular in the province of the Dak Nong is one of the top priorities in the field of vocational training and socio-economic development policies of the Dak Nong province. Currently, local ethnic minority women still face many difficulties in life, economy, culture and society. Organizing research and properly assessing the reality of vocational training for local ethnic minority women in district-level vocational education and continuing education centers of the Dak Nong province is a very important and urgent job.

The authors of the article conducted a survey on the current situation of flexible and effective vocational training models for local ethnic minorities women in the Dak Nong province in the period 2017-2021, analyzing the strengths, weaknesses, causes and problems for effective management and development of vocational training models for local ethnic minorities women in the Dak Nong province in the coming time. Since then, the research team has proposed a system of effective management solutions to develop flexible and effective vocational training models for local women of ethnic minorities in vocational education and continuing education centers at district level in the current digital transformation context.

Keywords: *Building vocational training models; Local ethnic minority women; Vocational education - Continuing Education Centers at district level; Dak Nong province.*

1. Introduction

The State increases investment to develop vocational training for rural workers, adopts policies to ensure the implementation of social justice in terms of vocational training

opportunities for all rural workers, encourages, mobilizes and creates favorable conditions for rural workers, conditions for the whole society to participate in vocational training for rural workers. In fact, after more than twelve years, the Dak Nong province have provided vocational training for many agricultural workers. Besides the achievements, vocational training for ethnic minorities in the Dak Nong province still has certain limitations. Vocational training and job creation for rural workers in general and ethnic minorities in particular, especially ethnic minority women living in extremely difficult communes, still face many difficulties. After vocational training, laborers are able to find jobs and earn a small amount of income. There is no appropriate policy to encourage vocational training institutions to expand enrollment. Many localities in remote, isolated and extremely difficult areas do not yet have a vocational training model suitable for each target group, especially ethnic minority women in the Dak Nong province. Education socialization has not been promoted and resources have not been mobilized from businesses and people. There are places where vocational training does not match the actual local needs. The quality of vocational training is not high because the education level of workers, especially the quality of workers in remote and mountainous areas, is uneven, so the number of rural workers participating in vocational training is not high. The main occupation is learning simple trades, or fostering knowledge for a few days. In particular, there is a lack of preferential mechanisms and policies for ethnic minority apprentices. A number of regulations and norms on vocational training support for rural workers and ethnic minority workers are not appropriate and do not meet the needs of vocational training in the locality, specifically: regulations on expenditure levels compared with the place of residence of the compatriots. High-tech occupations have not yet developed. The qualifications of workers do not meet the requirements of the labor market. Labor export is still limited. Many training institutions still have difficulties in terms of facilities and lack of places to practice. Vocational training program is still heavy on theory, not really suitable with the cognitive level of rural workers, especially ethnic minority workers. Most of the rural apprentices receive only elementary level training and are less than 3 months old. Most of the workers after receiving vocational training still do their old jobs. The percentage of ethnic minority workers receiving vocational training is very low (less than 6% compared to ethnic minority workers in the age group). Ethnic minority workers still have few opportunities to receive formal vocational training, often only in classes of less than 3 months. Also due to the customs left behind, most of the ethnic minority women in the Dak Nong province rarely go to school, the time to study is too short, and there are few opportunities to participate in rural vocational training programs. Besides, the issue of vocational training, especially vocational training for women, is a matter of concern for ethnic minorities in extremely difficult communes in particular and in the Dak Nong province in general. In this province, women are the main laborers in the family, playing the main role in taking care of the family economy and shouldering the burden of raising children, but in reality, the percentage of female workers is employed, is low and youth unemployment is still very high. Life support, policy settlement by the allocation of production land is not guaranteed, because the government has no land fund, that's why the implementation of policies on job change, vocational

training and vocational guidance for farmers for ethnic minority youth has been implemented by the Party and State for many years. However, at present, vocational training for ethnic minority women has been paid attention, but is not really effective. On the other hand, local ethnic minority women still have to bear many inequalities in life as well as in access to cultural, social and educational services, while gender equality is an issue, has received special attention from the whole society. Vocational training and career development are the rights and obligations of female employees. Women actively participate in vocational training to meet the needs of the labor market, contribute to increasing the competitiveness of human resources, economic growth and social development. Increase opportunities for vocational training and job creation for women; especially women in rural areas, middle-aged women, local ethnic minority women, particularly disadvantaged areas, displaced and cleared areas are the wishes of the whole society. The State increases investment in vocational training development and job creation for women; adopt policies to mobilize all resources in society, pay attention to vocational training and create jobs for women; focus on investing in the development of vocational training institutions that attract many female workers. Currently, we still have many limitations that need to be overcome in the issue of gender equality, especially in terms of ideology and views of people in society, especially towards ethnic minorities. Ethnic minority men are not aware or have attitudes that do not accept the roles and positions of women, which even many ethnic minority women themselves have vague understanding of, thereby having deviant attitudes and unable behaviors to have a correct solution to problems arising in life related to their gender roles and positions. Gender inequality is still one of the main causes of poverty and one of the obstacles to sustainable development, especially in extremely disadvantaged communes in mountainous areas, research program on capacity development and creating opportunities for women. Education is the key to development. Education development is to create a solid foundation for socio-economic development in regions of the country in general, especially vocational training in extremely difficult communes of the Dak Nong province in particular. In education, research to address the issue of vocational training for ethnic minority women in the locality has become increasingly significant. Therefore, the implementation of the Project: *"Building vocational training models for local ethnic minorities women at district-level continuing education and vocational education centers in the Dak Nong province"* is an urgent requirement to help ethnic minority women in the Dak Nong province have the opportunity to improve their professional capacity as well as labor productivity to develop the household economy.

2. Method

The study is carried out based on the following main approaches: Logical-historical approach; System approach in the direction of interdisciplinary, inter-regional and inter-level; Access to school education; Access to sociology; Access to value; Access to market; Access to psychology; Cultural access; Approach to case study; Access through expert opinion.

The study implements the following research methods: Methods of collecting information: Methods of researching secondary documents, methods of collecting information, primary data; Data analysis methods; Deployment method to replicate the model.

3. Results

3.1. Actual situation of building vocational training models for local ethnic minority women in extremely difficult communes in the Dak Nong province

Supporting women in self-employment is the strength of the Women's Union in the Dak Nong province. Credit and loan programs for self-employment creation of the Women's Union at all levels always attract a large number of participants, especially untrained, underemployed, low-income women, women lost productive land,... Annually, vocational training institutions have coordinated to support from 1,000 to over 1,600 women to create self-employment in various forms, reaching the rate of approximately 29%. to over 35% of the total number of women apprentices at vocational training institutions every year. About a third of vocational training institutions have relationships with programs and projects to coordinate and support women in self-employment after vocational training.

In extremely difficult communes in Dak Nong province, a model has emerged recently: Supporting women to work abroad for a limited time under contract (labor export) after vocational training. Women's Unions at all levels have actively joined the government in providing vocational training for women. The Women's Unions in these localities shall appoint staff to join the Labor Export Support Committee, or participate as collaborators of labor export enterprises. From there, there are conditions to connect and support to send women to work abroad after vocational training. The results of the survey sample within the scope of the research show that there are 5 vocational training institutions that have supported from 360 to 520 women to work abroad.

Forms of job support for specific groups of women, poor women are similar to other groups of women, including job counseling, job placement, self-employment support, export support, labor export. Besides the vocational training model: The Women's Union participating in supporting women to export labor after vocational training is a model of vocational training with the participation and support of all levels of government for women and girls, girls in joint training in the system of vocational training institutions of the Women's Union and the general vocational training system of the state and locality. Along with the form of long-term vocational training (over 3 months, inter-training) are other forms of vocational training such as short-term training, address-based training, vocational training at vocational training institutions, and vocational training institutions, itinerant occupations, seasonal training (when farming at home), training associated with job creation. All of the above training models have the participation and combination of subjects and the models are increasingly aiming for perfection. In general, there are models that have worked well in practice, have been deployed and are continuing to be replicated in the near future for local ethnic minority women in extremely difficult communes in the Dak Nong province such as:

Model 1. Linking "houses" in providing information, vocational training and job counseling for women in line with market needs

Steering Committee for programs/projects/projects (Project 295- Project training and employment support for women; Project 1956 - Vocational training for rural workers...) on vocational training and support employment assistance, state management agencies, vocational training institutions under the Women's Union, general vocational training

institutions in the system, job placement establishments, employers, organizations socio-political organizations, mass organizations, especially the Women's Union at all levels, share information on the labor market and the demand for female workers with vocational training (quantity and structure). In addition to the vocational training counseling system, the professional employment of vocational training and job placement institutions can use the grassroots staff network or the grassroots Women's Union (commune/ward) to play a role. collaborators, conducting propaganda and counseling on vocational training and employment at the grassroots (commune/village) for women.

Model 2. Vocational training institutions of the Women's Union shall coordinate with vocational training institutions of the general system to organize intermediate and primary vocational training courses and short-term vocational training courses of less than 3 months for students

Women in general in extremely difficult communes and specific women's groups in particular have diversified training occupations, suitable to market demands. In fact, vocational training institutions, vocational training centers in the general vocational training system, or vocational training institutions of the Women's Union in extremely difficult communes in the Central Highlands have organized counseling sessions. vocational training and vocational enrollment for women on training occupations suitable to market demand; At the same time, there are regular links between institutions, exchange, transfer/send students to other vocational training institutions in the locality to train a number of occupations that the vocational training institution itself is not capable of training. Women can choose to study many different professions according to their needs; Save investment costs in facilities and ensure conditions for vocational training for vocational training institutions, while ensuring that many jobs can be taught to employees.

Model 3. Connecting vocational training at vocational intermediate and college levels with and between the system of vocational training institutions and vocational training centers

Students graduating from primary vocational schools at vocational training institutions can receive training to transfer to vocational intermediate schools and colleges at vocational training institutions of the common system; Women have the opportunity to continue their vocational training at a higher level (vocational secondary school, vocational college) in the general vocational training system. This possibility increases the attractiveness of the system of vocational training institutions in general and vocational training institutions of the Women's Union at all levels in particular. There are differences in teaching quality and program content among vocational training institutions, which may cause certain difficulties for students to connect. It is necessary to test and supplement knowledge before entering a joint school to ensure entry requirements.

Model 4. Linkage between vocational training institutions and enterprises employing many women

This model has been implemented and replicated in the Dak Nong province, including especially disadvantaged communes, in order to attach vocational training and job support to women. Vocational training institutions associate with enterprises that use a lot

of female workers for training. Vocational training institutions grasp the labor demand of enterprises/production, business and service establishments to develop appropriate training plans. Vocational training institutions recruit, train in theory and send vocational students to practice and practice at enterprises. After completing the course, the enterprise will immediately recruit students who meet the requirements. The most suitable form is a vocational training institution that provides “order-based” training for businesses/production, business and service establishments that employ a lot of female employees. Supporting businesses on input and output markets.

Model 5. Vocational training establishments belonging to the Women's Union at all levels or joint vocational training institutions coordinate vocational training and support on-the-spot employment in the models of women's groups and groups cooperating in production and business and for traditional craft villages that employ many women

In order for this vocational training model to be effective, in recent times, the Women's Unions at all levels in extremely difficult localities, or local authorities, have developed vocational training programs and curricula with the participation of participants. The objective is that the content of the training program is lean, using traditional techniques of the craft village in combination with the use of new and modern technical technologies. The program not only ensures legal regulations, but also has a flexible and flexible structure that is highly practical and practical with the traditional production process in the craft village. Specifically, the elective program in the framework program has been loosened from 30% to 40-50%; increasing internship time in craft villages, accounting for 1/5 of the course time (previously 1/10). Teaching basic theory and practice at vocational training institutions, advanced practice, organizing internship in craft villages, using equipment of craft villages. Mobilize a team of artisans and skilled workers of the craft village to participate in advanced practice teaching and internship guidance. The teaching staff of the vocational training institution cooperated with the artisans of the craft village in the training process. Laborers in craft villages receive vocational training, receive formal degrees/certificates and are officially recognized. Craft villages are allowed to receive and use a team of workers who have undergone formal vocational training. Students learn jobs conveniently and easily because they don't have to go far. Saving on teaching costs because vocational institutions do not have to make large investments in equipment for practical teaching. Students can practice, practice the profession right at the actual production site, helping them get acquainted with the job right from the time they are learning the profession. The entire program and curriculum are compiled separately for each traditional profession, difficult to widely apply, so it is quite expensive in terms of time and money.

Model 6. Vocational training institutions cooperate with labor export enterprises or foreign employers

Vocational training institutions have consulted and recruited women to participate in vocational training courses according to orders for labor export enterprises or foreign employers. Women who complete vocational training courses will be examined by labor

export enterprises or foreign workers and sent to work abroad under contracts. Labor export enterprises have quality labor resources due to vocational training, education and necessary knowledge and skills before going to work abroad. Women who receive vocational training and have professional and technical qualifications will increase their chances of working abroad with jobs with better income and working conditions. Few labor export enterprises "order to train" women for labor export. Although some initial results have been achieved, vocational training in general and building a vocational training model for ethnic minority women in the locality in particular still have many limitations and shortcomings. The investigation and survey of vocational training needs, counseling orientation, and job placement have not been given due attention; many places have not yet identified the occupations that need training in accordance with the requirements of local socio-economic development; have not properly oriented job creation for employees after receiving vocational training. Therefore, some post-training classes have very low employment settlement rates. Some districts assign vocational training quotas to communes, wards and townships, but not on the basis of local vocational training needs. To achieve the target, many localities have mobilized both people with vocational training needs and those without vocational training needs to attend classes, thereby greatly affecting the quality and effectiveness of training. Although the quality of vocational training has been improved, it still cannot meet the increasing requirements of the labor market. Many female workers have received vocational training, but still work in the old farming profession or consider the training time as a waste because the products made from the profession have no market for consumption, or the market is unstable.

3.2. System of solutions to build vocational training models for local ethnic minority women in extremely difficult communes in the Dak Nong province

3.2.1. Group of solutions to improve the effectiveness of vocational training for female employees of ethnic minorities in the Dak Nong province

✚ Solution to raise awareness


Perception plays a very important role in all practical activities of people. The reality of vocational training has proved that one of the reasons for success or failure in the organization and implementation of vocational training is awareness. It is necessary to make people understand the true nature of vocational training and the need to participate in this work, thereby gradually increasing self-awareness and actively participating. Therefore, it is necessary to raise awareness of all levels, sectors, enterprises and society about vocational training; must be properly aware of the position and role of vocational training in job creation, in ensuring the structure of human resources, of the decisive factor for sustainable socio-economic development; To properly perceive the value scale of vocational training to change behavior, to attract the majority of young women and women to vocational training. Raising awareness of entrepreneurs about the benefits of vocational training for the sustainable development of enterprises, thereby actively participating, making major and active contributions to vocational training. If you want to raise awareness, you have to do a

good job of propaganda. The purpose of propaganda is to mobilize and provide adequate information about the Party's guidelines and guidelines, the State's policies and laws, the advantages and disadvantages of vocational training, from which change the perception of Party committees, local authorities, social organizations and the masses in a positive direction about the position of vocational training for female workers in the cause of industrialization and modernization.

 *Solution on mechanisms and policies*

Renovating mechanisms and policies on vocational education and streamlining students after lower secondary school. Strengthen the work of socialization of vocational education, strengthen the physical facilities for vocational education institutions. Continue to renovate the financial mechanism for vocational education in order to mobilize, allocate and use more efficiently the resources of the State and society invested in vocational education; improving the autonomy of vocational education institutions, ensuring transparency and accountability to the State, learners and society.

Implement the program of coordination between the Ethnic Minorities Committees and the Women's Unions of the provinces in the Central Highlands on the mobilization of ethnic minority women in the period of 2020 - 2025. In order to attract ethnic minorities to actively participate in vocational training, especially ethnic minority women in extremely difficult communes, vocational training must go hand in hand with creating jobs on the spot after vocational training, to help them have a stable income. On the other hand, vocational training must be appropriate to their cognitive level and to the requirements of local industries, production and employment requirements. There are mechanisms and policies to regulate the responsibility of enterprises in investing in vocational training for employees, especially in training high-quality human resources and human resources in key industries. Regulations on the responsibilities of industries, socio-political organizations, communities and families in contributing resources and participating in vocational education activities, creating lifelong learning opportunities for everyone, gradually contribute to building a learning society.

 *Solution for capital support and production conditions, infrastructure*

Expanding and diversifying funding sources to support ethnic minorities, especially ethnic minority women, linking the Bank for Social Policies' credit activities with credit channels and other resources. other funds such as: National Employment Support Fund, Farmers Support Fund, ... continue to implement the policy of supporting residential and productive land for ethnic minorities; supporting agricultural, forestry, fishery and industrial extension activities; support plant and animal varieties, production materials,....Continue to invest in essential infrastructure for production and people's livelihood, giving priority to works in service of production that have direct practical effects on production and economic exchanges, such as irrigation, roads and roads. rural areas, electricity for production and daily life, rural markets,... Priority is given to investment in infrastructure works according to the New Rural criteria.

+ Solution for innovating training content, programs, methods and capacity building of training institutions

The content of the vocational training program must be consistent with the requirements of the labor market, specified in the occupational skill standards or determined through vocational analysis, and regularly updated with new techniques and technologies in production. Increase the amount of time to practice practical skills; reduce the theoretical time. Strengthening vocational training activities on mass media channels and online training on Vietnam Agricultural Extension Website; distance learning program. To guide establishments conducting agricultural vocational training for female workers to uniformly train according to the framework program and curriculum promulgated by the Ministry of Agriculture and Rural Development. Pursuant to the framework program of the Ministry of Labor - Invalids and Social Affairs; The Ministry of Agriculture and Rural Development has directed the vocational training institutes to develop programs for each training level from Beginner Vocational to Vocational College to ensure the vocational training objectives for each level and the connectivity between qualifications for each profession, meeting the requirements of enterprises. On that basis, training institutions develop specific training programs for each profession. The modules included in the training program of each profession need to ensure the practicality, ensuring the balance of the theoretical and practical training time of that module. Vocational training institutions need to organize delegations of cadres and teachers to conduct field surveys at agencies and units of all economic sectors, thereby developing detailed training programs while taking into account the weight of each module, in each training profession so that the subject can be adjusted accordingly. After each course, the school should have a process to collect information from learners to evaluate the quality of the training program.

+ Solution to strengthen coordination between ministries, branches, agencies and levels of the Women's Union in formulating and proposing laws and policies and monitoring the implementation of laws and policies on vocational training and create jobs for women from ethnic minorities

Central Vietnam Women's Union:

- To assume the prime responsibility for, and coordinate with concerned ministries, branches and localities in, organizing and implementing vocational training; report to the Prime Minister and issues arising in the implementation process; make recommendations on necessary changes and adjustments, in line with the specific realities of the region;

- Directing the Vietnam Women's Union at all levels to coordinate with relevant departments and agencies in implementing vocational training in the locality;

- Coordinate with ministries, branches and functional agencies in inspecting and supervising the implementation of vocational training; periodically report to the Prime Minister on implementation results; evaluate and summarize the implementation of vocational training.

Ministry of Labor, War Invalids and Social Affairs:

- To assume the prime responsibility for, and coordinate with the Vietnam Women's Union in, guiding the planning of the network of schools and centers for vocational training and job placement under the Vietnam Women's Union;

- Coordinate with the Vietnam Women's Union in researching and supplementing the activities of the Scheme on supporting women in vocational training and job creation, integrating them into the national target programs on employment, the target program on employment and the national target program on employment, national goal of education - training and other related projects and schemes;

- Guide vocational training units and establishments to conduct vocational training.

- To assume the prime responsibility for, and coordinate with the Vietnam Women's Union in, monitoring and evaluating the implementation and implementation of vocational training.

Ministry of Finance, Ministry of Planning and Investment:

- Ensuring annual state budget allocation for vocational training in accordance with the Law on State Budget;

- To assume the prime responsibility for and coordinate with relevant agencies in, guiding the financial management mechanism for vocational training; coordinate and supervise the implementation of vocational training.

Ministry of Education and Training:

- Review and add relevant activities of vocational training to the National Target Program on Education and Training;

- Directing affiliated units to coordinate in implementing the Scheme to support women in vocational training and job creation; Coordinate and supervise the implementation of the Project.

Ministry of Home Affairs:

- Coordinate the implementation of related activities in the Scheme, especially on the model of organization and operation of vocational training institutions at all levels of the Vietnam Women's Union;

- Review and add relevant activities of the Scheme into the staff retraining program.

The Ministry of Agriculture and Rural Development:

- Coordinate in implementing and supplementing relevant activities of the Scheme into the programs of agricultural extension, forestry extension, fishery extension, and vocational training for rural workers.

The Ministry of Industry and Trade:


- Coordinate in implementing and adding relevant activities of the Scheme to the trade promotion program and agricultural extension program.

The People's Committees of the provinces and centrally-run cities:

- Approve and organize the implementation of the Scheme on support for vocational training and job creation for women in their respective localities on the basis of the Scheme and the Economic Development Strategy.

- Provincial society by 2030 or integrated with other projects being implemented in the area; create conditions on land and other conditions for the implementation of the Scheme.

Linking vocational training with employment, labor export and poverty reduction is a very important policy to link vocational training activities with the labor market. This policy will be one of the main foundations to ensure the effectiveness of vocational training, vocational training and the use of learned professions. Policies should be developed to promote vocational training institutions, production and business establishments to cooperate in order to create favorable conditions for the labor market to operate. There should be more policies to promote the development of an intermediary network to act as a bridge between the vocational training unit and the employer to ensure the balance between supply and demand in the labor market in general and generate income. sustainable poverty reduction.

 *Solution to strengthen the inspection and monitoring of the implementation process*

Strengthening inspection and guidance on the implementation of legal provisions, policies and vocational training for female workers is a very important solution to ensure that vocational training is properly accomplished, regulations set forth. In order for the inspection and supervision to be objective and effective, local governments at all levels must post up on targets, publicize relevant regulations, regimes, training programs, policies, etc. all localities in terms of mass medi. Officers in charge of vocational training must receive regular training in their respective specialties, must understand the Law on Vocational Education, all regulations and regulations related to the Law on Vocational Education. Contents of inspection and control must be included in the examination of training content, training programs, training quality, registration for entry, training time, examination regulations, standards for granting diplomas and certificates, the conditions of facilities, teaching equipment, etc. Violations must be handled seriously in order to maintain order and discipline. Develop criteria for writing an overall female labor management program according to age, ability, vocational training needs and employment status. In order to avoid duplication in the training enrollment stage, the solution to be implemented is to avoid duplicating 01 training supporter many times. To do this, it is necessary to develop a program to manage all relevant information about female workers of working age belonging to poor, near-poor households, policy areas, disadvantaged communes, needs and information. employment status of female workers after vocational training and networking through the job exchange floor of the Southwest region for unified management.

3.3. Group of solutions on vocational training, building vocational training models for local ethnic minority women in extremely difficult communes in the Dak Nong province

3.3.1. Solution for raising awareness

Through community activities, through meetings, women's associations at all levels propagate and raise awareness for women about the position and role of women in the family,

in society, about equality gender equality, women's right to education and stable employment. Thereby mobilizing women to participate in vocational classes held in the locality, and at the same time advising them to choose the appropriate career.

3.3.2. Solution to promote activities to support vocational training and create jobs for local ethnic minority women in extremely difficult communes in the Dak Nong province

Increase the scale and develop teaching new professions to meet the needs of the labor market. Expand training in new occupations that appear on the market to attract many female workers. Diversifying training methods: expanding training in occupations suitable to the characteristics of female workers, occupations capable of attracting middle-aged female workers; link and coordinate in organizing vocational training for female workers in enterprises, cooperatives and cooperative groups; associate with businesses for vocational training and practice. In order to create outputs for vocational training for ethnic minority women on the spot, it is necessary to strengthen counseling, job introduction and job creation activities before, during and after vocational training. Diversify forms of vocational training counseling, job placement counseling suitable for each target group at the grassroots level. Actively and in coordination with businesses, production and business establishments, etc., especially the network of Associations, Associations, Women Entrepreneurs Clubs to create new jobs for women and organizations providing female labor ; support women to access credit to create new jobs, develop production and business, create jobs for female workers; support women in promoting trade for products from craft villages, production and business establishments owned by local ethnic minority women.

3.3.3. Regularly survey and survey labor market information, forecast demand and pilot vocational training models for employees

Investigate and survey the vocational training needs of workers and forecast the demand for laborers through vocational training of production, business and service establishments and the capacity of business establishments for employees, very important activities, which are the basis for effective implementation of vocational training for workers. Provide guidance, support and training in surveying skills for districts in the Dak Nong province, at the same time design information input software for localities, build output form systems and demand forecasting models. Vocational training for female workers of ethnic minorities on the spot in extremely difficult communes in the Dak Nong province, pilot training models for workers.

Coordinate with the Vietnam Association of Crafts Villages to develop vocational training projects such as: vocational training and job organization associated with the development of new craft villages; vocational training with the combination of raw material areas, job organization and product consumption; vocational training in association with maintaining and developing traditional craft villages.

Coordinate with a number of corporations, corporations, industrial parks, production and business establishments and a number of training schools in the field of processing industry, services...to deploy orders for vocational training for employees move to industry and service in the countryside or work in industrial zones and local businesses.

3.3.4. Implement the national target program on job creation and vocational training through stages, vocational training, building a model of vocational training for ethnic minority workers in the Dak Nong province

Ethnic minority women in extremely difficult communes in the Dak Nong province have obtained very positive results. The number of employees receiving vocational training and getting jobs after vocational training has increased significantly over the years. Local ethnic minority women have suitable conditions for vocational training, most of them have found jobs and have income. But in reality, local ethnic minority women in extremely difficult communes still face many difficulties in accessing vocational guidance, choosing a training career and benefiting from a suitable vocational training model. The barriers that prevent women from effectively accessing the profession are due to backward factors in the cultural practices of the people, factors that prevent them from having a stable job after vocational training... Wanting to solve these difficulties With the above difficulties and inadequacies, the acquisition of suitable occupations and effective vocational training models along with the active participation of all levels of government, mass organizations and society.

4. Discussion and Conclusion

On the basis of research results, in order to renew and improve the effectiveness of vocational training for local ethnic minority women in Dak Nong province in general and local ethnic minority women in special communes. To distinguish the difficulties of Dak Nong province in particular, the research team raised the following issues that need to be further discussed:

- Continue to promote propaganda to raise awareness for ethnic minority women on the spot about participating in vocational training to have stable jobs, develop livelihoods, create more incomes to rise out of poverty sustainably. steady.

- Increase capital support for production and business development for local ethnic minority women after vocational training.

- Proposing to increase the level of support for ethnic minority women on the job training site. Vocational training projects need to expand the beneficiaries of vocational training support money in order to ensure life during the study period and should have an investment policy to encourage post-apprenticeship.

- Vocational training projects need to focus on investing in the model of job creation after vocational training, in order to help local ethnic minority women in extremely difficult communes after vocational training to actively develop production in the world. their own profession, with the knowledge they have learned, apply to develop production, increase income, improve life to get rich.

- There should be vocational training programs suitable to the receptive ability and participation conditions of ethnic minority women in the locality.

- Implement the coordination program between the Provincial Committee for Ethnic Minority Affairs and the Women's Union of Dak Nong Province on the mobilization of ethnic minority women in general and ethnic minority women in place in the period of 2020 - 2025.

- Coordinate the implementation of the point model on sustainable poverty reduction and effective vocational training model suitable to the natural, economic and social conditions of each locality. It is necessary to research and select vocational training models suitable for local ethnic minority women living in extremely difficult areas, and vocational models that can be performed at home in association with product consumption.

-Strengthening activities to support ethnic minority women on the spot in vocational training and job creation: Only teaching occupations according to the needs of the labor market; organize vocational training classes in hamlets, at times suitable to the participation conditions of local ethnic minority female workers.

- Actively coordinate with businesses, production and business establishments... especially Business Associations and Women Entrepreneurs Clubs to create new jobs for local ethnic minority women in association with labor supply organizations. ethnic minority women on the spot. Building a network of collaborators in hamlets and credit institutions to support local ethnic minority women to access credit, develop production and business, and create jobs for ethnic minority women workers. spot number. Organize and support ethnic minority women to participate in trade promotion activities for products from craft villages, production and business establishments owned by local ethnic minority women.

On the basis of research and analysis of vocational training performance results; practical implementation of models of vocational training, job change for ethnic minority women on the spot in extremely difficult communes, the topic has proposed views and orientations on building a vocational training model; provide the bases for building models such as needs, ethnicity, locality and gender. Proposing some models of vocational training for ethnic minority women in extremely difficult communes, the study proposed two groups of solutions:

(1) Group of solutions to improve the effectiveness of vocational training for female employees of ethnic minorities in the Dak Nong province and

(2) Group of solutions on vocational training, building a vocational training model for local ethnic minorities women in extremely difficult communes in the Dak Nong province.

In the system of solutions and recommendations, along with clearly defining the responsibilities of each level of government of the political system in vocational training for ethnic minority women on the spot in extremely difficult communes, Contributing to raising the status of local ethnic minority women in the family and in society is to create conditions for poor ethnic minority women in the Dak Nong province to rise out of poverty and have stable jobs.

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FACTORS AFFECTING ON UNIVERSITY CULTURE FROM THE PERSPECTIVE OF MANAGEMENT

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Abstract

Building school culture for university is to bring values of cohesion among members and improve training effectiveness as well as the school's brand. Universities have paid attention to building school culture and satisfying their customers (students) with training services. The aim of this study is to determine factors influencing university culture of universities in Hochiminh City. A sample of 425 respondents was collected via both online and offline surveys and data were analyzed by multiple regression model. The research findings indicated that 04 factors affecting university culture including (1) service quality, (2) extracurricular activities, (3) trademark identification, and (4) connection. From these, some suggestions are proposed to build a school culture of universities in Vietnam, to enhance the brand name as well as contribute to the sustainable development of them.

Key words: *culture, corporate culture, university culture, school university.*

1. Introduction

Organizational culture is a collection of values and norms that are shared by people in an organization which governs members' behaviours and actions in pursuit of organizational goals. In addition, school culture reflects the development level of the university because paying attention to building organizational culture will help the organization reach a higher level. School culture also shows the school's own characteristics that each member is proud of. Building school culture should be considered from the perspective of training service management, with the customers that are students.

Scholars have indicated that organizational performance depends on how broad and strong the values of the culture shared in the organization (Denison 1990).

Universities are increasingly focusing on this in order to make a difference as well as increase operational efficiency and the satisfaction of partners involved such as students, students' families and businesses.

It is understood that fundamental changes in the organizational culture are needed to improve an organization's performance (Cameron & Quinn, 2006). Therefore, the purpose of this study to identify and examine factors affecting university culture in Vietnam.

The authors approach school culture from the perspective of students - the object of the training process. To achieve this aim, we applied the quantitative approach along with deployed the survey of students at some universities in Hochiminh City with the structured-questionnaires. The independent variables regarding factors affecting to university culture. From the findings, we present the implications and recommendations for managerial aspects.

2. Literature Review

School culture has been studied since the 1930s in the United States, until the 1990s it was strongly developed in developed countries. In English, it is called school culture. The concept of school culture in Vietnam has a broader meaning, not only focuses on teaching and learning activities and the interactions between target groups including managers, lecturers, staff, students, parents and businesses, but also in terms of management (the provider of school activities). So, organizational culture of universities is called school culture or university culture.

Despite the existence of numerous studies in the field of organizational culture (OC), there is no agreement about one definition of it, as there are different viewpoints of this concept. OC is considered as a unique set of the highest values, standards, basic beliefs and behavioural norms held by the majority of organizational members (Fanxing et al. 2016). Harry (2014) defined organizational culture as the "personality of an organization, a pattern of shared basic assumptions-values, beliefs and codes of practice that emerged in an organization to achieve its mission and to solve its problems". Another definition was highlighted: "OC is reflected in the values, the dominant leadership styles, language and symbols, procedures and routines, and the definitions of success that make an organization unique" (Cameron and Quinn, 1999). The notion of organizational culture implies a set of shared goals and values held in common by organizational members which inspire and motivate consistent behaviours. Policies and initiatives have expressive significance: they help define desired modes of behaviour (Richard Adams et al, 2018)

School organizational culture is defined as the result of expressing school-specific values and beliefs, ideologies, attitudes, norms, goals, etc., which influence its members' way of thinking and behavior (Kim, 2008; Owens, 2001).

Nguyen Vu Bich Hien et al (2017) said that school culture "is a set of standards, values, beliefs and behaviours", "is the distinctive features that create a the school's difference from others and the difference between one school and another", "are the good values formed by a collective and accepted by each individual in the school". Nguyen Ngoc Tho (2020) has defined school culture as a system of standard values that is created and improved constantly through the processes of interaction and behavior among educational administrators, lecturers, and students in teaching and learning activities and behaving with the outside world in order to build a wholesome and humanistic school environment, meet the needs of human resources with full "talent – will – morality".

In addition, many scientific studies presented a positive relationship between organizational effectiveness and some dimensions of organizational culture. Authors such as Denison (1990), Berson et al. (2007), Ahmed and Shafiq (2014), Serpa (2015) and Ludolf

et al. (2017) indicated that culture could affect some organizational characteristics such as performance, productivity, quality, commitment and behaviour. On the other hand, a school's positive organizational culture creates conditions for teachers to provide effective instruction to students (Firestone & Wilson, 1984; Goldring, 2002) and improves the relationship between teachers and students, ultimately contributing to school development (Kritek, 1986).

Therefore, it is crucial to pay attention to organizational culture to provide quality education services (Choi, 2010). School organizational culture is influenced externally by politics, economy, and society, and internally by principals, teachers, students, parents, and residents; therefore, organizational culture is formed differently at each school (Park, 2014)

Components of school culture

Schein (1997) indicated that the organizational culture could be divided into three levels: assumptions, artefacts and values. This is because it has a huge effect on different aspects of organizational behaviour.

Shen và Tian (2012) divided campus culture into three aspects, namely, material culture, institutional culture and spiritual culture. Material culture, commonly taken on in the form of environment and facility, is the general name of external form of materialization in the development of university. Institutional culture includes the system shared in common and the distinctive system, which mainly refers to rule and regulation system, management and operation rule and restriction mechanism. Spiritual culture refers to how campus person take part in cultural activities and what results are achieved, thus reflecting the ideology, values, psychological quality and aesthetic consciousness, etc. It includes written culture, behavior culture and mental culture. Material culture is the external symbol of campus culture. Institutional culture guarantees the orderly development of campus culture. In which, spiritual culture is the core and spirit of campus culture.

In general, school culture is a system of values, material and spiritual standards accumulated through the development of the school. Those values affect the perceptions, attitudes and behaviors of members in order to create a standard cultural environment, suitable for training purposes and to create a unique identity for each school (Tung Lam, 2017).

It can be seen that school culture is a system with elements that interact with each other. Regarding the subject, according to Deal and Peterson (2010), the factors leading to the success of school culture lie in three main target groups: managers, lecturers and students. In these, the factor that plays the leading role is managers. A successful school environment must have a team of people who can approach, embrace and actively reinforce traditions and core values, and administrators must have a leading style that helps maintain and promote student learning as well as the teaching and research of lecturers.

3. Method

Inheriting previous research results, from the perspective of university culture management, the authors proposes a research model with 6 independent factors affecting university culture, including: (1) Trademark Identification (TI), (2) Perceived Values (PV), (3) Training Service (TS), (4)Academic Environment (AE), (5) Extracurricular (EX), (6) Connection (CO).

Proposed hypotheses are:

H1: Trademark Identification (TI) has a positive effect on University Culture

H2: Perceived Values (PV) has a positive effect on University Culture

H3: Training Service (TS) has a positive effect on University Culture

H4: Academic Environment (AE) has a positive effect on University Culture

H5: Extracurricular Activities (EX) has a positive effect on University Culture

H6: Connection (CO) has a positive effect on University Culture

Table 1. Scales of the study

No	Variables	Contents	Sources
<i>Trademark Identification</i>			
1	TI1	The image of the school is easily recognized through the logo, slogan, motto	Lê Văn Hào (2018)
2	TI2	The school's brand image is displayed in many activities inside and outside the school	Lê Văn Hào (2018)
3	TI3	The school's brand image has its own characteristics	Authors
4	TI4	The school's brand image is always paid attention and improved	Authors
<i>Perceived Values</i>			
5	PV1	The school's input score is getting higher and higher	Authors
6	PV2	I am proud to be a student of the school	Authors
7	PV3	I believe in choosing to study at the school	Authors
8	PV4	The school's reputation is increasing day by day	Authors
<i>Training Service</i>			
9	TS1	The staff and lecturers are polite and enthusiastic to support students	Tùng Lâm (2017)
10	TS2	Support services for students are implemented quickly and conveniently	Authors
11	TS3	The necessary information for students is provided fully and clearly	Lê Văn Hào (2018)
12	TS4	I consciously comply with the regulations and contribute to build the school culture	Authors
<i>Academic Environment</i>			
13	AE1	The infrastructure are continuously being improved for studying	Authors
14	AE2	Teachers have appropriate teaching methods and support students well	Tùng Lâm (2017)
15	AE3	Evaluating methods are fairly and objectively	Authors

No	Variables	Contents	Sources
16	AE4	I learned a lot from the teachers	Tùng Lâm (2017)
<i>Extracurricular Activities</i>			
17	EX1	The school has many interesting clubs	Tùng Lâm (2017)
18	EX2	Joining extracurricular activities help me contribute to the community	Tùng Lâm (2017)
19	EX3	Joining extracurricular activities helps me develop personalities, practice skills and improve abilities	Authors
20	EX4	Joining in groups makes my youth more dynamic and meaningful	Authors
<i>Connection</i>			
21	CO1	The School gets on with parents and students	Tùng Lâm (2017)
22	CO2	Communication channels between the school and students are always straightforward	Tùng Lâm (2017)
23	CO3	The School's Website is really helpful for students	Authors
24	CO4	Behavior Rules are reasonable	Lê Văn Hào (2018)
25	CO5	The connection between the school and enterprises is beneficial to students	Lê Văn Hào (2018)
<i>University Culture</i>			
26	UC1	School's leaders focus on building school culture	Authors
27	UC2	School culture affects my attitude and learning	Authors
28	UC3	School culture helps the school strengthen its popularity	Authors
29	UC4	Building the school culture requires the cooperation of all lecturers, staff and students.	Authors

To answer the research questions, survey data were collected from some universities in Hochiminh City, Vietnam. The questionnaire which was sent via both online and offline approaches. The respondents were asked to state how they agree by using a 5-point Likert scale (1 = highly disagree, 5 = highly agree) with agreement with components of university culture in their university. From 2021 November to 2022 March, 425 responses in total were received and all were qualified.

In this study, a questionnaire comprising 29 determinants was designed to measure university culture. The Statistical Package for Social Science (SPSS 26.0) is used for data analysis.

4. Results

Of the 425 valid samples, there were 30.4% of the respondents were male compared to 69.6% of the total students who were female. In order to test the reliability of each factor, Cronbach's alpha of each factor was computed as below:

Table 2. Cronbach's alpha scores

Factor	Observed variables	Mean	Std. Deviation	Cronbach's Alpha
Trademark Identification (TI)	TI1	4.36	.589	.736
	TI2	3.87	.615	.722
	TI3	4.28	.659	.701
	TI4	3.72	.518	.775
	Cronbach's alpha of TI factor: 0.786			
Perceived Values (PV)	PV1	4.15	.507	.852
	PV2	4.09	.737	.753
	PV3	3.96	.765	.740
	PV4	3.93	.646	.795
	Cronbach's alpha of PV factor: 0.832			
Training Service (TS)	TS1	4.10	.611	.746
	TS2	3.62	.558	.774
	TS3	3.89	.692	.701
	TS4	4.34	.583	.757
	Cronbach's alpha of TS factor: 0.796			
Academic Environment (AE)	AE1	3.55	.480	.805
	AE2	3.98	.683	.697
	AE3	3.95	.609	.729
	AE4	4.14	.642	.711
	Cronbach's alpha of AE factor: 0.787			
Extracurricular Activities (EA)	EX1	3.98	.692	.910
	EX2	3.79	.810	.867
	EX3	3.97	.840	.856
	EX4	3.96	.801	.869
	Cronbach's alpha of EX factor: 0.904			
Connection (CO)	CO1	3.54	.622	.814
	CO2	3.85	.699	.793
	CO3	4.04	.661	.803
	CO4	3.97	.656	.805
	CO5	3.73	.587	.824
	Cronbach's alpha of CO factor: 0.840			
University Culture (UC)	UC1	3.94	.687	.856
	UC2	4.09	.732	.838
	UC3	4.10	.762	.827
	UC4	4.25	.743	.835
	Cronbach's alpha of EX factor: 0.874			

The table indicates that Cronbach's alpha scores of 6 independent variables and independent variable ranged from 0.786 to 0.904. Since 0.50 is the minimum value for accepting the reliability test (Nunnally, 1967), the results of factor analysis in this study are considered reliable.

Exploratory Factor Analysis (EFA)

The exploratory factor analysis (EFA) was conducted to test the validity of the measurement of six independent variables that met the requirements of Cronbach's Alpha reliability testing. By using SPSS ver 26.0, the exploratory factor analysis produced the results as presented in Table 3 below. The results of EFA satisfied four elements: (1) Sig value. Bartlett's test = 0.000 <0.05; (2) 0.5 <KMO coefficient = 0.948 <1; Fraction of deductible = 61,516% > 50%.

Prior to multiple regression analysis, the 25 determinants were factor analyzed using principal component analyses with varimax rotation in order to identify the structure of determinants related to university culture. The EFA analysis verified the four factors as predetermined in the questionnaire development as the table below:

Table 3. Factor rotation matrix result of independent variables

Variables	Component			
	1	2	3	4
AE4	.715			
AE2	.679			
AE3	.668			
TS1	.668			
TS4	.663			
PV3	.635			
PV2	.628			
PV1	.610			
PV4				
TS2		.687		
CO1		.686		
CO2		.635		

Variables	Component			
	1	2	3	4
TI4		.617		
CO5		.578		
CO3		.572		
TS3		.569		
AE1		.526		
CO4				
EX3			.844	
EX4			.829	
EX2			.823	
EX1			.682	
TI3				.736
TI1				.702
TI2				.650

The number of factors was determined by retaining only the factors with an eigenvalue of 1 or higher. After removing the PV4 and CO4 determinants, the first factor, Service Quality (*SQ*), comprised eight items: PV1, PV2, PV3, AE2, AE3, AE4, TS1 and TS4. The second factor, Connection (*CO*), consisted of eight items: CO1, CO2, CO3, CO5, TI4, TS2, TS3, and AE1. The third factor, Extracurricular Activities (*EX*) consisted of four items: EX1, EX2, EX3, and EX4. The fourth factor was related to Trademark Identification (*TI*), including TI1, TI2, TI3, and TI4.

With dependent variable, $KMO = .833$, $Chi\text{-square} = 840.436$ và the only one component extracted, accounted for 72.711% of the variation.

In order to investigate whether the independent variables (four factors) had significant impacts on the dependent variables (UC), Pearson correlation and regression analyses were conducted

Table 4. Pearson Correlation analysis

		SQ	CO	EX	TI	UC
SQ	Pearson Correlation	1	.724**	.594**	.632**	.785**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	425	424	425	425	425
CO	Pearson Correlation	.724**	1	.617**	.626**	.668**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	424	424	424	424	424
EX	Pearson Correlation	.594**	.617**	1	.503**	.577**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	425	424	425	425	425
TI	Pearson Correlation	.632**	.626**	.503**	1	.627**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	425	424	425	425	425
UC	Pearson Correlation	.785**	.668**	.577**	.627**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	425	424	425	425	425

** . Correlation is significant at the 0.01 level (2-tailed).

Based on the results of Pearson Correlation analysis in table 4, the Sig. of all factors (SQ, CO, EX, TI) > 0.05; therefore, there are correlations between them and the dependent variable (UC).

Multiple regression analysis

To determine the importance of each factor to online reservation intention, a multiple regression analysis was conducted. University culture was the dependent variable, while the four determinant factors were the independent variables. All variables were entered at the same time. Table 5 reports the results of the multiple regression analysis.

Table 5. Multiple regression analysis

	Std. β	Sig.	VIF
SQ	.540	.000	2.485
CO	.108	.018	2.552
EX	.108	.005	1.763
TI	.164	.000	1.872
R ² = 0.661			
Adjusted R ² = 0.658			
ANOVA (F = 204.587), Sig = 0.000 ^b < 0.05			

The result showed an adjusted R² of 0.661, suggesting that about 66.1% of the variation in overall satisfaction was explained by the regression equation, and there is no multi-collinear phenomenon because the VIF of all factors < 10.

Based on the coefficient of each independent variable, it is possible to assess the impact of each variable on the dependent variable. The findings reveal that Service Quality (SQ) was the most important factor in explaining University Culture. Trademark Identification (TI) followed in importance. Besides, Extracurricular Activities (EX) and Connection (CO) have the same positive impacts on the dependent variable (UC).

5. Discussion and Conclusion

Overall, this study basically meets the original objectives, the findings showed that university culture is influenced by four factors in descending order: Service Quality, Trademark Identification, Extracurricular Activities and Connection.

According to the results of the study, from the practical perspective of management, if universities would like to improve training quality by enhancing university culture, they should pay enough attention to the following elements:

Service Quality, each university constantly improves service quality through strengthening infrastructure and modern learning equipment, investing in human resource concluding lecturers and staff. Besides, the university should enhance cultural confidence and cultural consciousness for all members.

Connection, it is necessary to consider the connection of the university with partner involved. First of all, building a convenient and effective information channel with students and their families. Expanding cooperation with businesses will create chances for students to practice what they study and get good job after graduation.

Extracurricular activities, each university needs to build and maintain regularly specific-major clubs and social clubs. This is a useful playground for students to carry out research and practice necessary abilities and skills.

Trademark Identification, each university needs to clearly define its vision, build its own unique brand identity and implement it continuously. Therefore, the building of school culture needs to be done for a long time to get sustainable results.

Limitations and suggestions for future research

This research basically achieved the research objectives that stated above. However, the research still has certain limitations which are expected to be improved in the future research. First, due to the constraints of time, the sample is chosen by applying non-probability convenience method with a limited number of samples of respondents in some universities in Hochiminh City, not the whole nation. Secondly, students from universities which are not separated in fields such as economics, technologies, and social sciences with own characteristics.

The findings of our study indicated the necessity for universities to build and maintain their university culture in the long-term period. We do expect that our study will stimulate more and more additional studies on this domain as well as on this promising and interesting group.

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THE BEHAVIOR OF WORKERS IN PRODUCTION IN BAC THANG LONG INDUSTRIAL PARK IN HANOI

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Abstract

The study aims to evaluate the standard deviation behavior of workers in enterprises today. The study was approved by the scientific council of the University of Social Sciences and Humanities - Hanoi National University under Decision No. 993/QĐ-XHNV-ĐT dated May 10, 2021. Survey data of 189 employees in Bac Thang Long industrial park about the expression and attitude and reaction of employees about the current deviant behaviors of workers based on survey results by polls and in-depth interviews. The results show that the serious deviant behaviors have a low rate, and the less serious behaviors have a higher rate, and the employees tend to oppose the deviant behaviors when related. directly related to their individuality.

Key word: *Deviant behavior, Laborer, Bac Thang Long Industrial Park - Hanoi*

1. Introduction

Deviant behavior is behavior that deviates markedly from social norms (Lance, 2003; Liu and Hsu, 2013) or in a way that is morally unacceptable, however, the degree of its transgression. not to the extent that it violates the IPDB (Lance, 2003). Deviant behavior in the working environment is the act that violates the rules, regulations, and IPDBs of the organization and harms the interests of individuals or groups to varying degrees (Robinson and Bennett, 1995). In the lifestyle of young people, there are manifestations of deviant behavior (Luu Song Ha, 2004; Pham Hong Tung, 2011). In enterprises, there are always two extremes of social solidarity and social conflict between individuals and social groups (Do Thi Van Anh, 2014).

From the summary, it can be concluded: A group of less serious acts of deviating from the standard include: (1) Acts of destruction of property (destroying or intentionally damaging property) is an act of destruction that causes damage to property. property has lost its use value or significantly reduces its use value, which is demonstrated through improper operation, intentional damage to items; production items that can still be used but are replaced, or know that the items are damaged but do not repair... This offender has acts of damaging, intentionally damaging other people's property, the act mentioned above It is expressed in many different ways, such as this person actively smashing, or burning, or bringing other people's property into the water, intentionally leaving the property damaged... resulting in this property. damaged, depreciated, or destroyed. (2) The act of stealing

property is the act of stealthily appropriating another person's property; taking advantage of the loopholes, caught off guard of the owner, the property manager, or taking advantage of the situation without the knowledge of the property manager. There are consequences that the property is appropriated in one of the following cases: (i) With large and bulky assets, the offender must be able to move that property out of the scope of storage; (ii) With property without a separate place to store it, the offender must take that property out of the area (the crime scene) to complete it; (iii) In exceptional cases: assets from 2 million VND or more, if the value is very large such as cars, motorbikes, computers, etc., even if the offender has not yet appropriated the property, it is still considered a crime. (3) Causing harm to the health and dignity of others is expressed in the following forms: quarrels, fights, insults, cursing at others, sexual harassment...

Groups of acts of a less serious nature, but also greatly affect the business, such as: (4) Working separately during working hours; (5) Leaving late / leaving eaERY; (6) Prolong working time; (7) Distraction from work.... The problem of labor workers violating rules, regulations and internal labor regulations still exists in the working environment at enterprises, factories and enterprises; causing damage to enterprises and factories, and even damage to properties and materials of those units. From the problems arising in the industrial park, especially in the working environment of labor workers, the article delves into whether worker tend to violate regulations and rules of enterprises. pose and the causes that influence their course of action.

2. Method

The study was approved by the scientific council of the University of Social Sciences and Humanities - Hanoi National University under Decision No. 993/QĐ-XHNV-ĐT dated May 10, 2021. Survey on deviant behavior. According to the standards of workers in Bac Thang Long industrial park, the author has built a scale of standard deviation in labor behavior including 02 large groups with 7 groups of behaviors in the working environment. The influencing factors include: (i) Perception of deviant behavior; (ii) Employees' reactions to deviant behaviors; (iii) The acquisition of situations on social networks.

The study conducted a survey with 189 workers at Bac Thang Long industrial park. The male group has 41.8%, the female group has 58.2%; in terms of age from 18 to 25 years old is 77.8%, from 26 to 30 years old 12.1%, over 30 years old is 10.1%; High school education level accounts for 74.6% and above high school level is 25.4%

Survey data were processed by SPSS software with descriptive statistics such as percentage, mean score, standard deviation, reliability of scale, factor analysis and regression analysis. linearity for the purpose of evaluating the standard deviation behaviors in the working environment, and the factors affecting the deviant behavior of workers in the Bac Thang Long industrial park.

3. Results

3.1. Evaluated reliability

Table 1. Descriptive statistics and evaluation of scale reliability

	Descriptive statistics		Item-Total Statistics			
	Mean	Std	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Property destruction (PD): Cronbach's Alpha=0.809						
PD1. Improper operation of the procedure	0.875	.175	12.52	2.692	.562	.792
PD2. Intentionally damaging items	0.16	.244	12.48	2.457	.736	.708
PD3. Production equipment is still usable but has been replaced	1.51	30.2	12.53	2.376	.759	.695
PD4. Know damaged items but do not fix	1.245	.493	12.47	2.909	.468	.832
Theft of property (TP): Cronbach's Alpha=0.720						
TP1. Taking business supplies for personal use home/sell/give/gift to others	1.245	.621	8.13	1.597	.607	.552
TP2. Bringing business items	1.35	.486	8.16	1.579	.553	.616
TP3. Combine/associate with others to use/take the business's belongings for private purposes	0.95	.484	8.10	1.741	.466	.719
Acts that harm the health and dignity of others (HHD): Cronbach's Alpha=0.907						
HHD1. Inflicting injury, fighting	0.74	.486	16.43	9.501	.760	.888
HHD2. Insults, curses at others	0.95	.376	16.44	9.496	.763	.887
HHD3. Sexual harassment of others in the business	0.875	.481	16.42	9.471	.798	.880
HHD4. Threatening/bullying others in the business	0.425	.356	16.53	9.568	.731	.894
HHD5. Slander, discredit others	1.475	.381	16.41	9.704	.780	.884
Deviant behaviors of a less serious nature (DBL): Cronbach's Alpha=0.823						
DBL1. Working separately for hours	1.58	.501	12.65	3.700	.709	.770
DBL2. Go late/ leave eaERy	1.325	.500	12.90	3.790	.567	.830
DBL3. Deliberately prolonging working hours	1.295	.486	12.67	3.717	.676	.782
DBL4. Distractions at work	2.515	.308	12.89	3.242	.709	.767
Perception of deviant behavior (PDB): Cronbach's Alpha= 0.908						
PDB1. I see the assets of the business have nothing to do with me	3.34	.402	12.16	3.827	.778	.885

	Descriptive statistics		Item-Total Statistics			
	Mean	Std	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PDB2. I find it normal to use business assets for my own purposes	3.60	.413	12.20	3.532	.807	.875
PDB3. I find it normal to work alone during working hours	3.96	.484	12.32	3.640	.755	.894
PDB4. Swearing, swearing/slandering, insulting others is very normal and is a common phenomenon in businesses.	4.12	.488	12.26	3.673	.831	.867
(ER) Employees' reactions to deviant behaviors: Cronbach's Alpha= 0.941						
ER1. I don't see other people commenting on my deviant behavior	3.76	.752	17.30	6.830	.847	.926
ER2. Others find struggle can be dangerous to themselves	3.95	.493	17.29	7.002	.850	.926
ER3. They only object when the matter concerns themselves	4.5	.484	17.38	7.245	.740	.945
ER4. Other people often ignore it because they have done it too	3.86	.495	17.33	6.682	.882	.920
ER5. People do not report because they see that the feedback is not recognized and handled by their superiors	3.69	.406	17.33	6.730	.888	.919
Social network: Cronbach's Alpha= 0.899						
SN1. Violent clips/images	3.56	.481	32.66	20.155	.745	.870
SN2. Sexy, erotic clips/images	3.01	.495	32.73	20.047	.722	.871
SN3. Theft clip/image	3.12	.326	32.72	20.328	.738	.871
SN4. Clip/image of hiding from work	2.96	.464	32.67	20.038	.759	.869
SN5. Protest clip/image	3.15	.498	33.21	20.488	.641	.904
SN6. Clip/image smashing factory machinery	2.76	.348	33.13	19.961	.683	.896
SN7. Clip/image of swearing	3.78	.412	32.69	20.644	.698	.874
SN8. Clips/images of others	3.89	.498	32.82	20.236	.677	.874
SN9. Clips/images of bad content	3.02	.344	32.73	19.724	.824	.864

Evaluation of the reliability of the scale with the reliability coefficient of most of the scales is Cronbach's Alpha > 0.6, and all the criteria have the total variable correlation coefficient > 0.3, which is satisfactory to include and factor analysis.

3.2. Factor analysis

Table 2. Pattern Matrix

	Factor						
	1	2	3	4	5	6	7
SN9	.906						
SN1	.818						
SN2	.805						
SN3	.796						
SN4	.782						
SN7	.746						
SN8	.680						
SN6	.577						
SN5	.571						
ER5		.965					
ER4		.911					
ER2		.841					
ER1		.820					
ER3		.744					
HHD5			.833				
HHD3			.831				
HHD2			.815				
HHD1			.809				
HHD4			.791				
PDB4				.930			
PDB1				.872			
PDB2				.810			
PDB3				.756			
DP2					.966		
DP3					.909		
DP4					.554		
DP1					.525		
DBL1						.845	

	Factor						
	1	2	3	4	5	6	7
DBL4						.807	
DBL3						.763	
DBL2						.573	
TP1							.839
TP2							.679
TP3							.528
Extraction Method: Principal Axis Factoring. Rotation Method: Promax with Kaiser Normalization; Total Variance Explained: 63.063 KMO =0.860; Bartlett's Test=0.000							

The factor analysis results show that most of the coefficients KMO=0.860, Total Variance Explained: 63,063, observed variables have factor loading>0.5. After factor analysis, the criteria will automatically be determined. Reductive extraction forms a new way of factoring into regression analysis.

Table 3. Regression results of factors affecting worker's standard deviation behavior

	Unstandardized Coefficients		Standardized Coefficients	t	Sig	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.663	.238		6.996	.000		
(ER) Employees' reactions to deviant behaviors	.246	.032	.351	7.623	.000	.957	1.045
(PDB) Perception of deviant behavior	.215	.041	.241	5.208	.000	.946	1.057
(SN) Acquiring situations on social networks	.197	.042	.217	4.711	.000	.957	1.035
R=0.546, R ² =0.298, Adjusted R ² =0.292, F=48.961, Sig=0.000, Durbin-Watson= 1,955							

Regression results shown with three factors were included in the statistical model $F = 48,961$ with $\text{sig} = 0.000$, showing that the regression model is suitable for the data set. Durbin-Watson is $1,955 < 3$ with no correlation between variables in the model. The VIF coefficients of all variables are < 10 , showing that there is no multicollinearity phenomenon. Adjusted $R^2 = 0.292$ shows that 29.2% of the variation of the dependent variable is explained by the independent variables. Unnormalized regression equation: $\text{HVLC} = 0.663 + 0.246 \text{ PHU} + 0.215(\text{NT}) + 0.197(\text{MXH})$.

4. Discussion and Conclusion

4.1. Situation of standard deviation behavior of workers in Bac Thang Long industrial park

* Standard deviant behavior

The survey results show that serious deviant behaviors are deviant behaviors that affect the relationship between workers and workers or between workers and employers. The deviations in the behavior of property destruction, property theft or harm to the health/dignity of others in the enterprise analyzed below also affect the atmosphere in the working environment because it has a lot to do with interpersonal behavior.

The act of destroying property in the business is one of the violations of the law and has a great influence on the business. The acts of worker intentionally damaging (mean=0.16), operating improperly (mean=0.87) occur at a very rare level because these are behaviors with very serious consequences to enterprises, if employees are discovered they may be disciplined, even fired. The behaviors that the item can be used but can still be replaced (mean=1.51) or known that the item is damaged and cannot be repaired (mean=1.25) do occur in the business, but to a lesser extent these behaviors. There are two trends when they replace new equipment to get old equipment that can still be used for personal purposes, or the level of damage is not really too serious and they want to push the responsibility. repair for the next shift.

Property theft, shows that workers labor has committed property theft in the enterprise with a degree (mean from 0.95 to 1.45). Thus, it can be seen that the level of property theft is low, but it is worth noting that these acts still occur in many companies and businesses. even employees have a combination/association with other people to use/take the company's belongings for their own purposes, proving that there is a connection between individuals in deviant behaviors for their own benefit. As such, there is a relatively small degree of organized theft of property in workers' businesses.

Behaviors that damage the health/dignity of others surveyed tend to be lower than the two groups of acts of destruction of property and theft of property in the basic enterprise with mean<1.0. However, the act of defaming and discrediting others has a higher level than mean=1.45. These behaviors significantly affect the labor relations in the enterprise, the relationships between individuals and individuals, and the relationship between individuals and the collective.

*Standard deviant behavior of a less serious nature

Besides the group of behaviors with serious manifestations such as: property destruction, property theft, damage to the health/dignity of others, the group of behaviors about positivity at work workers belong to the group of non-serious behaviors.

The survey data show that the group of non-serious behaviors about being positive at work is higher than the group of behaviors causing serious consequences. In which, the group of behaviors that assessed distraction at work had a higher level than the group

of behaviors about hours and working habits of agencies and enterprises. Working separately during the hour (mean=1.58), Leaving late/ leaving early (mean=1.35), Deliberately prolonging working time (mean=1.29), Distracting at work (mean=2.51). Distraction at work is a latent form of labor consciousness, workers still complete their work, but with inactivity, resulting in products that will not be perfect when finished. It is the latent of the form that one behavior tends to be superior to others. The group of behaviors that deviate from the standard in terms of working hours, labor intensity, and accuracy of working time have below average performance levels. These behaviors belong to the group of behaviors related to individuals, or in other words, the use of individuals to spend the least amount of labor. Therefore, workers tend to accept and even violate these behaviors more. The behaviors of this group often fall into the issue of awareness and responsibility of individuals in observing the rules and standards of the agency or unit where they are operating.

4.2. Factors affecting worker's deviant behavior

The action process of individuals depends on many factors. In this study, the author evaluates the impact of perception, action environment and the acquisition of social situations from the mass media. In the analytical model, the regression coefficients all have positive signs (+), indicating that the independent variables have a positive relationship with the dependent variable.

Perception of deviant behavior (PDB) has the strongest influence ($\beta_1 = 0.351$) on individuals' standard deviant behavior. The social environment, the context in which the action takes place has a strong influence on the behavior of individuals. If the majority of employees do not reflect and reflect on the deviant behaviors, it will create more conditions for the deviant behaviors of individuals to take place. The research results show that workers' reactions when detecting/seeing the above-mentioned deviant behaviors are usually not strongly opposed. They often ignore, or ignore as if. *I am very limited or I can say that I do not comment / frankly mention the shortcomings of others. I do not want to "bring disaster", bring trouble to myself, my family. At the company not long ago, there was a situation where Mr. A commented to Mr. B about being distracted at work, leading to the two brothers raising their voices and fighting, so everyone refrained from commenting. each other's shortcomings". (Female, 27 years old, worker). "At the company, there has also been a situation where workers have quarreled and fought recently, the reason being only that Mr. A commented on Mr. B's recent distraction at work, so usually everyone in the company do not openly point out each other's shortcomings"* (Female, 25 years old, worker). The people in the enterprise do not have any opinions about the deviant behavior of the individuals (mean=3.76); Workers who report deviant behavior can be hated by everyone and put themselves in danger (mean= 3.95), sometimes people do not report it because they see that the feedback is not recognized by their superiors. and handle (mean=3.69) and others do not react, preventing deviant behaviors because they have done so in the past

(mean=3.86) and others only react when the problem is present. related to themselves (mean=4.5) Because they are afraid to point out each other's shortcomings, employees in the company are often less likely to prevent deviant behaviors. In fact, most workers in the company are often "afraid" to point out the shortcomings of others, even more do they not want to "get into trouble" when preventing negative manifestations, especially when it is not related. nothing to do with them.

Employees' reactions to deviant behaviors (ER) behavior has a second network effect ($\beta_2 = 0.215$), which shows that employees find that their standard deviant behaviors are completely acceptable, the more they tend to do so. their deviant behaviors in the business. Employees believe that the assets of the enterprise have nothing to do with them (mean=3.34), so they can completely use the assets of the enterprise for their own purposes (mean=3.60), and the use of Working time to work alone is also completely acceptable (mean=3.96) so they may not consider the business as a place of attachment during their work. The survey data show that workers in the industrial park were partly aware that the above behaviors are standard deviations that not only represent a violation of the enterprise's internal regulations, but also shows the ethical violation of the workers in the enterprise.

Acquiring situations on social networks (SN) has the third effect ($\beta_3 = 0.197$) on deviant behavior. The influence of the mass media on young people and workers shows that the more situations workers absorb situations, the more deviant behavior online, the more likely they are to deviate from action. The Internet is increasingly developed, with the means of smartphones and 3G, 4G, 5G technologies making it easier to produce and share images, sounds, clips on social networks more and more easily: clips, videos related to deviant behaviors in general or related to workers, have the power to spread quickly on social networks... Frequency of exposure to images, sounds, Deviant clips and videos increase the likelihood of workers performing deviant behavior. In fact, workers often watch violent clips/images (mean = 3.56), sexy and erotic clips/images (mean=3.01); Clip/image of swearing (mean=3.78), clip/image of contempt for others (mean=3.89), clip/image of theft (mean=3.12), clip/image of avoiding work (mean) =2.96), Clips/pictures of demonstrations (mean=3.15), Clips/images of smashing factory machinery (mean=2.76), clips/images of instructions for bad content (mean=3.02). It is from exposure to deviant images, sounds, and clips that workers tend to follow such as theft, swearing, swearing, violence, even smashing factories and machines. of business owners.

Through analysis and evaluation of standard deviation behaviors of workers in Bac Thang Long industrial park, it was found that: workers showed signs of violating regulations and rules of the organization to a normal extent, more often than serious violations. Among the influencing factors, the unresponsiveness of others has the strongest effect on the worker's standard deviation behavior.

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SOME FACTORS AFFECTING TO WORKING MOTIVATION OF LECTURERS AT MANAGEMENT LEVEL IN SOME PUBLIC UNIVERSITIES IN HANOI

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Abstract

From the previous research on "Employees' job satisfaction", and consulting, interviewing 10 knowledgeable experts majoring in human resources, the author offers a research model with factors affecting to job satisfaction, associated with operational practice as follows: (1) Regulation, (2) Leadership, (3) Work Nature, (4) Working environment, (5) Income, salary, (6) Training for advancement, and (7) General satisfaction. These factors will be assessed the reliability scale, exploratory factor analysis (EFA) to test the hypothesis. In the study, there are 7 scales with 28 observed variables of 5 independent factors and 5 observed variables of 1 dependent factor that meet the requirements of reliability for exploratory factor analysis. The result obtained after running that the model again with 27 observed variables representing 6 independent factors affecting job satisfaction is the best model to explain and analyze. The author uses a regression model to test the reliability of the factors affecting the satisfaction of management-level lecturers at some universities in Hanoi. Through the tests, it can be confirmed that factors affecting to labour satisfaction in order of importance are: (1) Training and advancement is the factor that has the strongest influence on satisfaction; (2) Leadership is the second strongest factor affecting to satisfaction; (3) Working environment is the third strongest factor affecting satisfaction; (4) Salary and income ranks the fourth; (5) Regulation is the fifth strongest factor affecting to satisfaction; (6) The job nature is the last strong influencing factor on job satisfaction. From the analysis results, the author proposes some solutions to improve the job satisfaction of lecturers at management level in some public universities in Hanoi.

Keywords: *Working Motivation, Public Universities, Management Level*

1. Introduction

Job satisfaction of employees in each organization determines the success or failure of each organization at present and in the future. The growth of the economy has created a "war to attract and keep talented people", forcing businesses to create new welfare regimes to attract and retain good staff. However, when the economy suffer from difficulty, many companies have to cut their employees' benefits, and at the same time maintaining human resources is always a difficult problem for enterprises. Practice shows that a satisfied employee is a person who not only is attached to the company but also represents the business, for the brand of the business in the market places, so the satisfaction of employees in the company. Job satisfaction is one of the key goals of human resource workers and business leaders.

In the public university environment, it becomes even more difficult to motivate lecturers because the process of increasing their benefits often takes place in a rather lengthy process. Wilhelm von Humboldt, who founded the University of Berlin in 1810, put forward the view that the teacher has a great capacity for self-improvement. They have a high sense of the process of improving their knowledge and ability to work, both in terms of ideas, knowledge and actions. They actively engage in systematic and continuous self-improvement, building their self-confidence and understanding, and creating academic careers. Motivation for self-improvement keeps teachers engaged in the learning and research process. However, some higher education institutions focus only on teaching as their core mission (Kriengsak Chareonwongsak, 2002) and often forget to motivate lecturers; thus, teaching staffs are generally invisible and suffer from a lack of motivation to promote academic productivity (Sarawut Seedee, 2004). In addition, the stability of work and job positions in state agencies easily leads to stagnation in the thoughts and actions of employees, leading to difficulties in motivating their employees.

This writing is the result of studying the work motivations of lecturers at management level in a number of universities in Hanoi, from which the author gives some suggestions to help create work motivation, motivate the main workforce - lecturers - in public universities to become more effective. The paper focuses on answering questions (1) What factors affect job satisfaction of lecturers at management level in some public universities in Hanoi? (2) How do the factors affect the job satisfaction of this faculty? (3) What needs to be done to improve job satisfaction for these incumbents?

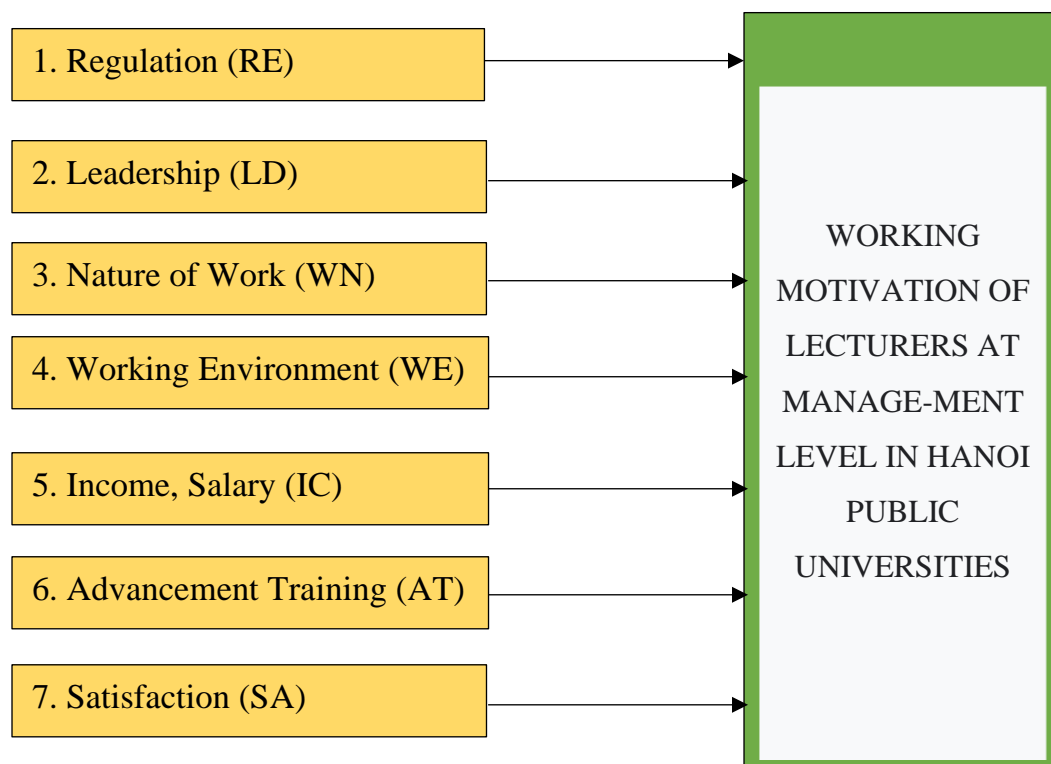
2. Literature Review

Practice shows that a happy employee is more loyal to the business, they can go far to achieve common goals, and feel proud of their work, their team and their own achievements. According to Michael Page's report, "Professional recruitment service company" on job prospects in 2020 asked survey questions related to factors affecting employee satisfaction in Vietnam. Nearly 50% of Vietnamese workers think their potential status has not been optimized; Five important factors affecting their labor motivation are: (1) The company's commitment to employees; (2) Clear personnel training and development plan; (3) There is a plan to increase salary; (4) Have a promotion plan; (5) Have a flexible working plan; The three main reasons workers quit their jobs are because: (1) There are better opportunities elsewhere waiting for them; (2) Their capacity is not being used properly; (3) Does not match the leadership style of superiors; and five important factors that make them switch to a new job because they are: (1) Working in a new industry or with a new challenge; (2) Optimizing skills and capabilities; (3) Seeing the right work culture; (4) Have better labor rights; (5) Better leadership and guidance style of superiors.

In their research, Smith and colleagues (1969) designed a JDI model with 72 different questions and concluded that there are five main factors to measure employee satisfaction at work: (1) Nature of work; (2) Income; (3) Opportunities for advancement training; (4) Leadership and (5) Colleagues.

Tran Kim Dung (2005) tested the job description index scale according to the JDI model of Smith et al. (1969) in the working conditions of Vietnam and concluded that there are 6 variables affecting the job performance. job satisfaction includes: (1) Nature of work; (2) Leadership; (3) Opportunities for training – promotion; (4) Colleagues; (5) Salary and (6) Benefits.

After synthesizing previous studies and consulting with experts, preliminary surveying incumbent lecturers selected by job position, the author proposes a research model including 7 influencing factors. affecting the job satisfaction of lecturers at management level in a number of public universities in Hanoi including: (1) Regulations, (2) Leadership, (3) Nature of work, (4) Working environment, (5) Income, salary and income, (6) Training for advancement, and (7) General satisfaction. These factors will be included in the assessment of the reliability of the scale, the EFA exploratory factor analysis.



Source: Author's research model

3. Results

3.1. Factors affecting job satisfaction of lecturers at management level in a number of universities in Hanoi

In this paper, there are many factors affecting to job satisfaction of lecturers at management level in some public universities in Hanoi; therefore, the author decided to carry out exploratory research with the aim of (1) Narrowing and identifying factors affecting job satisfaction of incumbent lecturers in some public universities in Hanoi, (2) Seeking advice from experts understand the HR field of research author questions for timely adjustment before conducting formal research.

3.1.1. Testing the scale by Cronbach's Alpha reliability coefficient

The measurement scale system is evaluated and tested for reliability coefficient Cronbach's Alpha to check the correlation coefficient and relationship between variables, through exploratory factor analysis EFA to test the interaction between variable, measure in each factor.

The results of Cronbach's alpha of the scales on the components of regulation, leadership, job characteristics, working environment, salary, income, training, promotion, and satisfaction are shown in the table below. The scales are represented by observed variables. These scales all have satisfactory Cronbach's alpha reliability coefficient (>0.6).

Table 1. Testing the reliability of the scales by coefficient

Observed Variables	Cronbach's alpha
Regulation (RE)	0.815
Leadership (LD)	0.833
Nature of work (WN)	0.807
Working environment (WE)	0.825
Income and Salary (IC)	0.890
Advancement training (AT)	0.857
Job Satisfaction (JS)	0.812

Thus, after assessing the reliability of the scale, the model includes 7 factors regulation, leadership, nature of work, working environment, salary and income, training and promotion, and job satisfaction. heart. These factors will be included in the EFA exploratory factor analysis.

The author gives 28 observed variables representing 6 independent factors affecting to satisfaction, and they are reliable enough to conduct factor analysis. As a result, all the observed variables satisfy the condition that Factor loading coefficient > 0.5, in which the observed value of LD5 loading is in the same 2 factors, so remove the variable LD5 and run the model again. The result obtained after running again is that the model with 27 observed variables representing 6 independent factors affecting to satisfaction has the best ability to explain and analyze.

✚ The appropriate test of the EFA factor analysis model (KMO) and the correlation test between the observed variables (Barlett's Test)

Table 2. KMO coefficients and Bartlett's test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.796
Bartlett's Test of Sphericity	Approx. Chi-Square	2214.366
	df	351
	Sig.	.000

Source: SPSS result

The results of the EFA analysis for the independent variables of the above mentioned factor rotation matrix show that all factor loading coefficients of the observed variables satisfy the condition when factoring is that the factor loading coefficient ≥ 0.5 and the multiplier. The factor generated when factor analysis is 6 factors with 27 observed variables.

The results of EFA analysis for the above dependent variables show that all the factor loading coefficients of the observed variables satisfy the conditions when factor analysis is Factor loading coefficient ≥ 0.5 and the number of factors generated when analyzing factor is 1 factor, no observed variables are excluded.

Thus, the research model and scales after conducting EFA exploratory factor analysis include 6 independent factors affecting job satisfaction.

✚ Hypothesis testing on the significance of regression coefficients:

From the results of Table 2, it shows that the significance level of RE, LD, WN, WE, IC, AT has sig significance level < 0.05 , so it is accepted with 95% confidence level.

The independent variables are correlated with the dependent variable, suitable to include in the explanatory model for the dependent variable satisfaction.

Table 3. Regression coefficient results

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	-.077	.236		-.326	.745		
RE	.116	.043	.148	2.720	.007	.700	1.428
LD	.173	.055	.186	3.157	.002	.595	1.680
WN	.109	.050	.120	2.175	.031	.686	1.457
WE	.164	.052	.177	3.174	.002	.668	1.496
IC	.252	.036	.349	7.057	.000	.846	1.182
AT	.205	.051	.231	4.021	.000	.631	1.585

a. Dependent Variable: HL

Source: SPSS Result

The present summary results show that the model with the independent variables: RE, LD, WN, WE, IC, AT has a sig significance level ≤ 0.05 with the dependent variable; therefore, 6 independent variables are correlated and significant with dependent variable (JS) satisfaction with over 95% confidence.

Through Table 3 above, the regression coefficient results, the regression equation shows the relationship between the factors that form the satisfaction as follows (with unnormalized beta coefficient):

$$\text{Job Satisfaction (JS)} = -0.77 + 0.116*\text{RE} + 0.173*\text{WE} + 0.109*\text{WN} + 0.164*\text{IC} + 0.252*\text{AT} + 0.205*\text{LD}$$

From the regression results, we can conclude in the following table:

Table 4: Hypothesis testing of the research model

Hypothesis		Results
Hypothesis H1	Regulation has a positive correlation with satisfaction	Accepted
Hypothesis H2	Leadership has a positive correlation with satisfaction	Accepted
Hypothesis H3	Job characteristics are positively correlated with job satisfaction	Accepted
Hypothesis H4	Working environment has a positive correlation with satisfaction	Accepted
Hypothesis H5	Wages and earnings have a positive relationship with job satisfaction	Accepted
Hypothesis H6	Training for advancement has a positive relationship with satisfaction	Accepted

Source: SPSS Result

Through the tests, it can be confirmed that the factors affecting to job satisfaction ranked in order of importance are:

- + Training and advancement is the first factor that has the strongest influence on job satisfaction
- + Leadership is the second strongest factor affecting to job satisfaction.
- + Working environment is the third strongest factor affecting to job satisfaction.
- + Salary and income is the fourth strongest factor affecting job satisfaction.
- + Regulation is the fifth strongest factor affecting satisfaction.
- + The nature of the job is the last influencing factor on job satisfaction.

4. Discussion and Conclusion

Proposed some solutions to improve job satisfaction of lecturers at management level in some public universities in Hanoi:

Adjustment of promotion training policy

According to the above test results, the policy of training for advancement is the first factor that has the strongest influence on the working motivation of lecturers at management level; Therefore, public universities in Hanoi should develop some specific working groups for training them policies differently such as:

For policy training, universities need:

- + Strengthen communication techniques about training roadmaps, processes, procedures, rights, responsibilities and professional training programs, compulsory management skills training, but contents of these programs should be changed to practical training contents, specific and consistent to training target, instead of rambling and persuding quantity.

- + Diversify training methods on the basis of applying information technology in training such as, building an online training platform combined with face-to-face training or blended trainig at the university.

+ Develop some learning programs outside campus, attach to responsibilities and interests of each individual with the training costs paid by the school. The training content needs to solve the immediate problems and prepare for the long term for the development orientation of the school;

With the promotion policy, universities need:

+ Publicize the roadmap, promotion policy at each position; create a fair working promotion environment for all members (with superior evaluation criteria to encourage outstanding talented people);

+ Build a comprehensive human resource assessment software with updated general data by industry, digitize criteria, scales and make clear evaluation results monthly, quarterly, yearly and assess the whole working process.

+ Clarify rights and responsibilities for each position and conveying the opened and comfort spirit and attitude, and the culture of the university (the culture of resignation when not completing the task) to each individual whenever there are changes in positions, or rise and fall in position.

Improve the quality of the leadership team

According to the accreditation results, improving the quality of the leadership team is the second strongest factor affecting to work motivation of lecturers at management level, which requires the university to develop a toolkit, and form a basis project data for evaluating the quality of the present management lecturers and continuously develop the staff through the application of information technology to the management of the leadership team as well as develop the next leadership team, such as:

- Improve the professional quality and expertise of the leadership team through various channels such as creating a professional community; scientific and professional activities among faculties and institutes; establish a professional reference bookcase; invite expert speakers to the training school; establish expert tutoring groups with in-depth expertise.

- Build a process of assessing the credibility of positions with confidentiality of information to help senior leaders of the university make appropriate adjustments for all levels of personnel management.

Improve the working environment

According to the test results, improving working environment is the third strongest factor affecting to job satisfaction of lecturers at management level, which requires the universities to have plans to improve the working space, work types and facilities with suggestions such as: changing the arrangement of lecture hours and semesters so that the lecturers can actively arrange time, have time to spend with family and rest and regain energy; Encourage and reward individuals, groups, faculties and institutes with models of greening their workspace and harmonizing with the school's identity; support the development of faculties and institutes according to the characteristics of their department and faculty.

✚ Improve income, adjust salary and social welfare framework

According to the test results, income and salary is the fourth strongest factor affecting to job satisfaction of lecturers at management level in order of affecting levels to their satisfaction; therefore, the university should build policies to increase income, salary, social welfare. The university should pay salary according to lecturer's performance with the value of contribution of each position and associated with the reality of Vietnam's economic and social life at each time to offer different vertical and horizontal salaries, salary, bonus and allowance policies associated with each target group according to size of their faculties and institutes. Especially with the teaching staff at the management level, in the short term, the university should have a policy of rewarding the increment according to the results of scientific research, according to the survey evaluation scores from students, according to the trust of the community. subordinate career;

✚ Adjust general and specific regulations according to work groups

This is the fifth strongest factor affecting to job satisfaction of present lecturers at management level, which requires the universities to review their general regulations and regulations by departments, faculties and institutes. The universities should set up a group of regulations, review and revise the general and specific regulations that have been issued by the university within 3 years, because with the constant change in communication technology, skills, the way of working in this industry has changed a lot, especially when the Covid-19 pandemic occurs, the way of working, meeting and studying has been changed from face-to-face to online method; The university should internally communicate the general and private regulations to all employees who understand and share their personal views on those rules and regulations; Support present lecturers at management level so that they can create game rules to bring the universities' difficult rules and regulations into the minds of junior staff and lecturers to help present lecturers at management level feel secure about their work; Universities should develop policies that are specific to work groups, especially for faculties and institutes whose members are mostly females; Regularly re-evaluate the regulations according to the group, according to the arising work to make appropriate adjustments to that arising group or work; Forming thinking in the whole organization about the correct implementation of regulations is the driving force of the enterprise's development.

✚ New design job description and job reorder

According to the test results, job position is the sixth strongest factor affecting to job satisfaction of present lecturers at management level, which requires the universities to have a number of things to do right away such as: Quickly conduct research and put into operation the project "job position" to empower and assign clear and specific responsibilities to each incumbent lecturer at management level. Especially for management-level lecturers, the university needs to re-evaluate job descriptions, add assessment tools, thereby investing in an application software suitable to the management model, organization of faculties, institutes, and departments with fixed variables, changes according to each management position in the university; Re-evaluating current jobs, redesigning jobs, analyzing new arising operations in

the context of applying technological achievements to management, as well as impacts of the Covid-19 epidemic to make recommendations for new organizational models associated with changes of management position in the new development strategy of the university; thereby, comprehensively assess the risk levels in the short, medium and long term.

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MANAGING THE MODEL OF EDUCATION ON SOCIAL EVILS PREVENTION SKILLS IN LOWER SECONDARY SCHOOLS OF HANOI CAPITAL CITY IN THE CURRENT DIGITAL TRANSFORMATION CONTEXT: SITUATION AND PROBLEMS TO BE SOLVED

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Abstract

Managing social evils prevention and control skills education activities for students in lower secondary schools in Hanoi capital has been conducted mainly by integrating content of social evils prevention and control skills education for lower secondary school students through teaching subjects, educational activities outside of class time, extracurricular activities and collective activities. The research results on the current situation of management and development of an educational model of social evils prevention and control skills and sustainable community development for students at lower secondary schools in Hanoi have shed light on the issues of theoretical topic and a practical basis for the author to develop management solutions to develop an educational model of skills in social evils prevention and control and sustainable community development for students in lower secondary schools in the current digital transformation context to prevent social evils in schools, contributing to comprehensive personality education for students.

Keywords: *Model management; Education on social evils prevention and combat skills; Hanoi capital lower secondary schools; Digital transformation context.*

1. Introduction

In the current period, we are living in the early years of the 21st century - the century of integration, Vietnamese society is affected both positively and negatively by the market mechanism. Improved social life leads to development evils such as addiction, violence, gambling, cheating...These evils are like a dangerous epidemic spreading throughout the school. According to education experts, the root cause is their lack of skills to live with life's difficulties such as parents' divorce, family breakdown, decline in schooling, etc. They have been drawn into the wrong path. pragmatic life, demanding, not brave enough to say "no to evil". The Ministry of Education and Training launched and implemented the emulation movement "Building friendly schools, active students" that created a new face in schools,

contributing to the cohesion of teachers, students and the community in the community. One of the current 5 very important contents of the emulation movement "Building friendly schools, active students" is education and life skills training for students. This is a practical content, associated with educational activities in schools and becomes more and more urgent for the younger generation, especially junior high school students, an age where psychophysiology has undergone many changes, lack of deep understanding of society, lack of life experience, hyperactive, easily manipulated...if not properly educated from the beginning. The education of social evils prevention and control skills in schools contributes to training and forming students to live more responsibly and to know how to choose appropriate behaviors, to cope with pressures and challenges in school life; promote social behavior, reduce crime rate. Up to now, the implementation of educational activities on social evils prevention and control skills and sustainable community development in high schools in general and especially in junior high schools of Hanoi capital in particular, not very often. The management of social evils prevention and control skills education activities for students in lower secondary schools has been carried out mainly by integrating the content of education on social evils prevention and control skills and sustainable community development for secondary school students through teaching subjects, through educational activities outside of class time, through extracurricular activities, group activities. However, in recent years, the activities of education on social evils prevention and control skills and sustainable community development for junior high school students have only stopped at the implementation according to documents of the Ministry of Education and Training, Hanoi Department of Education and Training and Divisions of Education and Training. The school has not actively developed a plan to carry out the task of educating students on social evils prevention and control skills and sustainable community development for junior high school students and diversifying forms of education on social evils prevention and control skills and sustainable community development for junior high school students. For the reasons mentioned above, the author has chosen to research the topic: "Management of an educational model of social evils prevention and control skills and sustainable community development for students at lower secondary schools in the Hanoi capital city in the current digital transformation context. The situation and the problems raised".

2. Methods

2.1. Group of theoretical research methods

- Researching the Law on Education, documents, directives and resolutions of the Party and the State on education in skills of preventing and fighting social evils for students of lower secondary schools.
- Studying documents of the Ministry of Education and Training, the Hanoi Department of Education and Training and the Education and Training Divisions of the districts related to the education of social evils prevention and control skills for students.
- Researching textbooks, scientific topics, books, newspapers and documents related to the education of social evils prevention skills for students in lower secondary schools.

2.2. Group of practical research methods

- Professional solution
- Survey method by questionnaire
- Interview method
- Methods of product research, activity and observation
- Method of summarizing experience

2.3. Group of methods of mathematical statistics

Using mathematical statistical methods to process the collected survey data. Using SPSS software to process the forms and analyze the results.

3. Results

3.1. Survey content and methods

Perception of administrators, teachers, staff, students about life skills education in general and skill education for social evils prevention and control and community development sustainability in particular; the need to educate students on social evils prevention and control skills and sustainable community development; Participating forces, factors and conditions affecting the education of social evils prevention and control skills and sustainable community development for students; Contents, methods and forms of organizing education on social evils prevention and control skills and sustainable community development for junior high school students in Hanoi capital.

** For educational forces inside and outside the school:*

Survey the level of awareness of the subjects about the education of social evils prevention and control skills and sustainable community development; The level of management and coordination of forces involved in the process of organizing and implementing educational content on social evils prevention and control skills and sustainable community development.

** With student:*

Survey of awareness on the importance of education on social evils prevention and control skills and sustainable community development; on the harms and dangers of social evils; understanding and applying social evils prevention and control skills and sustainable community development; the level of practice of social evils prevention and control skills and sustainable community development in schools; awareness of propaganda in the community to well implement the standards of society.

** Survey method*

- Observe activities by attending educational sessions on social evils prevention and control skills.

- Studying the management plan of education on social evils prevention and control skills of a number of administrators, homeroom teachers, subject teachers, and Youth Union officials in the school.

- Investigate by questionnaire, discussion, interview, exchange and live chat on contents related to the education of skills in preventing and combating social evils and

sustainable community development for students in schools, to the management board, teachers, staff, students, students' parents, and local officials and unions who are directly responsible for the prevention and control of social evils.

3.2. The current situation of management and development of an educational model of social evils prevention and control skills for students in junior high schools of Hanoi capital in the current context of digital transformation

3.2.1. The reality of managing educational programs on social evils prevention and fighting skills and sustainable community development for students in the classroom through subjects

According to Article 2 of the 2005 Education Law, the educational objective is to train Vietnamese people to develop comprehensively, to have morals, knowledge, health, aesthetics and professions, loyal to the ideal of national independence, ethnicity and socialism; forming and fostering the personality, quality and capacity of citizens, meeting the requirements of the cause of national construction and defense. However, the content and methods of education in schools today still attach great importance to teaching literacy, not paying enough attention to teaching how to be human, especially the education of life skills for students, including education. Prevention of social evils. In fact, when building a curriculum and teaching content in the classroom, teachers have to build three goals: providing knowledge, training skills, and forming attitudes. This is a principle requirement in teaching and education. Everyone must be deeply aware of this requirement. However, it can be said that because they have to run with time, have to convey a lot of content while time is limited, teachers tend to focus only on providing knowledge and pay little attention to training skills for students, especially skills to deal with society, cope with and integrate into life, skills to prevent and combat social evils. In the context of current integration, education on social evils prevention and control skills for students has received more attention. Education on social evils prevention and control skills for high school students has not yet been arranged as a separate subject in the system of subjects in high schools because the education on social evils prevention and control skills must be taught by the teacher, education anytime, anywhere when there are suitable conditions and opportunities. Therefore, education in social evils prevention and control skills must be carried out through each subject and in educational activities. Therefore, the opportunities to conduct education on social evils prevention and control skills are many and varied. The following organizational methods can be mentioned: Through teaching subjects; through elective topics; through educational activities outside of class time; through experiential activities. The close coordination of education on social evils prevention and control skills and sustainable community development with educational activities has been integrated into the educational program for many years, such as environmental protection education; drug, HIV/AIDS prevention; child sexual abuse prevention; adolescent reproductive health; cultural and behavioral education...creates many opportunities and conditions for the implementation of education on skills to prevent and combat social evils. In the lower secondary schools of the capital Hanoi in recent years have implemented the integration of school violence prevention and control education; prevention of drugs and social evils in the

curricula of subjects such as civics education, biology, literature, geography, fine arts...Considering propaganda and education as a fundamental task and must be done regularly and continuously.To find out the current status of the program, the content of educating students on social evils prevention and control skills and sustainable community development for students in the classroom through core subjects, the author conducted an investigation, Interviews with administrators (question 5 - Appendix 1), homeroom teachers, subject teachers (question 7 - Appendix 2) in the opinion poll. The survey results show that the school steering committees have paid attention to the management and education of social evils prevention and control skills and sustainable community development, but need to focus on better management at the stage of change. new teaching and education skills of social evils prevention and control and sustainable community development through subjects and management of the examination and assessment of educational activities on social evils prevention and control skills and development sustainable communities across subjects (very good and good level is 60%); manage the implementation of the education program on social evils prevention and control skills and sustainable community development through the subjects (very good and good 70%). And through the teacher's evaluation data for the direction and management of education on social evils prevention and control skills and sustainable community development for students in Hanoi capital's middle schools, the steering committee also showed its concern. to the educational activities of social evils prevention and fighting skills and sustainable community development for students of the schools today, but the very good and good levels are not highly appreciated (about over 70%), In which, innovation management, teaching, and education on social evils prevention and control skills and sustainable community development across subjects have 63.8% of the opinions rated very good and good, 36.2% Ratings are average and not good. This result shows that the Steering Committees of schools need to further strengthen the management of teaching innovation in general as well as innovating teaching and learning skills to prevent and combat social evils and develop sustainable communities for students. students through the subjects with high efficiency.

3.2.2. The current situation of managing educational programs on social evils prevention and control skills and sustainable community development for students through extracurricular activities

In the middle schools of Hanoi capital, extracurricular activities, collective activities, educational activities outside of class time, through elective topics, through experiential activities... have created favorable conditions. events for students to exchange, learn, and share experiences on social evils prevention and control skills and sustainable community development: propaganda about the dangers of social evils such as school violence Street; child sexual abuse, drugs, HIV/AIDS; illegal racing, dropping out of school, hanging out in bars; playing games for money... to help students seriously consider the dangers of social evils, and teachers, especially homeroom teachers, need to grasp and understand each individual's thoughts. students in the class, promptly correcting individual students. Schools also organize propaganda activities to raise awareness about crime and social evils

prevention, prostitution, human trafficking, and prevention and combat of sexual abuse against youth and students. activities such as: Research contest, Ring the Golden Bell contest, play scenes and skits, launch propaganda clubs or establish a red star team, and a youth shock team to strengthen inspection and development work. student violations to take educational measures. To find out the current status of the management and education of social evils prevention and control skills for students in secondary schools in Hanoi, the author conducted a survey by interviewing and student questionnaires. about the level of implementation of extracurricular activities programs that have been organized at schools in the education of social evils prevention and control skills (Question 8 – Appendix 3) and analysis of results. The obtained results show that educational activities outside of class time are mainly carried out in traditional forms such as activities under the flag, group activities (98.1%-80.8% at regular level); followed by talk about example, extracurricular activities by topic, contest to learn, criticize behavior, bad performance (72%-70.1%-64%-62.8%); He also listened to expert advice and invited the police to talk and introduce on a regular basis (52.9%-52.1%). The remaining forms of education such as painting propaganda propaganda; through educational situations and real life situations; state the regulations and requirements for the implementation of skills to prevent and combat social evils, and the awareness of the dangers of social evils is still at the level of non-conventional education (regularity is less than 50%), especially in that form through educational situations and real life situations; stating the regulations and requirements for the implementation of skills to prevent and combat social evils and awareness of the dangers of social evils, nearly 40% of students said that they have not been implemented.

3.2.3. The current situation of management of forces participating in education of skills in social evils prevention and control and sustainable community development for students of lower secondary schools in Hanoi capital

In recent years, the education of social evils prevention and control skills for students in secondary schools in Hanoi capital has had the contribution of educational forces inside and outside the school. And in order to better understand the current situation of management, assign specific tasks to the forces involved in the education of social evils prevention and control skills and sustainable community development, the development of a direction plan and regulations. How to determine the functions, tasks, and instructions for the implementation of education on social evils prevention and control skills and sustainable community development of the school board, the author used question number 8 (Appendix 2) in the opinion poll for teachers of schools and analyzing specific results, it can be seen that the establishment of a steering committee, defining functions and duties for each member of the steering committee, building The plan to guide the implementation and develop a regulation on coordination in education of skills in social evils prevention and control and sustainable community development in schools has not been given due attention, opinions are assessed at the level of good and normal are approximately equivalent, in which the content stipulates the functions and duties for each member of the

Steering Committee for education on skills in preventing and combating social evils, develop a regulation on coordination of forces in education of skills in social evils prevention and combat and sustainable community development at a good level even lower than the normal level (38.2 - 57.2); 32.2 - 53.9) and assessed the participation of forces in the education of social evils prevention and control skills at a good level of 48%. Thus, the above results show that the management, assignment of functions, tasks, and regulations on coordination between forces participating in education activities on skills in preventing and combating social evils and sustainable community development. for students who need to strengthen and push harder at schools.

3.2.4. The current situation of managing conditions for the implementation of skills education on social evils prevention and control and sustainable community development for junior high school students

Each educational activity in the school in general, and the education of skills in social evils prevention and control in particular, is conducted effectively in the school. In addition to planning, organizing, directing, inspecting, Assessing the implementation of the plan, the school's steering committee on social evils prevention and control skills also needs to pay attention to the conditions affecting the implementation of education on social evils prevention and control skills. opportunities for students such as: Management of training, retraining, professional improvement training on skills in preventing and combating social evils for teachers, management of facilities in general and teaching equipment in general. Separately, the funding is for educational activities on social evils prevention and control skills in schools. The author used question 6 (Appendix 1) in the questionnaire for administrators and question 9 (Appendix 2) in the poll for teachers about the level of management. Management of facilities in general and teaching equipment in particular, funding for educational activities on social evils prevention and control skills for junior high school students in Hanoi capital and analysis of the results shows that The opinions of administrators and teachers are relatively similar on the level of management of facilities, equipment, and funding to serve the education of social evils prevention and control skills for high school students. base of Hanoi capital. Specifically, the management and use of function rooms in service of the education of social evils prevention and control skills are at a very good and good level (80% of managers and 84.9% of teachers); management and use of equipment for education on social evils prevention and control skills (80% of administrators and 84.9 teachers); As for the content of funding investment for activities that are not at a good level, they are estimated to be approximately 30%. Thus, one of the weakest stages in the education of social evils prevention and control skills and sustainable community development, according to the Steering Committee and teachers, is the management and mobilization of funding sources for the activities. this move. For a long time this issue has not been really taken seriously, the funding sources for education on social evils prevention and control skills and sustainable community development are often extracted from a small part of the allocated budget.

3.2.5. Actual situation of factors affecting the management and education of social evils prevention and control skills and sustainable community development for students in junior high schools of Hanoi capital

To find out the current status of factors affecting the education of social evils prevention and control skills and sustainable community development for students, the author conducted a survey of 30 administrators, teachers and students. parents (Questions 7 - Appendix 1) for administrators; question number 10 (Appendix 2) for teachers; question number 3 (Appendix 4) for parents of students in the poll. The survey results show that there are many factors affecting the education of social evils prevention skills for students in schools: the attention of teachers and administrators (86.7%); school management (80%); actively training of students (76.7%); educational content and methods (73.3%); test and evaluate (66.7%). Based on the above data, we see that 86.7% of teachers and staff think that the attention of teachers and administrators is the most important. After all, the education of social evils prevention and control skills and sustainable community development for students in the school really needs the attention of the team of teachers and family members. school. It is also very important for each student to actively participate in training skills to prevent and combat social evils and develop sustainable communities. and suitable method of operation. If there is an appropriate method of educational organization and scientific management, objective factors and bad influences of the external environment have little chance of affecting them. Thus, the education of social evils prevention and control skills and sustainable community development for students depends on objective factors and subjective factors, they have a reciprocal relationship. School education is influenced by objective factors, of social management, but at the same time directly influenced by subjective factors such as teachers, students, educational content and methods, in which School management is an important link. To survey the actual status of students' awareness about education in social evils prevention and control skills and sustainable community development (perception of social evils through information sources, the author used Question 9 (Appendix 3) for students in the poll. The above results show that the evils that students are aware of from school are still more than from other information sources (55.5%), of which drug evils (75.1%); dropped out of school to hang out at Internet cafes (70.1%); child sexual abuse (67%); use of stimulants (64%); school violence (63%); violent gaming crime (61%). That shows that Hanoi capital's middle schools have organized education on skills in preventing and fighting social evils for students in recent years. However, it is necessary to implement more widely and pay more attention so that students can really see clearly the danger level of current widespread social evils so that they can have a sense of propaganda in their families. family and community (when the sources of information they do not receive are from the family or the local government). In order to understand students' awareness of the harmful effects of social evils, the author has conducted a survey on students' awareness of the harmful effects of social evils through question 10 (Appendix 3) for students. students in the poll. The survey results show that: The level of students' awareness of the harmful effects of social evils is very good and good is also low (41.9%). Most schools only propagate about the harmful effects of drug abuse (63.2%), while other

social evils are not well understood by students, there are perceived evils at a normal level and not good accounts for a high rate such as school violence (73.2%); spreading depraved cultural products (79.3%), extortion and theft (59.8%); child sexual abuse (54.7%), use of stimulants (54.8%).

3.2.6. General assessment of the current situation of management and development of an educational model of social evils prevention and control skills and sustainable community development for students in lower secondary schools of Hanoi capital in the current digital transformation context

Strengths

- Developed an education plan on social evils prevention and control skills and sustainable community development for students in Hanoi's lower secondary schools in the current digital transformation context, contributing to improving the quality of life. high quality education for all students.

- Conducted professional guidance to guide teachers to prepare relevant lessons, integrate and integrate educational content on social evils prevention and control skills for students and sustainable community development into subjects. during regular school hours.

- Officers of the Youth Union and Youth Team consciously develop plans to organize extracurricular activities in combination with professional groups, including the content of education on skills in preventing and combating social evils and sustainable community development for students.

- Homeroom teachers have paid attention and regularly cooperate with students' parents in educating skills to prevent and combat social evils and develop sustainable communities.

- The schools have organized the implementation of educational plans on skills in preventing and combating social evils and sustainable community development to all teachers and staff.

- The schools have examined and evaluated the education of skills in social evils prevention and control and sustainable community development.

- There is coordination and response of families, mass organizations and local authorities in educating students on social evils prevention and control skills and sustainable community development.

Drawbacks

- The school administrators put the content of the educational program on social evils prevention and control skills and sustainable community development for students, which is still formal, inappropriate, lack of creativity, the program of activities is still incomplete. The examination and assessment of education on social evils prevention and control skills and sustainable community development is still heavy on records and books without a clear evaluation criterion.

- Teachers' habit of focusing on theoretical knowledge will be a major obstacle when implementing education on social evils prevention and control skills - a type of education aimed at creating habits, attitudes, behaviors, properly deal with the evils of social life. The

teaching staff has not been properly trained, in accordance with the standards of education in skills to prevent and combat social evils and are not full-time. Administrators and teachers still face many difficulties and confusion during implementation. The selection of contents of education on social evils prevention and control skills is not appropriate, making the education of social evils prevention and control skills and sustainable community development still ineffective and unattractive. Students participate in understanding and preventing social evils.

- The coordination of mass organizations and forces inside and outside the school has not been effective, has not brought into full play the strength of forces educating skills in social evils prevention and control and community development. lasting.

- The form of organization of education on social evils prevention and control skills is very rich and diverse, but the conditions for activities are limited such as physical facilities, investment funds and support for activities from socialization sources.

Causes of strengths and weaknesses

a) Cause of strength

- On the side of the Hanoi Department of Education and Training, the Divisions of Education and Training have done well in the following areas:

- + Direct the lower secondary schools to carry out the education on skills of social evils prevention and control and sustainable community development closely, in a timely and planned manner.

- + Directing and scoring educational programs on social evils prevention and fighting skills and sustainable community development for students; through which the units learn, exchange, draw experience and replicate the operating model.

- On the school side:

- + There is the direction of the professional team, the organization of the Youth Union - the team to build an educational program on skills to prevent and combat social evils for students and to develop the community sustainably each semester and each competition period.

- + Directing the professional team and teaching staff to integrate and integrate the content of education skills in preventing and combating social evils and developing sustainable communities through classroom subjects.

- + Directing the educational forces in the school to coordinate in organizing educational activities outside of class time, extracurricular activities and collective activities on educating students on social evils prevention and control skills; propagate and coordinate with forces outside the school to participate.

- + Most of the students are self-conscious and actively participate in educational activities on social evils prevention and control skills and sustainable community development and gain understanding, awareness of harms and levels the danger of social evils; know some basic skills in social evils prevention and control and sustainable community development; Conscious in learning, training, self-cultivation, forming awareness, attitude and behavior in accordance with social standards.

b) Cause of the downside

- There is no general framework for education on skills in social evils prevention and control and sustainable community development for junior high school students.

- Sources of specific guidance documents on prevention and control of social evils and sustainable community development for junior high school students; Social evils prevention and control and sustainable community development for teachers are still limited. Teachers have not had the conditions to consult and research, so the content, methods and forms of organizing education on skills in preventing and fighting social evils and sustainable community development are still poor and not rich. not lively, still heavy on formality, not really attracting students to participate.

- The mobilization and coordination with forces outside the school is not regular; The power of local government organizations and mass organizations has not been brought into play, so the effectiveness is still limited.

- The examination and evaluation of administrators as well as functional agencies is not specific, there are no scoring criteria and the contents of emulation assessment in the education of students of each school have not been included. schools as well as for teachers. In management, education on social evils prevention and control skills and sustainable community development have not been widely propagated among teachers.

- A part of teachers and school staff are not fully aware of the importance and practical significance of education in social evils prevention and control skills and sustainable community development. Activities of the Youth Union and Youth Team in this work are not really comprehensive and effective.

- The level of culture, lifestyle and family education methods have great influence on children's personality. Faced with the need to survive, many students' parents have to struggle to make a living, outsourcing the teaching of their children to the school. The relationships in the family lack standards: parents divorce, family bankruptcy, family members fall into the phenomenon of smoking, drinking, gambling ...

4. Discussion and Conclusion

Through investigation and research on the actual situation of organizing skills education for social evils prevention and sustainable community development and management and education of skills in social evils prevention and control and sustainable community development for students in junior high schools in Hanoi, the author has some comments and discussions as follows:

- Before the development of the society in the integration period, in the face of the negative side of the market economy, the junior high schools of Hanoi capital have paid attention to building a safe and healthy educational environment, friendly, reduce all social evils spreading in school.

- In recent years, school administrators have launched and directed educational forces in the school such as professional groups, homeroom teachers, subject teachers, officials of the Youth Union - Teams, and Committees. On behalf of students' parents, they cooperate

in implementing educational activities on social evils prevention and control skills for students at the whole school. The organization of educational activities on social evils prevention and control skills and sustainable community development and management and education of social evils prevention and control skills and sustainable community development for students initially created a change in awareness for teachers, staff, students and parents. However, the coordination of participating forces is still not close, has not brought into full play the potential of the participating forces, the coordination with forces outside the school in the education of crime prevention skills is not regular, lack of synchronization.

- Schools have organized education on skills in preventing and combating social evils and sustainable community development through classroom subjects, through educational activities outside of class time, etc. Students had some basic and necessary skills, but the ability to apply them to practical situations is still limited, information technology, digital transformation, complex social evils, always stalking schools, ready to find ways to entice students to participate. The building of a cultural and healthy environment is not really effective.

- School administrators have developed specific plans for the education of skills in social evils prevention and control and sustainable community development. However, more positive solutions are still needed to organize and direct the education of social evils prevention and control skills and sustainable community development. The management and education of social evils prevention and control skills and sustainable community development also depend a lot on the actual conditions of each school.

- In the inspection and evaluation of managers, specific criteria and plans have not been established. The management of conditions for the implementation of education on social evils prevention and control skills and sustainable community development has been according to the established plan but has not been regularly, closely and additionally planned to operate effectively.

Some social evils have occurred due to many reasons, so schools need to seriously promote the education of skills in preventing and combating social evils and developing sustainable communities. Management measures need to be continuously supplemented, coordinated with departments and need to have measures to propagate and educate students widely and strongly in many forms on the mass media on ways to prevent and combat in order to reduce social evils, contributing to further improving the effectiveness of education.

The results of the study on the current situation of management and education of social evils prevention and control skills and sustainable community development for students in lower secondary schools in Hanoi have shed more light on issues of social evils, theory and practice is a very important practical basis for the author to build a system of management solutions for the model of skills education in social evils prevention and sustainable community development for students in lower secondary schools of Hanoi capital to effectively prevent social evils in schools, contribute to comprehensive personality education for junior high school students in the context of current digital transformation, integration and educational reform needs.

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CONTENT AND POPULARIZATION OF BUDDHIST PERSPECTIVES ON SUSTAINABLE DEVELOPMENT THE MEKONG RIVER DELTA

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Abstract

By unifying both qualitative and quantitative methods, the article has analyzed the content, necessity and factors affecting quality of the educational process, popularizing Buddhist views on sustainable development in the Mekong River Delta or Southwest (Vietnam). Thereby, affirming the value of the Buddhist point of view, assessing the process of disseminating that view in the Mekong River Delta or Southwest (Vietnam) and proposing a number of corresponding recommendations.

Keywords: *Sustainable development; Buddhism; Popular; Buddhist perspective on sustainable development*

1. Introduction

Based on the foundation of wisdom and liberation, Buddhism offers a convincing and highly effective solution of the laws for many problems of reality. Currently, the world is facing many difficulties and obstacles on the way of development, on the process of implementing sustainable development in both theory and practice. Should it be necessary to promote the Buddha's values and views on sustainable development? From there, find out social orientations to solve contemporary problems occurring nationwide and in the Mekong River Delta or Southwest. That, starting from the analysis of the content, necessity and factors affecting the quality of the educational process, popularize the Buddhist view on sustainable development in this area.

2. Method

2.1. Research questions

- The basis and content of the Buddhist perspective for sustainable development?
- What factors, trends and levels of influence of each factor affect the quality of the process of disseminating Buddhist views on sustainable development in today's society?
- When determining the position and role of each factor, how does it help to popularize and apply the Buddhist perspective on sustainable development?

2.2. Research model

Based on a number of related theories along with the opinions of a number of experts and delegates who are knowledgeable and interested in Buddhism and education, the article uses the following research model

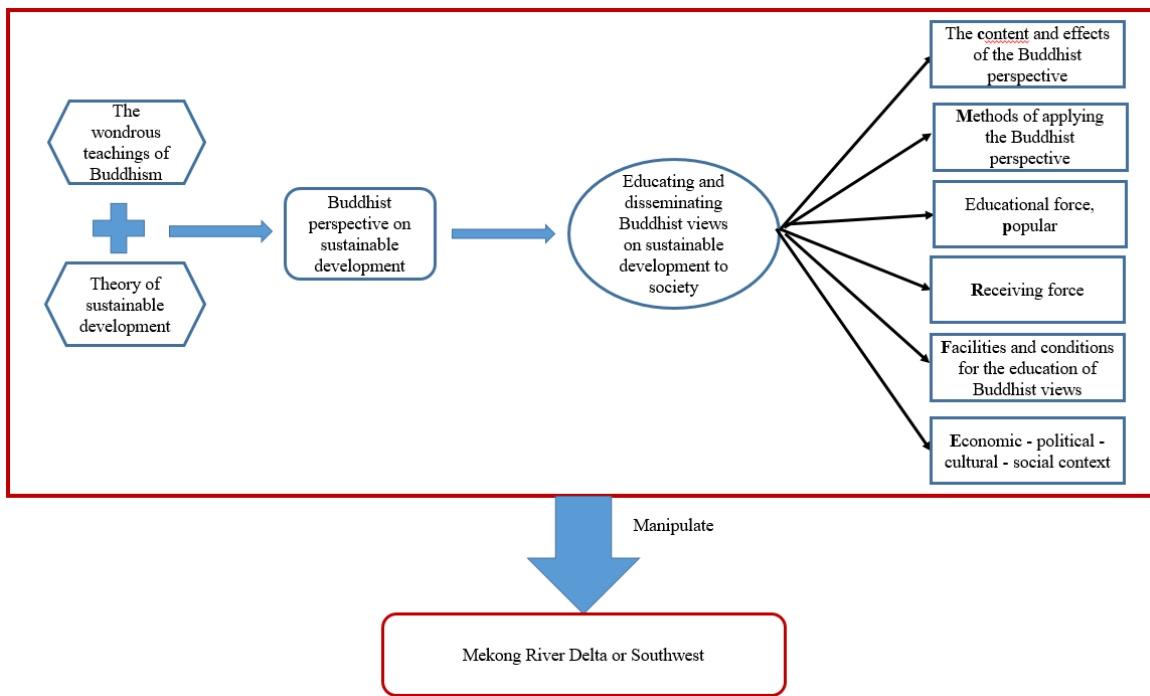


Figure 1. Research model

Source: self-build by authors

2.3. Qualitative research

Theoretical research on the nature and relationship between Buddhist teachings and sustainable development, on education, and invited to interview a number of experts and interested people who are knowledgeable about Buddhism, education, on expert society; Ask for people's opinions through sociology ballots.

2.4. Quantitative research - sources and methods of data collection

- Secondary data collected from books, journals, data from Internet sources or other mixed data...

- Primary data is formed through sociological research, collecting primary data for this topic, the article also chooses interview method to help obtain necessary information.

The questionnaire was designed to investigate the actual factors affecting the quality of the educational process, and to disseminate Buddhist views on sustainable development in the Mekong River Delta or Southwest.

The research sample was selected by convenient method in the Mekong River Delta or Southwest: province and Tien Giang university, city and Can Tho university, province and Tra Vinh university; period from October 2020 to August 2021, asking for opinions from Buddhists, people, and students. Sample size: 300.

Data processing steps: (i) checking and cleaning data; (ii) data analysis with the following methods: descriptive method, method of assessing the reliability of the scale, method of factor analysis, method of regression analysis of the influence of factors, ANOVA test method.

3. Results

3.1. Buddhist perspective on sustainable development - orientation of the sustainable development process

3.1.1. The term "sustainable development"

This term first appeared in 1980, with the content that the development of mankind should not only focus on economic development but also respect the indispensable needs of society and its impact on the ecological environment. By 1987, this concept was widely disseminated with more complete content: sustainable development is development that can meet the needs of the present without compromising, damage the ability of future generations to meet their own needs... Thus, sustainable development ensures effective economic development, fair society and the environment is protected, preserved and national security and defense. In which, human is the center, is the basic condition, with many management subjects, the pillar is the harmony of economy - society - environment in the conservation and rational use of nature.

Currently, in the context of the 4.0 scientific and technological revolution, creating breakthrough achievements, humanity has to face great challenges in many aspects:

Global climate change, degradation of land, water, air resources, poverty, epidemics... The result is three major crises in finance, energy and food. It is urgent for all of humanity to join hands for sustainable development in the direction of: a low-carbon society and green growth - a society that regenerates resources, in harmony with nature.

3.1.2. The basis for forming a Buddhist perspective on sustainable development

Buddhist teachings refer to the human being including both material and spiritual elements. The ultimate goal of life is liberation. The Buddhist worldview deals with two major problems: Earthly existence and its cessation. Buddhism does not separate personal interests and social interests. That principle is reflected in the five basic precepts: (i) not killing; (ii) not stealing; (iii) no adultery, no illegal sex; (iv) not lie or deceive others; (v) do not drink intoxicating or addictive substances.

In the Vyaggapajja Sutta, the Sangha says that sentient beings should practice developing both physically and mentally with four principles: perseverance, preservation of possessions, good friends, and life balance. An individual with a balanced life is the premise of democratic development in a reciprocal country, by staying in harmony with his body, speech and mind; equality in material resources, practice and achievements in practice and knowledge. The basic teachings of Buddhism towards a noble view of life: the Four Noble Truths.

3.1.3. Contents of Buddhist views on sustainable development.

The Buddhist perspective on sustainable development is clearly expressed in Buddhist economics²²⁰

The goal proposed by Buddhist economics is similar to the statement from the United Nations Brahimi Commission on the Millennium Development Goals: every individual has

²²⁰ The term "Buddhist economics" was first used by the British economist E. F. Schumacher in 1955 in his book "Small is Beautiful" published in 1966..

the right to respect for dignity, liberty, equality and basic living conditions, including freedom from hunger and violence, tolerance and solidarity. It is a strategy that emphasizes the balance between economy and ecology for sustainable development and cares about sustainability for future generations. The model is governed by Buddhist principles focusing on equality, social justice, and empowerment – based on the “righteous livelihood” foundation of the Eightfold Path.

Spiritual wealth is wealth that is not material; is the mental capacity or property acquired by practicing the Buddha Way, including seven treasures: faith talent, precepts, good talents, precious talents, literary talents, generosity, and wisdom. Distributing resources in the most reasonable and humane way; Use property properly with the motto "people must be able to use wealth to avoid being manipulated by wealth. Then the real wealth was the Dharma, faith, compassion, satisfaction, joy, humility, personal relationships, safety, health, wisdom. Therefore, people should develop the habit of saving like a bee sucking honey without harming the flower. That usage, consistent with the monk's "Luc Hoa Kinh Phap" emphasizes: benefit and harmony for all and is also in line with modern thinking about shared glory and enjoyment. At the same time, avoid getting rich wrongly with the spirit of Buddhism.

The Buddhist view of sustainable development encompasses two important concepts:

(i) “Wealth” is health, intelligence, personal relationships, competence, reliability, eloquence, prestige, success, history, character, and morality..

(ii) “Relation between material production” (with non-material aspects of life) is the relationship between people and people; between man and nature. Development must be directed towards man and all living things. Something that is left out of economic production will have dire consequences in the future. Economic activities are conservation, use and regeneration of resources, prevention of environmental pollution and destruction; production, limited growth, ethics in consumption and thrifty enjoyment; equitable distribution of income, harmonization of population and human resources; and avoid taking advantage, exploiting, depriving others of basic needs; increase personal lust...

From the spirit of morality, Buddhist economics solves 3 macro problems:

(i) What to produce? Create products towards spiritual as well as material development.

(ii) Produce for whom? Bringing benefits to sentient beings, satisfying basic human needs for food, clean water, housing, health, education, welfare, welfare, right to speak, right to participate... along with many other spiritual and material requirements.

(iii) How is it produced? By “cooperation” instead of “competition”; altruism “for the sake of all beings present” instead of selfishness; acts based on the Middle Way, the six Salvation and mindfulness achieved through meditation, benefiting all sentient beings and oneself; with a policy of non-violence.

Answering the above macro problems is the process of operating according to economic laws. In which, growth is the means, sustainable development is the end. From there, it reflects some orientations of Buddhism for sustainable development

* Limit insatiable economic growth, grow spiritual wealth and respect, protect the environment whose core value is contentment with a less materialistic life to share.

* Towards building a sustainable humanity, awakening, enlightenment, repentance and inner self-transformation of every human being suitable and oriented for national policy making.

* It is done starting with personal happiness, helping others and realizing the responsibility of contributing to the happiness of the majority.

The above values and contents need to be disseminated and applied in the sustainable development of the country or each locality. To do so, first of all, we need to carry out the process of educating and disseminating the Buddhist perspective on sustainable development to society.

3.2. Current status of education, popularizing Buddhist views on sustainable development in the Mekong River Delta or Southwest, Vietnam.

3.2.1. Actual research

Mekong River Delta or Southwest, Including 13 provinces and cities (see map)

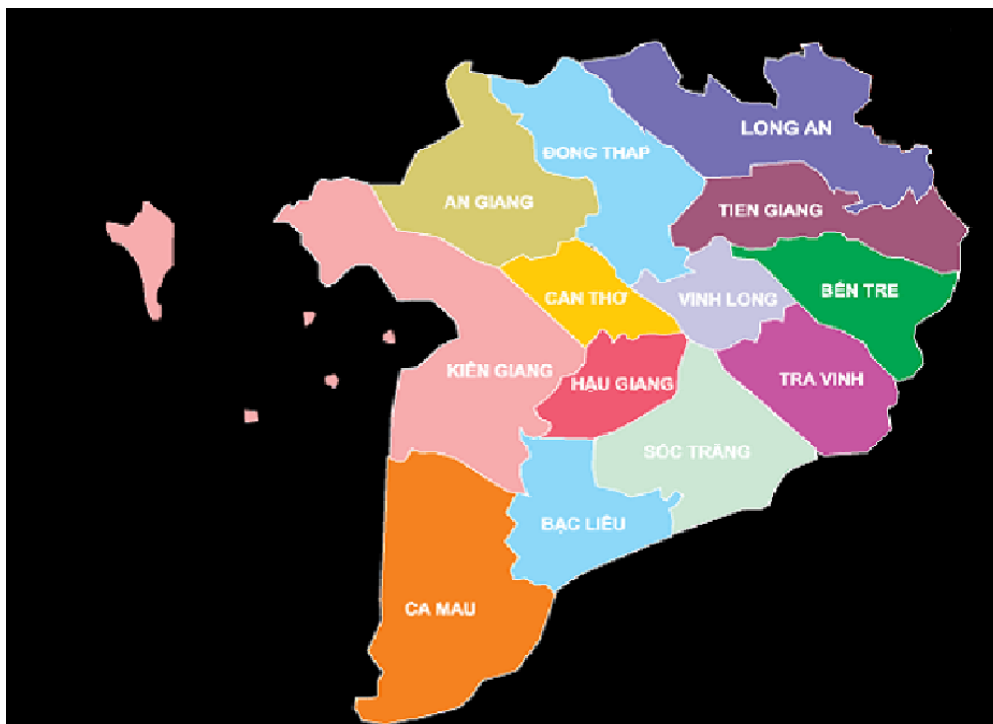


Figure 2. Map of the Mekong River Delta or Southwest

Source: <https://60giayonline.com/ban-do-viet-nam.html>

3.2.2. Actual survey

The process of educating and disseminating Buddhist views on sustainable development is the process of educating and training people in all three aspects, intellectually, emotionally and physically according to the requirements of sustainable development. Participants include: subject; object; purpose; Content; method; vehicle; organizational form; external environment - economic environment - production, political, socio-cultural and internal conditions - pedagogical environment and facilities and equipment at the educational institution. The educational motto here is: promote wisdom and awareness

Facts about factors affecting the quality of the educational process, popularizing Buddhist views on sustainable development in the Mekong River Delta or Southwest.

Questionnaire with 31 observed variables of six factor groups. Number of votes issued 370, received 328. The number of votes to respond for analysis is 246.

Table 1. Characteristics of the survey sample

Characteristics		Sample size n = 250		
		Frequency	Ratio %	% Accumulation
Sex	Male	72	28.8%	28.8%
	Female	178	71,2%	100%
Academic level	University degree	201	80,0%	80,0%
	other	49	20,0%	100%
Access to Buddhism	Buddhists	84	33,6%	36,6%
	other	166	66,4%	100%

Source: self-build by authors

Table 2. Synthesis results Cronbach 'Alpha

Aspects	Cronbach's Alpha	N of Items	Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
The Content and effects of the Buddhist perspective on sustainable development to society	0.883	5	C1	17.0467	11.818	.777	.844
			C2	16.9144	12.696	.725	.857
			C3	17.0039	12.113	.773	.845
			C4	16.8716	12.698	.675	.869
			C5	16.9728	13.113	.649	.874
Methods of applying the Buddhist perspective on sustainable development	0.847	6	M1	20.0078	13.570	.615	.824
			M2	20.0506	13.314	.659	.816
			M3	19.9105	13.605	.626	.822
			M4	20.1128	13.288	.647	.818
			M5	20.1012	13.630	.607	.826
			M6	19.9922	13.656	.616	.824
The role of the Popular force	.865	5	P1	15.9650	11.956	.633	.849
			P2	15.8054	12.431	.638	.848
			P3	16.1128	10.632	.790	.808
			P4	15.9144	11.625	.757	.820
			P5	16.1089	11.222	.632	.853
Receiving force	0.883		R1	16.0506	9.603	.710	.860
			R2	16.1362	9.438	.754	.850

Aspects	Cronbach's Alpha	N of Items	Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
		5	R3	16.1518	9.371	.794	.841
			R4	16.1790	9.812	.654	.873
			R5	16.2140	9.638	.688	.866
Facilities, means and conditions	0.79	5	F1	18.4125	3.829	.588	.747
			F2	18.3930	3.997	.616	.735
			F3	18.3930	3.849	.650	.722
			F4	18.2335	4.477	.542	.760
			F5	18.2879	4.854	.466	.782
Economic, political - socio-cultural situation	0.847	5	E1	17.5409	8.632	.599	.801
			E2	17.4591	8.046	.687	.775
			E3	17.4475	8.850	.564	.811
			E4	17.7860	7.809	.723	.764
			E5	17.4086	9.305	.555	.813

Source: self-build by authors

Thus, after analyzing and evaluating the reliability of the scale, the observed variables belonging to the five scales (see Table 2) are continued for factor analysis. To evaluate whether the exploratory factor analysis method is really suitable for analysis in this case, by KMO and Bartlett's test.

Table 3. KMO test and Bartlett scale of factors affecting education quality, popularity

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.825
Bartlett's Test of Sphericity	Approx. Chi-Square	3986.937
	Df	465
	Sig.	.000

Table 4 below provides data on characteristic values analyzed from observed variables. In which, there are six factors with characteristic value greater than 1, the remaining 25 factors have characteristic value less than 1.

Also in this table, the total index of "Rotation Sums of Squared Loadings" is 64.689%. That said, the use of six factors representing 31 observed variables could explain 64.689% of the variability of the data. In the study, the total index of total squares of the rotation factor "Rotation Sums of Squared Loadings" reaching 50% is accepted.

Thus, the use of six factors to reflect the information provided from 31 observed variables.

Table 4. Eigenvalues analysis of 20 observed variables on the scale of factors affecting education quality, popularity

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.756	18.568	18.568	5.756	18.568	18.568	3.547	11.441	11.441
2	3.781	12.198	30.766	3.781	12.198	30.766	3.547	11.441	22.881
3	3.482	11.232	41.998	3.482	11.232	41.998	3.520	11.354	34.235
4	2.885	9.306	51.304	2.885	9.306	51.304	3.326	10.730	44.965
5	2.356	7.599	58.903	2.356	7.599	58.903	3.127	10.088	55.054
6	1.794	5.786	64.689	1.794	5.786	64.689	2.987	9.635	64.689
7	.958	3.089	67.778						
8	.763	2.460	70.238						
9	.691	2.230	72.469						
10	.650	2.095	74.564						
11	.620	2.000	76.564						
12	.600	1.934	78.498						
13	.544	1.755	80.253						
14	.525	1.694	81.948						
15	.502	1.621	83.569						
16	.490	1.582	85.150						

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
17	.461	1.488	86.638						
18	.433	1.396	88.034						
19	.407	1.312	89.347						
20	.391	1.260	90.606						
21	.374	1.205	91.811						
22	.339	1.094	92.905						
23	.323	1.041	93.946						
24	.303	.978	94.924						
25	.273	.881	95.805						
26	.254	.818	96.623						
27	.235	.757	97.380						
28	.231	.744	98.124						
29	.209	.673	98.797						
30	.192	.618	99.415						
31	.181	.585	100.000						

Extraction Method: Principal Component Analysis.

Source: self-build by authors

Table 5. Pattern Matrix^a – scale of factors affecting the quality of education, popularity Buddhist perspectives on sustainable development

	Component					
	1	2	3	4	5	6
C1	.821					
C3	.810					
C4	.786					
C2	.764					
C5	.738					
M2		.774				
M4		.747				
M1		.737				
M3		.734				
M5		.726				
M6		.717				
R3			.860			
R2			.857			
R1			.846			
R5			.770			
R4			.755			
P3				.877		
P4				.860		
P5				.770		
P2				.754		
P1				.749		
E4					.827	
E2					.801	
E1					.771	
E3					.686	
E5					.659	
F3						.759
F2						.750
F1						.727
F4						.686
F5						.679

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Source: self-build by authors

3.2.3. Comment on the results and problems raised from the actual research.

The above results should only be for reference, partly subjective because the respondents are not qualified to give an accurate opinion. In short, on the basis of acknowledging the Buddhist perspective on sustainable development has been included and oriented from the wonderful system of Buddhist teachings. Thereby, showing the role and significance of those views. Therefore, affirming the necessary necessity of the educational process, popularizing the Buddhist perspective on sustainable development. That popularization process is governed by

many factors, here agreeing with 31 factors divided into six groups of factors. In which, the influence with the dollar level gradually loosens with the order:

- 1) P3, P4, R3, R2, R1, C1, C3, E2 (Rotated Component Matrix $\alpha \geq .8$)
- 2) C4, P5, E1, M2, C4, C2, R5, F3, F2, M4, M1, M3, ... (Rotated Component Matrix $\alpha \geq .7$)
- 3) E3, F4, F5, E5 (Rotated Component Matrix $\alpha \geq .6$)

Accordingly, the educational factor has the strongest influence on the quality of education, popularizing the Buddhist perspective on sustainable development.

3.2.4. Issues and proposals in education to popularize Buddhist views on sustainable development in the Southwest region

First of all, the issue of life, employment and income is becoming a serious issue for the people of the Southwest region. Since then, it has led to a wave of migration from the Southwest region to the Southeast region, which has a great impact on promoting cultural values in social development. Therefore, it is urgent to ensure a stable life, employment and income for the people

Second, people's intellectual level is not high, the number of students studying at higher education levels is less, which has caused great obstacles to the development of the nation. It is one of the factors that degrade and destroy the values of national culture, regional culture, and Buddhist culture in social development. This shows the influence of Buddhist beliefs and practices in the spiritual life of people in the region. Of course, raising the intellectual level of the people in this area.

Third, the influence from the enemy's conspiracy and counter-measures by distorting the history of the formation of the land and peoples in the Mekong Delta. The incitement of the mentality of separatism, the division of the great national unity bloc in the Mekong Delta. That is no small obstacle in sustainable development in the spirit of culture. That, is imperative to ensure regional national security.

4. Conclusion

In the spirit of Buddhism, sustainable development must be oriented to make positive contributions to civilization and progress of people and society. That contributes to bringing peace and happiness to all species. Therefore, the core of sustainable development is: building consumer ethics, limited economic growth, balancing the many aspects of life between the present and the future. The important directional solution is to avoid any exploitation or misunderstanding towards humans or the natural world; At the same time, people need to actively solve problems in the spirit of Buddhist humanity.

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FACTORS AFFECTING THE SATISFACTION OF STUDENTS WITH ONLINE SHOPPING SERVICES ON SHOPEE

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Abstract

Based on a sample survey of 274 students from The University of Education conducted in May 2022, the article focuses on analyzing the factors affecting students' satisfaction with online shopping services on Shopee e-commerce site. The result shows that students of The University of Education have then using online shopping services on Shopee quite popularly, and the satisfaction level is also quite high. The article also shows that there are many factors affecting the satisfaction of surveyed students such as the ability to use online shopping websites (Std. Error 0.050, Sig. = 0.021); service quality (Std. Error = 0.033, Sig. = 0.000); price (Std. Error 0.053, Sig. = 0.002); trust (Std. Error 0.024, Sig. = 0.000); brand (Std. Error 0.033, Sig. = 0.000).

Keywords: *Satisfaction, online shopping service, Shopee e-commerce site*

1. Introduction

Hitherto many researchers have emphasized the shift from in-person shopping to online shopping for various reasons. Research by Nggai and Anandya (2020) mentions the reasons including (1) saving time and effort; (2) many promotions available; (3) convenience in payment and (4) more complete product improvements. One of The other interesting points is that users can visit multiple stores simultaneously to search for different products and compare the prices. Specifically, research by Holbrook and Hirschman (2012) in Sofiyudin (2015) emphasizes optimal value-oriented consumer behavior. Hanaysha and Mehmood (2016) assert that the perceived pleasure from shopping can the related to positive word of mouth, loyalty, emotional value and psychological satisfaction linked to the shopping experience. Customer satisfaction is the key to successfully expanding the customer network (Chow, 2015).

Especially, the development of information technology in the modern era has had a positive impact on many fields in general and business in particular. Specifically, the development of smartphones has changed the lives of people in general and students in particular when the emergence of many applications on these devices has contributed to changing user behavior in different ways, ranging from economic, society, lifestyle to the user's shopping behaviors (Ni and Hutagalung, 2021). In The context of the Covid 19 epidemic, online shopping has become popular and many companies have developed e-commerce-based applications on online technology platforms to attract customers by offering the convenience and free-of-charge use (Nisak and Yasa, 2021). Therefore, an increasing number of e-commerce sites are developing like Shopee - one of the online

shopping malls that comes with the whole-product concept and the convenience of online shopping and delivery. However, when a company enters the service sector, it must provide the best service to make customers feel satisfied (Pettit et al., 2019). Customer satisfaction is closely related to quality; Quality directly affects the performance of the product and Thus customer satisfaction. The student community of The University of Education, VNU is a dynamic, creative and responsive community with the Shopee e-commerce site, which can be considered as a miniature social model. With this article, the research team would like to find out and answer the following questions (1) How satisfied are students with shopping services on Shopee e-commerce site; (2) What factors affect the satisfaction of University of Education students with Shopee services?

2. Literature Review

Satisfaction is an expression which is expressed to the happy or not, compared between the expectation of a product and the actual product received. More specifically, according to Kotler and Keller (2006), customer satisfaction is an individual's feeling of enjoyment or disappointment when comparing the perceived performance or outcome of a product with one's own expectations. Research by Pham & Ahmad (2017) emphasizes that customer satisfaction has a relation to the customer's cumulative experience of a product or service. Thus, satisfaction herein is the customer's feeling good or disappointed with goods and services. At The same time, the level of customer satisfaction will reflect the success and efficiency of the company in implementing business activities and the satisfaction index can the expressed through product quality, service quality, product price, emotional factors and convenience (M. TantowiJauhari et al., 2019). However, so far, research on students' satisfaction is still very limited, especially through major online shopping platforms such as Shopee. Therefore, the content of the study on factors affecting students' satisfaction when using services on Shopee includes five aspects, which are web usability; service quality; price; trust and quality of information.

Web usability (WU)

Customer satisfaction is one of the important keys for online stores (Septiano & Sari, 2020). Research by Giao et al. [8] demonstrated the influence of web quality on customers' loyalty to e-commerce services. In a study by Annaraud & Therezina (2020), the quality of Shopee website is also emphasized to affect customer satisfaction through three aspects: usability, information quality and service interaction quality. However, the study by Mardatill et al (2017) again shows That The aspect of service quality such as ease of use, web design, responsiveness, personalization, assurance do not affect customer satisfaction. At The same time, the study of Sørnum et al., (2012) confirmed that website quality does not have a positive relationship with satisfaction. Therefore, this study, based on the results of other researchers, gives ten indicators to assess the effect of web usability on customer satisfaction such as ease of ordering, making payments, shipping, using and learning to use, operating, interacting, navigating with an attractive web interface.

H1: The ability to use features on Shopee e-commerce site affects customer satisfaction.

Service quality (SQ)

High competition in e-commerce requires businesses to improve service quality. Research by Rather & Camilleri (2019) mentions That service quality is an important component in shaping consumer awareness and positively influencing online shopping decisions on Shopee (Andrew, 2019). Service quality is understood as the comparison of the results between the consumer's expectation and the actual perception (Hamari & Koivisto, 2017). According to Hanitahaiza Hairuddin et al., (2019) there are three indicators of service quality: product advertising, effective shopping experience, and reliable product/service provision. Therefore, The service quality herein emphasizes on The flexible system application of Shopee for accessing shopping activities; no errors during use; Personal data is protected and financial data and transactions are secure.

H2. Service quality on Shopee affects customer satisfaction

Price (P)

Price is considered to the one of the most important criteria affecting consumers' expectations and choices (Mansori, 2012). Research by Rizki, Hidayat, & Devita (2019) also emphasizes that price has a positive impact on consumers' purchase decisions when buying online on Shopee. Specifically, the perceived price plays an important part compared to the actual price and affects the evaluation and choice of products of consumers (Dholakia, 2006). Therefore, online retailers need to offer attractive prices and different segments of price suitable for each type of item to attract users to decide to buy (Delafrooz et al., 2010). However, when shopping online, consumers are hardly able to observe and handle the item because the product is invisible and what is displayed is uncertainly perceived (Jiang & Rosenbloom, 2005) despite the benefit of easy comparison among online stores. Thus, consumer satisfaction has a special impact on price, which in many cases helps to create loyalty with The company, and makes consumers repetitively purchase as Their satisfaction is achieved (Usman & Ur, 2017). Therefore, the price on Shopee is assessed through three indicators - The listed product prices are lower than other e-commerce shopping sites; The price is consistent with product quality; and attractive price with promotions combined.

H3. Prices on Shopee affect customer satisfaction

Trust (T)

Trust is a central factor in forming lasting relationships (Singh & Sirdeshmukh, 2000). In which, customer expectations are expressed through the trust in service, thereby directly affecting customer satisfaction (Sirdeshmukh et al., 2002). At the same time, customer satisfaction can be created by customer trust (Ball, Coelho, & Machás, 2004). Therefore, customer trust is essential in determining customer loyalty (Lau & Lee, 1999). Research by Roziqy & Arifin (2018) also emphasizes that trust has a positive influence on consumers' purchase decisions when buying online on Shopee. Specifically, trust is expressed through five indicators simultaneously applied in This study: (1) belief that Shopee owners can be held accountable; (2) shopping on Shopee meets customers' own desires; (3) The customer personally believe in The seller's performance on Shopee; (4) goods on Shopee can meet The needs of buyers and (5) suppliers/sellers on Shopee can best serve consumers.

H4: Trust affects customer satisfaction with online shopping on Shopee

Brand (B)

Many studies highlight the degree to which consumers perceive a brand/service as the most important factor affecting their purchase decisions (Kumar and Jayasimha, 2019). Branding brings great value to businesses because it brings about a constant and reliable source of revenue and it is difficult for competitors to imitate (Smith & Milligan, 2002). More specifically, consumers may prefer top brands or services not because of better quality or value, but because of their self-image (Chang and Ko, 2014). That is why more and more e-commerce sites allow consumers to easily browse and compare between other commerce platforms therefore making a purchase. Research by Rizki, Hidayat, & Devita (2019) emphasizes That brand has a significant influence on customers' purchase decisions on Shopee. This is partly shown through four indicators mentioned in this study that are (1) brand name Shopee is easy to remember; (2) buy Shopee for The convenience of free shipping; (3) Shopee is the leading e-commerce site when shopping online and (4) Shopee is the brand recommended by others when customers want to shop online

H5: Brand affects customer satisfaction with online shopping on Shopee

3. Method

The survey was created on Google Forms with the links being sent to research subjects or respondents, namely students. Sample requirements are students who have used services on Shopee online shopping site and used technology. This type of research is conducted via online surveys and data is processed by SPSS statistical analysis. The survey was conducted on 274 students at The University of Education, VNU; In which, there are 89.8% female (n=246) and 10.2% male (n=28); freshman 95.3% (n=261); sophomore 4.7% (n=14). Data management involves data quality tests (validity and reliability), descriptive analysis, classical assumption tests (normality test, multicollinearity and variance test), multiple linear regression, and hypothesis testing. Data analysis in this study was carried out with the support of The SPSS Statistics 22.0 to analyze and demonstrate the factors affecting student satisfaction when using online shopping services on Shopee.

3. Results

3.1. Descriptive statistics

Customer satisfaction is one of the important keys for online stores (Septiano & Sari, 2020). This is partly shown through the research results when it is found that up to 96.4% of students choose to shop on Shopee, followed by Facebook 1.8%; Tiki 1.1% and other online channel 0.7%. Through the survey results, it can be seen that students are using a diversity of shopping and commerce channels, which shows that in society in general, diversity will be even greater. In addition, shopping on Shopee online site also partly explains the reasons for students' purchase behavior.

Table 1. Reasons for doing online shopping on Shopee among students

Reasons for choosing Shopee	Percentage	Frequency
Diversity of products and styles	39.1	107
Web usability	28.1	77
Reasonable price	24.1	66
Good service	3.3	9
Convenient delivery and return policy	1.5	4
Payment methods	1.5	4
Simple user interface	1.1	3
Consumer protection policy	0.7	2
Others	0.7	2

Research results show that the majority of students use shopping services on Shopee because of the diversity of products; high website usability; reasonable price and all other reasons such as good service quality, convenient delivery and return policy; simple user interface, consumer protection policy accounts for an insignificant percentage, approximately 3%.

3.2. Reliability analysis of measurement items

The results of reliability item analysis show that the reliability is 0.961 in the range from 0.8 to 1, which is good, and variables with corrected item - total correlation greater than 0.3 meet the requirements.

Table 2. Results of the reliability item analysis

Items	Scale Mean if Item Deleted	Scale Variation if Item Deleted	Corrected Item – Total Correlation	Cronbach's Alpha if Item Deleted
Cronbach's Alpha (REL) = 0.693				
WU1	95.80	237.089	.668	.959
WU2	95.83	238.243	.649	.959
WU3	96.28	234.453	.657	.959
WU4	96.14	236.247	.675	.959
WU5	95.96	237.515	.730	.959
WU6	96.15	234.577	.722	.959
WU7	96.14	234.674	.756	.959
WU8	96.19	233.893	.753	.959
SQ1	96.04	235.397	.764	.959
SQ2	96.92	234.474	.505	.962
SQ3	96.45	233.816	.678	.959

Items	Scale Mean if Item Deleted	Scale Variation if Item Deleted	Corrected Item – Total Correlation	Cronbach's Alpha if Item Deleted
SQ4	96.31	235.131	.715	.959
P1	96.02	236.465	.665	.959
P2	96.15	234.487	.727	.959
P3	95.95	235.048	.685	.959
T1	96.53	234.250	.644	.960
T2	96.28	233.593	.738	.959
T3	96.39	234.533	.730	.959
T4	96.32	234.323	.724	.959
T5	96.37	235.458	.704	.959
B1	96.27	237.407	.553	.960
B2	96.10	236.902	.642	.960
B3	96.00	237.788	.629	.960
B4	96.09	235.343	.737	.959

3.3. Exploratory Factor Analysis (EFA)

The factor analysis results show that the KMO index is $0.944 > 0.5$, which proves that the data used for factor analysis is completely appropriate. The result of Bartlett's test is 5854.295 with $\text{sig} = 0.000 < 0.05$, thus exploratory factor analysis (EFA) is appropriate (Source: extracted from SPSS, 2021). Five variables measuring student satisfaction are extracted into the same factor at Eigenvalues = 3,380 (>1) and the total variance extracted is 51,800%. Therefore, EFA results are suitable to be used for regression analysis in the next step.

Table 3. EFA analysis results for independent variables (Round: 1)

Measure	Factors				
	1	2	3	4	5
WU1	0,765				
WU2	0,739				
WU3	0,735				
WU4	0,717				
WU5	0,696				
WU6	0,503				
WU7	0,744				
WU8	0,663				
SQ1		0,512			
SQ2		0,711			

Measure	Factors				
	1	2	3	4	5
SQ3		0,686			
SQ4		0,680			
P1			0,603		
P2			0,511		
P3			0,814		
T1				0,791	
T2				0,670	
T3				0,639	
T4				0,753	
T5				0,724	
B1					0,712
B2					0,629
B3					0,513
B4					0,735
Eigen - value	7.824	2.035	1.135	1.248	1.009
Extracted Variance (%)	33,621	44.621	46.753	52.340	56.735
a. Rotation converged in 6 iterations.					

Source: Survey results, 2022

All factor loading coefficients are greater than 0.5, and there is no case that any variable uploads both factors at the same time with the loading coefficients close to each other. Thus, the factors are guaranteed to have convergent and discriminant values in EFA analysis. In addition, there is no mixing of factors, which means that the question of one factor is not confused with the question of the other factor. Hence, after EFA analysis, these independent factors are kept unchanged, neither increased nor decreased by factors.

Table 4. Explained Total Variance

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.468	51.800	51.800	13.468	51.800	51.800
2	1.999	7.687	59.486			
3	1.627	6.258	65.744			
4	1.049	4.034	67.778			
5	1.032	2.954	69.366			

Extraction Method: Principal Component Analysis.

Source: Extracted from SPSS, 2022

3.4. Regression Analysis

After conducting exploratory factor analysis, grouping variables into each factor, the study continued to conduct regression analysis. Regression analysis is used to predict a statistical model and predict the value of dependent variables. The purpose of regression analysis is to measure the impact of the factors that affect customer satisfaction. Specifically, regression analysis was performed with 5 independent variables: Web Usability (WU), Service Quality (SQ), Price (P), Trust (T), Brand (B). One-pass input method (Enter method) was used for regression analysis. The values of the factors used to run the regression are the mean values of The observed variables. The regression equation reflecting the influence of the factors in the model was built as follows: $SS = \beta_0 + \beta_1 * WU + \beta_2 * SQ + \beta_3 * P + \beta_4 * T + \beta_5 * B + e_i$ (β_i : Regression coefficients ($i > 0$); β_0 : Constant; e_i : error). Research model evaluation:

The analysis results show That The Adjusted R-Square = 0.509, meaning That independent variables in The model including Web Usability (WU), Service Quality (SQ), Price (P), Trust (T), Brand (B) contributes to 51.8% of The variation of The Student Satisfaction (SS) with shopping services on Shopee e-commerce site. The results of the regression model are shown in detail as follows:

Table 5. Output of Multiple Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Theta		
Constant	0,288	0,205		1,233	0,000
WU	0,283	0,070	0,219	3,408	0,021
SQ	0,112	0,033	0,118	1,227	0,000
P	0,233	0,053	0,166	2,443	0,002
T	0,211	0,024	0,126	2,551	0,000
B	0,213	0,033	0,124	4,424	0,000

Source: Primary data analyzed through SPSS

As the result shows that all factors have Sig. value less than 0.05, showing a significant regression coefficient. In other words, these variables including Web Usability (WU), Service Quality (SQ), Price (P), Trust (T), Brand (B) are correlated with the satisfaction of customers when using services on Shopee. The standardized regression model of student satisfaction with shopping services on Shopee e-commerce site is built as follows:

$$SS = \beta_0 + 0.219 * WU + 0.118 * SQ + 0.166 * P + 0.126 * T + 0.124 * B$$

Overall, the results validated That There were 5 factors affecting students' satisfaction towards shopping online on Shopee, including: (1) Web usability (2) Service Quality, (3) Price, (4) Trust, (5) Brand. Regression analysis results not only show That all initial hypotheses H1, H2, H3, H4, H5 are accepted but also prove a strong influence on student satisfaction with e-shopping services on Shopee.

4. Discussion and Conclusion

4.1. Discussion

The e-commerce market has then constantly evolving and changing business models in recent years. In particular, e-commerce shopping sites like Shopee have changed its business model with manufacturers, distributors and customers using The Internet as a useful tool for communication. It can be seen that Shopee is an accessible APP on Android and IOS, enabling consumers to easily seek and buy the products they want not only at an affordable price, but also without distance and time limitations (Wijaya & Warnadi, 2019). Therefore, it is important that service providers on Shopee make optimal use of the features of The Internet and other product-related factors presented through the online platform in order to achieve customer satisfaction, thereby leading to a change in behaviors of purchase decision. More specifically, the study of student satisfaction with online shopping on Shopee emphasized the factors of web/app usability; service quality; price; trust and brand. Simultaneously, the five research hypotheses were all accepted and statistically significant.

Student satisfaction with Shopee web/app usability is demonstrated through the easiness in ordering and paying, using features as well as operating and interacting on the web/app with an attractive user interface.... This is important because consumers have more choices and better deals on different e-commerce websites (Devaraj et al., 2002). Therefore, from a consumer and business perspective, it is vital for e-commerce managers to understand this virtual distribution channel (Escobar-Rodríguez and Bonsón-Fernández, 2017). Specifically, e-commerce websites/apps in general and Shopee in particular need to provide a simple way for manufacturers or retailers to effectively distribute goods and reach potential consumers (Escobar -Rodríguez and Bonson-Fernandez, 2017).

In addition to the web/app usability, service quality is also one of the important factors to achieve student satisfaction. Service quality and satisfaction are two different concepts, but closely related in research on services (Parasuraman, ZeiBam, Therry, 1988). Many researchers also emphasize that service quality can be improved and lead to a positive experience of satisfaction (BouraTa, Psomas, Suárez-Barraza, & Jaca, 2019). Service quality is not only limited to delivery, but also related to after-service evaluation criteria such as easiness in shopping; no errors encountered during use; Personal data and transactions protected. Research by Eboli, Forciniti, & Mazzulla (2018) also mentions service quality includes reliability, responsiveness, capacity, access, communication, reputation and security.

Price is also a criterion leading to student satisfaction and purchase decision on Shopee. Consumers have more choices and better deals on different e-commerce websites (Devaraj et al., 2002) and so do students. Service prices in this study emphasize that the prices of products sold on Shopee are lower than other e-commerce sites and are consistent with product quality; as well as offering attractive prices with vouchers/promotions.

Besides, trust is also an important factor leading to high student satisfaction and thereby a long-term loyalty to products and services. In particular, trust is the fundamental precursor to the structural connections between buyer and agent. In any buyer-seller relationship, assessing a shopper's trust in a particular transaction is emphasized to have a

direct impact on post-purchase transaction (Kim et al. associates, 2009). This is also partly emphasized through specific criteria such as The trust in the Shopee shop owners' high responsibility; trust in The salesman's performance; The best service meeting The expectation and needs of students.

Finally, the research results show that student satisfaction with online shopping services on Shopee e-commerce site is also expressed through brands such as easy brand identification and brand recall; Free shipping; Top site for online shopping and recommended by people. Long-term brand experiences kept in the mind of consumers are likely to influence consumer satisfaction and loyalty (Mittal & Kamakura, 2001). More specifically, a positive brand experience plays an important role in developing sustainable and long-term brand loyalty (Mascarenhas, Kesavan, & Thernacchi, 2006).

4.2. Conclusion

The industrial revolution 4.0 has created a driving force for promoting people growth in the context of digital development and transformation in almost every field in general and in economy. Especially, the use of digital technology in the economic sphere of society has brought about major changes to the economic behavior pattern of the community itself. Digitization has made the market competition difficult to control in today's business world and has led to an indirect intersection between manufacturers and customers to conduct transactions, in which the e-commerce shopping site is a marketing system that shows the development potential of businesses. However, regardless of the form of business, it is always aimed at consumers and consumer satisfaction is considered the most important factor to bring success to a business. Research results show that student satisfaction with Shopee online shopping site is influenced by many statistically significant factors such as web usability; service quality; price; trust and brand. Therefore, online shopping portals need to actively focus on providing impactful consumer experiences and pleasing customers in general, and students in particular. Student satisfaction not only affects retention and engagement rate when shopping online; but also boosts buying decisions.

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**PART 8:
SUSTAINABLE DEVELOPMENT**

LINKAGES IN TIMBER PRODUCTION AND MARKETING BETWEEN WOOD PROCESSING COMPANY AND FOREST PLANTATION HOUSEHOLDS IN TUYEN QUANG PROVINCE, VIET NAM

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Abstract

This study aims to investigate the current situation vertical linkage between the exported Woodland wood Processing Company and the local forest plantation households in FSC certified timber production and marketing. The research results show that the economic efficiency from afforestation of households participating in linkage with the company is much higher than that of households not participating in the linkage. Linkage not only brings economic benefits but also helps households improve their knowledge of planting techniques and reduce production risks. In order to enhance the linkages, it is necessary to implement a number of solutions such as: continuing to expand the area of planted forests according to FSC standards by mobilizing households to participate in the linkage; building a close linkage mechanism through cooperation between the parties; enhance the role of state management of local governments in maintaining and developing the linkage model.

Key words: *Vertical linkages, Timber production, Wood processing company, FSC, Forest plantation households.*

1. Introduction

In situation of conservation of natural forests for environmental and social protection, the industrial forest plantation is required for not only the increase of forest area but also the demand of wood products for wood industry. As the mentions in report of FAO: “industrial plantations make up only about 5 percent of the total forest area but provide 35 percent of the world’s wood supply” (Fao, 2001). The demand of timber products is increasing. Besides the involvement of companies, many small-scale farm have evolved in industrial plantation of forest (C. Anyonge and James Roshetko, 2003). The farm timber producers have potentials in providing timber for wood materials market, especial in contractual market (corporate-smallholder partnerships).

Tuyen Quang is a mountainous province in the North of Vietnam. Tuyen Quang Province now has 448,681 ha of forest land, accounting for 76% of the total natural land

area. In which, by the end of 2019, the area of planted forest in the whole province is 201,954 ha (Department of Agriculture and Rural Development, 2019). With favorable conditions in terms of weather, climate and land, this is a land with great advantages to develop the forestry economy for the locality, contributing to the greening of barren hills and mountains, protecting the biological environment. and improving the farmer's life. In 2018, the proportion of the agriculture and forestry sector's contribution to the province's GDP growth reached 26% (Tuyen Quang Department of Statistics, 2018).

The linkage model of developing afforestation certified for sustainable forest management (FSC) between the exported Woodland processing company and forest planters is one of the typical forms of linkage in Tuyen Quang province. (Yen Do Hai, 2018). By the end of the first 6 months of 2020, the total area of planted forests achieving FSC certificates of the whole province is 25,336 ha (reaching 12.6% of the total area of planted production forests in the province). In which, the forest area reaching FSC of households is 10,251 ha. (Woodland Tuyen Quang Joint Stock Company, 2019). The linkage model is currently expected to be of great significance in enhancing the value of plantation timber, confirming the right direction of leaders and people on sustainable management and use. forest resources, contributing to local forestry economic development. However, up to now, the number of forest plantation households participating in the linkage is still limited. The linkage between the Woodland Joint Stock Company and the forest growers was formed mainly by the need for connection from the company.

This study was conducted to evaluate the overall status of the linkage between Woodland exported wood processing companies and forest growers, from which proposing solutions to strengthen and develop the linkage model of afforestation according to FSC standards in Tuyen Quang province in the coming time.

2. Method

The study uses a systematic and participatory approach to solve the research problem. Primary data sources were collected through surveys and questionnaires of 120 reforestation households, of which 80 households were affiliated with the Woodland company and 40 households were not affiliated. Descriptive and statistical methods, comparative and analysis methods are the main methods used in the research process. The cost-benefit analysis method is used to evaluate the economic efficiency of afforestation as an investment project over many years (Juan Torres, et al., 2016). This investment analysis is used to assess the profitability of the projects. Net present value (NPV) is the flow income and time based expenses converted to present. An economically viable investment project must have an NPV greater than 0 (Webber M, 2007). The formula for NPV calculation is as follows:

$$NPV = \sum_{t=0}^n \frac{Bt - Ct}{(1 + r)^t}$$

Inside:

t: time of the investment project; r: The author uses the interest rate on bank deposits in Viet Nam; Ct: annual cost for investment; Bt: The revenue is earned annually

3. Results

3.1 Overview of the linkage between the Woodland Wood Processing Company and the forest plantation households

** Tuyen Quang Woodland Joint Stock Company*

Tuyen Quang Woodland Joint Stock Company is a company specializing in manufacturing wooden building products and interior decoration for export. The raw materials for production processing that the company uses is the type of timber that is fully harvested from planted forests, of which the trees are mainly acacia trees with the age of 7-8 years or more and must have Forest Stewardship Council (FSC) certification. Forest certification according to the standards of a sustainable forest management council. The products produced by Woodland have been present in the US, Canada, Europe and Japan markets. The company is also one of the main suppliers of the world's largest furniture group IKEA in Viet Nam. With a factory capacity of over 680,000 m³ per year, each year the company needs a minimum logging area of 2,500 ha of plantation forest with a minimum 7-year cycle and must have FSC certification. Currently the company is the main purchasing unit of wood certified with FSC in Tuyen Quang province. This is also a decisive party in the formation and operation of the FSC certified afforestation model with households in the province.

** Characteristics of households participating in the linkage*

The study surveyed 80 households participating in afforestation under FSC standards with the company through Tien Huy Forestry Cooperative in Tien Bo commune, Yen Son district, Tuyen Quang province. All households are members of the cooperative. Households in the area are all those with long-term experience in afforestation, up to 78.7% of households rely on forest work, income from forests mainly contributes to 80% of the family's economy family.

Table 1. Basic information of households participating in the linkage

Criteria	Unit	Quantity
1. Number of households	household	80
2. Age	Year	45,62
3. Number of school year	Year	10,25
4. Experience in afforestation	Year	15,54
5. Average area	Ha	7,19
6. Forrst Planting density	tree/ha	2000

** Form of linkage between the Woodland Company and the local forest plantation households*

The model of linkage between the Woodland Company and the forest growers is depicted in Figure 1. Table 2 presents the rights and obligations that parties participating in the association enjoy and are responsible for implementing.

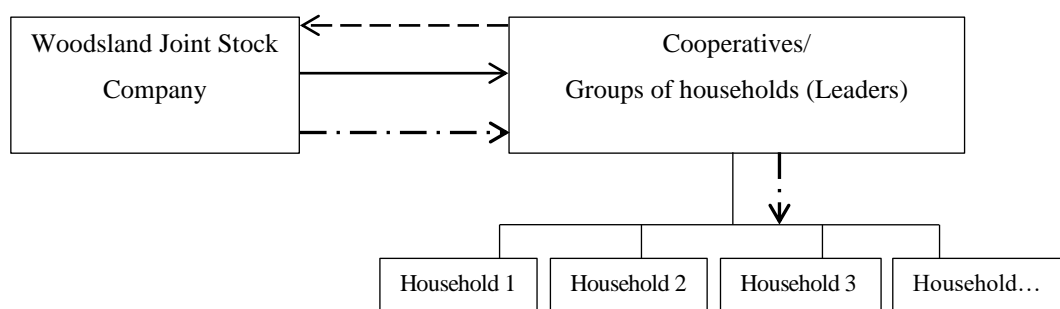


Figure 1. Linkage Model between Woodland Company and Forest Plantation Households

Notes: → Demand ← - Supply as order
 - . → Admin, financial and technical support

Table 2. The rights and obligations of company and famers

	Rights	Obligations
Forest plantation households	<ul style="list-style-type: none"> - To be supported for free with 100% fee of evaluating and achieving FSC certificate for forest plantation. - Oportunities to approach loans with less or free interest rates. - Improve the knowledge in technology, silvicultural training for forest establishment and maintenance. - Safety output market for timber harvest and increasing income 	<ul style="list-style-type: none"> - To comply tightly all technical requirements on afforestation according to FSC criterias to ensure certified timber materials - Lasting the cycle of trees (at least for 7 years) to obtain the large-diameter size of wood. - To give priority in selling timber to COC sawmills of the company or to the company directly
Cooperatives	<ul style="list-style-type: none"> - To be received FSC evaluation costs from the company and implement it to households. - To be trained and accessed new scientific and planting techniques following FSC standars. - To be updated reliable information regarding good seedlings to introduce with household growers. 	<ul style="list-style-type: none"> - to support househods in preparing forest documents for FSC evaluation - To help company to check and make a harvest plan annually. Being a bridge between company and households. - To assist households in havesting and guide them to sell timber for company's sawmills
Woodland Joint Stock Company	<ul style="list-style-type: none"> - Having the stable source of timber material inputs that meet the requirement of IKEA wooden products 	<ul style="list-style-type: none"> - To combine with cooperatives, training growers in developing and managing the forest following the requirement of FSC.

	Rights	Obligations
	- Being initiative management in timber material sources and reducing the imported inputs.	- To advise on organization and operation of household groups such as: meetings, monitoring forest development - To sponsor 100% for free the forest evaluation cost to achieve FSC certification. - To commit to purchase FSC certified timber when harvesting at a price higher about 10 – 18% at least than market price of non-certified wood at the time of transaction.

Source: Do Hai Yen, 2020

3.2. Results of linkage implementation between the Woodland Company and the forest plantation households

* The results of developing planted forest area achieved FSC certificate

By the end of 2019, Tuyen Quang Woodland Company has supported the total area of FSC certified forest in the province to reach 25,366 hectares, of which the forest area managed by forest companies is 15,115 hectares, accounting for 59.6 %; of households managing 10,251 ha, accounting for 40.4% (Chart 1).

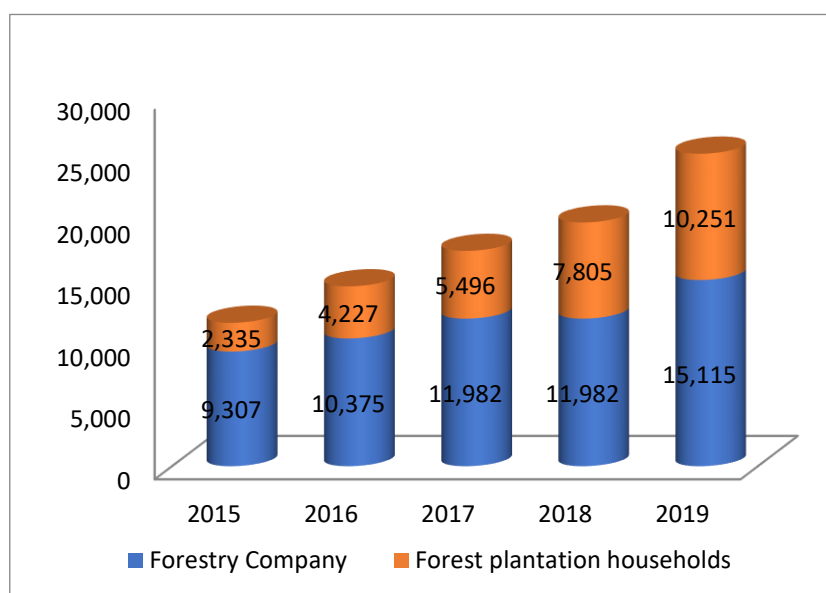


Figure 2. Developing planted forest area achieved FSC certificate in Tuyen Quang Province

* Technical support situation by Woodland Company

In order to assist and train in the knowledge of the certification requirements; For FSC principles and criteria, Woodland has applied the training method “TOT - Training Of Trainers - to train trainers”. The company coordinates with provincial agricultural extension officers,

forestry sub-departments, training capacity building and agricultural extension methods, intensive forest technique in the direction of FSC for district and commune extension officers; heads of cooperatives, heads of household groups. These people will then be responsible for retraining the forest owners, making sure all forest owners are trained and knowledgeable about the FSC certification for sustainable forest management. In addition, at commune meetings, village meetings, forest production principles, effectiveness from afforestation according to FSC standards are always integrated and emphasized on households.

** Situation of household responsibilities when joining the Woodland company*

Through the survey, it was found that 100% of the households participating in the association ensured compliance with the requirements of FSC standards. The majority (97.4%) of the households maintain the minimum exploitation cycle of timber for 7 years. Percentage of households selling timber to the company after exploitation reached 92.5% (Table 3), there are still some households selling to the market or harvest and sell before the prescribed cycle. This situation mainly occurs in households that are new to the association, having doubts about the effectiveness of the model or the company's price commitment. Some households transfer or sell forest land or, for some reason, they need money or need land, so they harvest before the agreed period, accept to sell at a lower price than the price if sold to the company . However, this situation is not happening much.

Table 3. Situation of household responsibilities when joining the Woodland company

Contents	Rate (%)
Comply with the requirements of afforestation according to the Sustainable Forest Management Standard (FSC)	100
Maintain required minimum operating cycle of timber (7 years)	97,4
Percentage of households selling timber to the company	92,5

** Economic benefits from household afforestation when joining the Woodland company*

In order to create one cubic meter of FSC certified round timber, in addition to the cost of conventional afforestation, there must be additional costs related to the implementation of the FSC certification. Costs for the evaluation are approximately 28,000 USD (\approx 652,960,000 VND), including the cost of the first year evaluation 8,000 USD (\approx 186,560,000 VND) and the annual audit cost for the next 4 years 20,000 USD / 4 year (\approx 466.400.000 VND / 4 years). All these costs are currently being covered by Woodland Company and are not required to be reimbursed by households.

To clarify the effectiveness of afforestation according to FSC standards of the households participating in the association, the study evaluates and compares the results of planting business between 2 groups of households: group of households planting forests Normally and groups of households plant forests according to FSC standards. At the time of the survey, the difference in the selling price of FSC certified wood is 17% higher than that of ordinary timber without FSC. Production results of households planting forests according to FSC standards are shown in Table 4.

Table 4. Result of plantation production according to FSC standards of households in linkage with the Woodland Company

Criteria	Unit	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
1. Household of linkage							
Investment	VND	37.862.334,2	45.775.667,5	53.119.000,8	59.555.667,5	63.542.334,2	67.529.000,8
Revenue	VND	65.245.590,0	108.050.500,0	149.035.000,0	175.803.500,0	191.179.500,0	206.555.500,0
NPV	VND	12.816.673,6	31.674.226,5	47.120.155,2	52.907.322,3	53.092.725,0	52.809.865,4
IRR	%	13%	21%	22%	21%	18%	16%
BCR		1,42	1,92	2,34	2,34	2,33	2,31
2. Households of non linkage							
Investment	VND	33.465.000,0	41.378.333,3	48.721.666,7	55.158.333,3	59.145.000,0	63.131.666,7
revenue	VND	47.704.800,5	76.785.150,0	112.073.500,0	132.193.050,0	143.749.850,0	155.306.650,0
NPV	VND	4.952.885,0	16.245.923,2	30.010.483,0	34.004.001,6	34.165.420,7	34.004.036,4
IRR	%	7%	14%	19%	18%	16%	14%
BCR		1,18	1,53	1,89	1,95	1,94	1,93

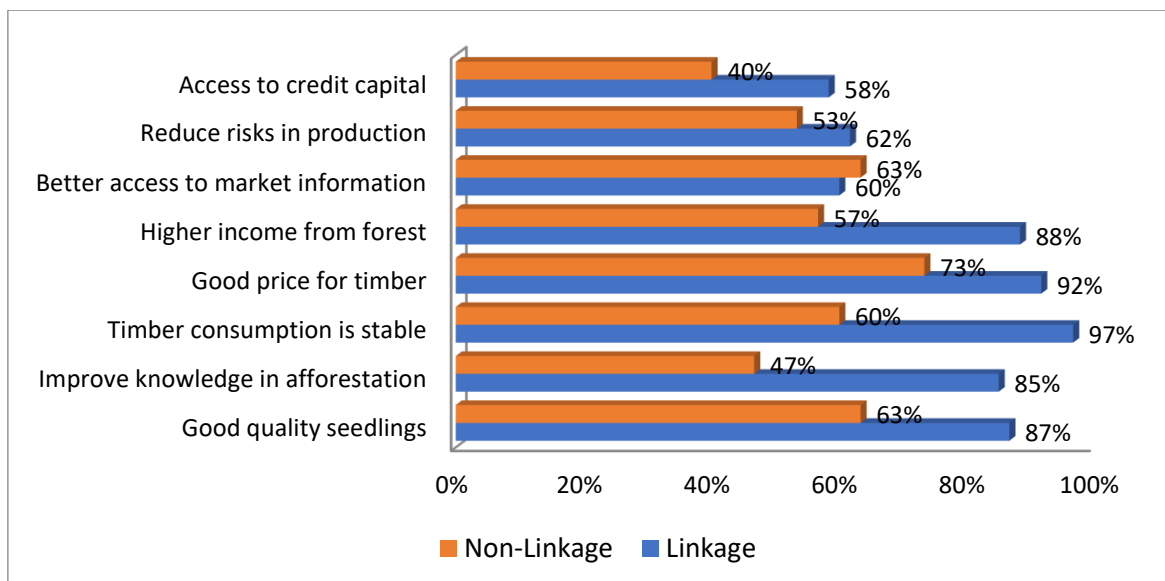
The results of production and business of the group of afforestation households providing FSC and non-FSC certified timber show the difference in monetary benefits that the linkage model brings. Both groups of households mainly exploit planted forests from year 7 onwards. The cost of entering planted forests of the linked household group is higher than that of the non-linked group because it will take more labor to plant forests according to standard and standard methods than to plant forests according to traditional methods. system. Specifically, afforestation under FSC standards will increase the number of working days due to direct weeding and clearing of vegetation. The efficiency analysis indicators all show that the afforestation linkage model with FSC brings much higher economic efficiency, clearly shown through the NPV of the linked household is 1.57 times higher than the non-linked household. results at a 7-year cycle. Similarly, the FSC BCR is 2.34, while the average planting households are only 1.89. With the calculation results of these indicators, we have a basis to state that afforestation under the FSC certified linkage model is economically efficient, bringing in higher income from planted forests compared to other indicators. conventional forest planters.

The results of NPV and IRR calculation for two groups of households in Table 4 also show that, if we consider afforestation as an investment project with a normal cycle of 5 to 10 years and use the interest rate of deposits / year of the bank. Agriculture and Rural Development is 8.5%, the group of households planting forests under the FSC model should harvest in year 8 is most beneficial because of the highest NPV and BCR. Conventional households should harvest in year 9 is most effective.

3.3. Benefits of the linkage

One of the most obvious impacts on households after joining the FSC-standard afforestation model with Tuyen Quang Woodland Joint Stock Company is the application of science and technology to the practice of afforestation. . Through training courses and propaganda on forest planting standards and criteria according to FSC, people have the opportunity to expand their knowledge in planting, tending and protecting forests, and gradually abandoning the habit of afforestation. statistics; to initially get acquainted with modern farming methods, gradually integrate with the development trend of the general forestry industry in the world. Afforestation households according to FSC standards have fundamentally changed their old afforestation habits, which is to completely eliminate burning of vegetation when preparing land for afforestation, and do not throw away fertilizer and plant protection packages indiscriminately. .. These are factors at high risk to affect water resources and living environment.

In addition to the benefits of improving knowledge of afforestation, participating in afforestation according to FSC standards also helps households benefit from the timber selling price higher than the normal selling price of timber, thereby increasing income from the forest. grow. At the same time, thanks to the correct application of standards in the process of planting, tending and protecting forests, the productivity of planted forests according to FSC standards is also higher and reduces production risks such as the rate of dead trees, pests and diseases. harm.



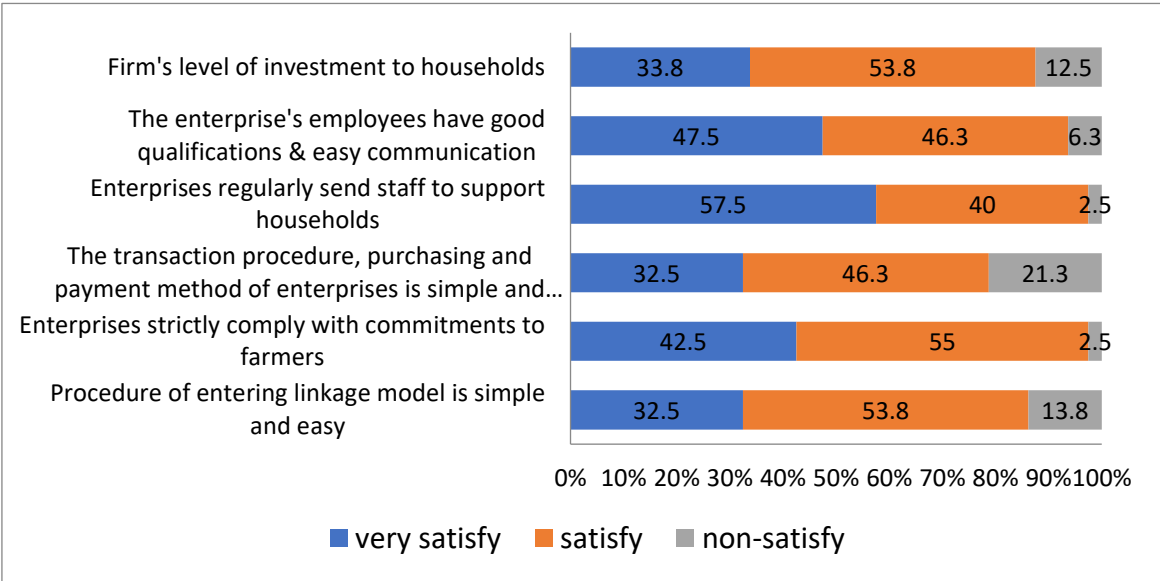
There is not a big difference between the linked and non-linked households in assessing the quality of seedlings in the process of planting and developing forests. This is because in the linkage mechanism, the company does not have specific support for seedlings to be used for afforestation, in this part the cooperative will be the one to introduce and connect households to buy seedlings from Reputable seed production centers in the province or from research institutes of universities. On the other hand, over 80% of the surveyed households of both groups of households in the study area are households with long-term experience in afforestation, contributions from forests are also the main source of income for households. Therefore, all households are very interested in seed quality and have investment.

3.4. Households' evaluation on the company's linkage activities

The survey of households' evaluation about the company's linkage activities shows that the majority of households are very satisfied (42.5%) and satisfied (55%) about the correct implementation of what companies do. with households such as: regularly assigning staff to coordinate with cooperatives to support and train households in acquiring knowledge on afforestation according to FSC standards, hand-held communication is easy to understand (47.5% very much satisfied). Besides, the company also buys timber at a price higher than the market price as committed. Thanks to the role of the cooperative participation in the model, the household does not face any difficulties in procedures for joining the association.

However, 13.8% of respondents think the procedure is still complicated. However, these households mainly focus on those who have problems with Certificates of forest land use rights such as: households are using certificate to pledge for bank loans; or for some reason, they lose it and are in the process of apply for reissuance; or the forest land are in the process of transferring to someone else, meanwhile the requirement of joining the association is that the household must prove their forest land is 100% certified of use rights and no dispute. On the other hand, up to 21.3% of households also said that the procedure for exploiting and selling FSC certified timber is more complicated than for selling ordinary timber. Before exploitation, it is necessary to report 1 year in advance, follow the technical protection process, with the inspection of the cooperative, the representative of the wood

purchasing unit of the company's satellite factory COC. Meanwhile, if selling ordinary timber, households can sell the whole forest completely or log it straight to the place for sale without spending time on harvesting procedures.



3.5. Difficulties in the process of operating the linkage model between companies and households

All expenses related to the formation and operation of groups of households, guide households to plant, take care of and harvest according to FSC requirements; expenses for forest assessment and certification. These costs are currently being fully supported by Woodland Company and have not been included in the production cost structure of raw wood of households. According to the survey information from households, the price difference is not too large (from 15-20%) as at present between the timber with FSC certificate and the timber without FSC certificate, if the household has to remove all of it. With these expenses, households will not be willing to participate in the linkage model because it is unlikely that the economic benefits from planting forests with FSC will be more than those from traditional afforestation. Therefore, in the future if the above subsidies are no longer available, but the household has to invest, especially the costs related to certification, this association model is predicted to be difficult to form.

The difficulty in complying with the FSC requirements includes 10 principles and 56 criteria. Forest land of households with FSC certification is interspersed with land of households that do not or have not participated in the association, together with fragmentation and fragmentation of forest land, causing risks in compliance. requirements of the FSC. Besides, it is very difficult to change perceptions and habits of households that are accustomed to afforestation according to traditional methods. Most of the reforestation households live in rural areas, with limited resources and intensive farming skills. Households have engaged in afforestation for over 15 years, and over 45 years old. Therefore, it is very difficult to change a production habit. Results of interviews with communal officials, officials of the Board of Directors of the Cooperative and through in-depth interviews with staff in charge of developing raw material areas for Woodland

Company said that when implementing, mobilizing households to participate In the linkage model, they all face difficulties in convincing households and closely following households in the process of operating, planting and taking care of forests as required. Because the educational level of most households is still low. Farming habits and practices have been deeply imprinted and difficult to change.

In the process of operating the linkage model, there are risks related to the cooperative relationship between the company and the households, with the company being the more risky party. Currently, the linkage mechanism between the company and the household groups is through a support contract. However, the content of the contract only mentions that the company will support the full cost of certification, support in terms of forest planting and care techniques. The company only requires groups of households to give priority to selling timber after harvest to the company, not required. So in case the households do not comply with the conditions of the contract such as: selling timber voluntarily ahead of time or not selling to the company. In this case, it is difficult for the company to sue or apply any sanctions for groups of households. Interview with woodland company officials said: the company must now accept violations without handling, but in the future the company will never cooperate with those households again. If the number of breaches of the contract increases, the timber supply to the company will be affected.

3.6. Proposing some solutions

The forest plantation linkage model according to FSC standards is a model with many potentials in bringing about social and environmental effects. To complete and develop the model, some solutions are proposed as follows:

Firstly, it is currently in the period when technical assistance, funding support for forest certification is being paid by the woodland company. Department of Agriculture and Rural Development together with cooperatives and heads of branches and groups of FSC afforestation households should continue to review and mobilize households with forest land, especially those with forestry land. In the same plot, plot in the region participate in the association on the spirit of voluntary participation, voluntarily complying with the provisions of the afforestation according to FSC standards. Establish new afforestation groups, each with a minimum size of 100 ha. With this scale, afforestation households can access the State's policy of funding support for forest certification under Decision No. 38/2016 / QĐ-TTg. On the other hand, the more the certified forest expands, the greater the benefits to be gained by the household, while the smaller the cost of auditing to get FSC allocated per hectare (cost per audit). price is fixed regardless of the area). Therefore, does the development of the group's operating regulations provide the amount of funding to contribute to the Fund for the maintenance of forest certification at the next stage (when support for forest certification is provided by woodland JSC. in the end) is workable.

Secondly, to enhance the responsibility of each household in complying with FSC's requirements and principles. Need to enhance the role of cooperatives, associations, household groups that have joined the current linkage. Cooperative staff, group leaders and members are responsible for maintaining the household group in implementing standard planting

techniques, reproducing certified planted forests for the next cycle. Advocate, support and supervise new participating households to comply with requirements and principles. On the other hand, the company needs to combine the agricultural extension staff of the Department, the village and commune staff, the cooperative officer, the group leader, the branch to properly and clearly convey information about the opportunities and the necessity. and the benefits that can be gained from joining the linkage model to households. Since then, it increases the trust of households as well as the responsibility of participating in the association of households. Organize training classes, teach and share knowledge about FSC afforestation.

Thirdly, because the link between the growers and the processing company suffers from the effects of supply and demand in the market, fluctuations in the market can lead to contract non-compliance, especially from households. To overcome this situation, the company and groups of households represented by the cooperative need to negotiate and build a sustainable linkage mechanism through the linkage contract. The contract should ensure fairness of interests and obligations between the parties. In addition to maintaining and committing to well implement the terms of support, the company needs to add terms on product consumption when exploiting, price transparency, financial support ... The company also needs to exchange often. regularly working with cooperatives, heads of household groups to develop annual exploitation plans, maintain raw materials for production.

Finally, People's Committees at all levels and the Department of Agriculture and Rural Development should continue to direct the review of forest and forest land areas in their respective management areas, make plans for forestland allocation, and guide groups of households, The association procedures to apply for land use right certificates for households in accordance with the 2013 Land Law. Disseminate to households programs and policies of the Government and the province on development. forestry economy. Support legal procedures for households to easily participate in the association as well as participate in sustainable forest management and development programs and projects. Authenticate cooperation agreement between the company and groups of households. Participate in monitoring and take measures to handle the implementation of commitments by stakeholders.

4. Conclusion

The linkage model of afforestation according to FSC standards in Tuyen Quang has made important contributions to promoting afforestation in Tuyen Quang province. The model is said to bring benefits to planters in terms of economic efficiency, knowledge and techniques of planting and tending forests. The research results of two groups of households that participate in the association and do not participate in the association show that: the economic efficiency from planting forests according to FSC standards of the linked household group is higher than the group of households planting under the conventional method and not. join the link. Besides, it also brings many positive benefits to households such as: improving knowledge on planting techniques, higher selling price of timber and higher income from planted forests. However, the model also has many hidden risks that the biggest loser is the company. To improve and develop the model in the coming time, a number of main solutions are proposed: 1) Continue to advocate and expand the area of

planted forests according to FSC standards, and at the same time build a Fund to maintain the certification. only in household groups. 2) Enhance the role of groups of households and cooperatives in propagating and mobilizing participation and monitoring the implementation of FSC's requirements and principles. 3) Building the sustainable linkage mechanism through the linkage contract. 4) Enhance the role of state management of local governments in maintaining and developing the linkage model.

Acknowledgments

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POLICIES FOR THE DEVELOPMENT OF SUSTAINABLE MAIZE-BASED FARMING SYSTEMS ON SLOPING LAND IN SON LA, VIETNAM: CURRENT STATUS AND CHALLENGES

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Abstract

This study aimed to analyze the current status in Son La province in terms of policy implementation focusing on maize. By utilizing qualitative research method, the study assessed the impacts of the policies those affecting to sustainable maize-based farming systems in Vietnam with a case study in Son La province. The results showed that, in recent years, maize is no longer known as the key crop and interest by both farmers and local authorities in Son La. This trend partly affected by the policies by the local strategy. An important finding showed that the policies for maize-based sustainable development have been integrated in certain agricultural policies at the central level. Nevertheless, only a few policies directly support maize production while some others are general. At the local level (Son La province), there is no specific policy for maize. Existing policies on maize in Vietnam in general and Son La, in particular, did not affect or put their impacts to promote sustainable maize production. In addition, five most prominent challenges were accentuated those need to be addressed in order to achieve the goal of sustainability in maize production as defined by the Vietnamese government.

Keywords: *Maize-based farming system, agriculture production, sustainable development, policy effect.*

1. Introduction

In Vietnam, maize is known as the primary material resource for livestock and poultry feed. It is one of the six main crops in the country (along with rice, coffee, orange, pomelo, and banana), being the second most important food crop after rice [21]. Maize has been grown in almost eight agro-ecological regions [17], concentrating in the northwest, northeast and central highlands (accounting for nearly 60% of the total maize area and production of the country) [7].

In the 1990s, maize production in Vietnam increased dramatically, especially during the time that the government strongly supported and promoted hybrid maize technology. Since then, more productive hybrid maize varieties have been widely adopted [9]. At present, 140 maize varieties are recognized and allowed for production in Vietnam. However, the expansion of maize areas has led to the deforestation, the soil erosion, and the land degradation, especially in the mountainous and highland regions. Additionally, the effects of climate change with intense rainfall that exacerbates the soil erosion on sloping lands. At the same time, droughts have come more frequent that also make the maize farming smallholders vulnerable [4]. This is the challenge for Vietnam if both aim to increase acreage and maize production, while to ensure environmental sustainability and economic household through appropriate agricultural and rural development policies.

Son La is one of the mountainous provinces in the northwest of Vietnam with the third largest natural area of the country. In Son La, about 80% of sloping cultivated land are reserved for maize, industrial plants, fruit trees and other annual crops. For many years, maize has been the major crop in the province, attracting farmers (especially the poor households) to cultivate in all districts and generating most income for local farming households [4]. The land in Son La is quite relevant for growing maize (about 60% of the agricultural land area) [13]. Moreover, more than 40% of cultivation land is distributed at a slope of over 15 degrees (among those, the area of over 25 degrees accounts for about 6%). In addition, about 14% of agricultural land is distributed at elevations above 1,000 m. Meanwhile, maize in Son La is predominantly cultivated on sloping land (about 70% of the maize cultivation area) [13]. This leads to the status that if there are no sustainable maize farming practices, the risk of erosion on maize cultivated land is very high.

In recent years, a number of researches on Vietnam's policies in agriculture have been conducted by domestic and international organizations. However, no research on policies of maize or maize-based production has been conducted. Therefore, this study, by a case study in Son La province provided the audience with practical analysis on maize production and update policies related to maize-based agriculture in Vietnam as well as the implementation status of these policies at the locality. Accordingly, relevant recommendations will be provided to limit the gaps or shortcomings of the policies and partly contribute to improve the management quality. The study focused on the most related policies promulgated by central and local agencies that directly and indirectly affect to maize-based agricultural farming in Son La province.

2. Method

The qualitative were utilized in this study with desk study, semi-structured interviews and focus group discussions. 10 interviews via emails and direct meetings were applied to leaders, managers, researchers. Meanwhile, the focus group discussions were applied to 20 local farmers and traders to understand how the policies have come into effects in practical.

The review began with studying policy reports, agricultural policies and related legal documents for overview of maize production and policy context. Then, it followed by some interviews and group discussion with local authorities, farmers and traders for understanding the practical situation of maize cultivation, consuming and markets. Comments and feedbacks from policy beneficiaries on existing policies were collected to understand the policy impacts to the local production and livelihood.



Figure 1. The research site-Son La province

3. Results

3.1. Maize in Vietnam and Son La

3.1.1. Maize in Vietnam

In Vietnam, the maize farming area and production increased sharply between 1995 and 2015. The rapid increase in maize productivity was recorded due to the application of technical advances, using hybrid maize varieties into mass production (over 90% of the total

maize cultivated area in the whole country). But since 2015, the maize planted area and crop yield began a downward trend. In recent years, the domestic maize production could not meet the domestic demand resulting in the request to import maize from other countries. In 2010, the volume of imported maize was 1.77 million tons (equally to 38.49% of domestic production) [18]. However, by 2020, the volume of imported maize increased 6.8 times compared to the volume in 2010. It was 2.43 times higher than the domestic maize [19]. According to the national master plan, the area of maize production should maintain a stable figure at 1.44 million per ha by 2020; the average maize productivity of the country should be around 5.9 tons/ha; and the maize crop should reach 8.5 million tons. However, at present, the maize cultivated area has been just about 79% as the plan and the crop reached only about 82%. Thus, the plan on expanding area for maize production and crop yield to 2020 has not been achieved yet.

The area for maize cultivation decreased in most localities throughout the country due to some main reasons, among those, unstable selling prices of maize were the core factor encouraged farmers to reduced production. In addition, many midland and mountainous provinces in the north are changing the structure of plantation on sloping land from maize or low value crops to fruit trees or other crop which could bring the higher economic value. Furthermore, unusual weather conditions with heavy rains and droughts in some areas caused of damages on cultivation and production. As a result, some cultivation transformation trends have occurred among farmers' groups in provinces: farmers in Thanh Hoa, Dak Lak, Dong Nai, Son La shifted to grow other crops which may bring higher economic value, while those in Ha Tinh, Nghe An, Son La switched to grow corn for biomass to serve dairy farming, deer farming. Additionally, the famers in Dak Lak and Son La reduced their intercrop area of corn for long term trees.

3.1.2. Maize in Son La

In Son La, between 1995 and 2012, maize cultivation area increased dramatically. In 2012, the cultivated area reached 168.7 thousand hectares (accounting for 14.6% of the national cultivated corn area) and total maize production of 667.3 thousand tons. However, during the period of 2015 and 2019, the area of maize production declined from 159.9 thousand hectares (2015) to 121.5 thousand hectares (2019), decrease by 24,05%. In 2020, the maize area is 84.6 thousand ha (accounting for 8.9% of the whole country's maize area), a decrease of nearly 50% compared to 2012; maize production reached 362.2 thousand tons (accounting for 7.9% of the country's output), declined 45.7% compared to 2012 (Figure 2).

In terms of crop yields, during the period 2007 and 2019, maize crop yield was parallel with the cultivated area. In 2007, the province's maize production was 444 thousand tons, peaked to 667.3 thousand tons in 2012 (the area of maize cultivation reached the biggest figure so far). 80% of annual maize was purchased, preserved by local farmers and enterprises then they sold to the animal feed processing enterprises outside the province while the rests served for local needs. Since 2015, the area for maize farming was significantly decreased and the maize productivity was thoroughly declined. Up to

December 2019, maize crop yield in Son La was only 510.4 thousand tons. The average maize yield in Son La achieved only 4.20 tons/ha, much lower than the national average figure (4.77 tons/ha). However, maize productivity has improved significantly, partly due to the adoption of new varieties. Over the past 10 years, more than 50 varieties of hybrid maize have been grown in Son La province. If in 2015, the yield was only 3.71 tons/ha, this number in 2019 increased by 11.7% compared to the previous four years. Nevertheless, the average maize production in Son La achieved only 4.3 tons/ha (in 2020). It is much lower than the figure of the world (5.8 tons/ha) [1].

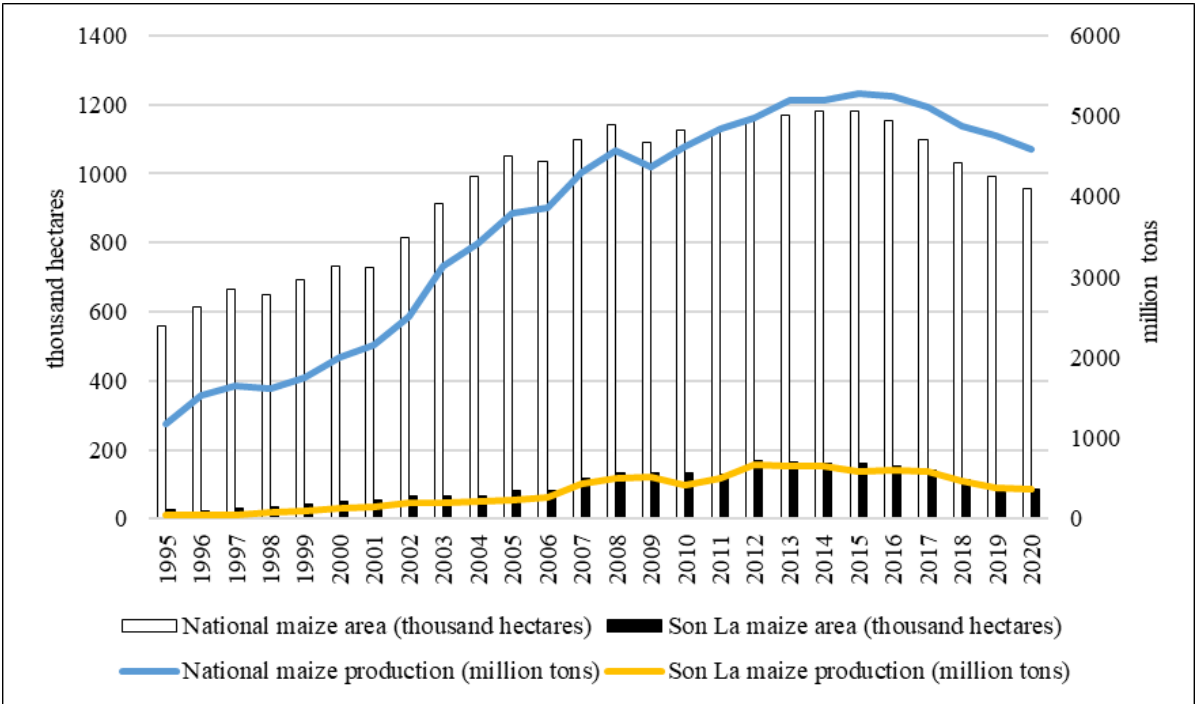


Figure 2. Maize cultivation area and production in Vietnam and Son La from 1995 to 2020

Sources: [2], [11], [12], [23], [24]

Since 2015, maize has been recorded as an ineffective crop in the province. The main cause is that maize have mainly been planted on sloping land where soils are frequently washed away and infertile. Cultivating maize in these areas depend on investments on new varieties, fertilizers and pesticide supplies to ensure productivity. At present, maize in Son La has been primarily cultivated on a household scale by traditional methods. After a long period of increasing productivity and farming areas, many sloping lands of maize monoculture have been exploited for many years without any measures to protect and improve the land, causing soil erosion and landslides, degenerate. The other cause comes from the unstable price and the difficulty in product marketing, leading to a fact that the income was lower than the cost for production. Additionally, the efficiency from maize cultivation is much lower than that from fruit crops [22].

Furthermore, the traditional maize farming methods in Son La cause a big amount of soil erosion, up to 64.06 tons/ha/year [8]. Besides, the agricultural land area where could not be actively irrigated (cultivation must depend on the rain) accounts for about 96% [13]. This leads to the hot weather, drought and stem borer disease affecting many areas and causing lost crops (especially in 2010, 2015, 2019). In addition, the selection and the constant change of varieties without official approval caused many serious consequences. Accordingly, the actual average yield of many cultivated maize varieties is much lower than expected, reaching only 25-50% of the potential yield [6].

Since 2015, the province’s authority has promulgated some policies with focus on the transition of crops on “inefficient sloping land” to plantation of highly qualified fruit trees. These policies stipulated the support for renovating mixed gardens and planting fruit trees which encouraged many farming households to change their cultivation methods by conducting the hybrid trials and grafting mangoes; planting pomelos, oranges and bananas alternately on the cultivated area. After learning from the successful models, most farming households changed to plant fruit trees, resulting in the increase of area of fruit tree plantation. Among cultivated crops on sloping land, the transition area of maize cultivation took the largest proportion. The area and structure of changed crops on upland maize is shown in *Figure 3*. Accordingly, by the end of 2018, the total area of maize cultivation changed to fruit tree plantation accounted for 23,578 ha (recorded as 92.8% of the transition area) [10].

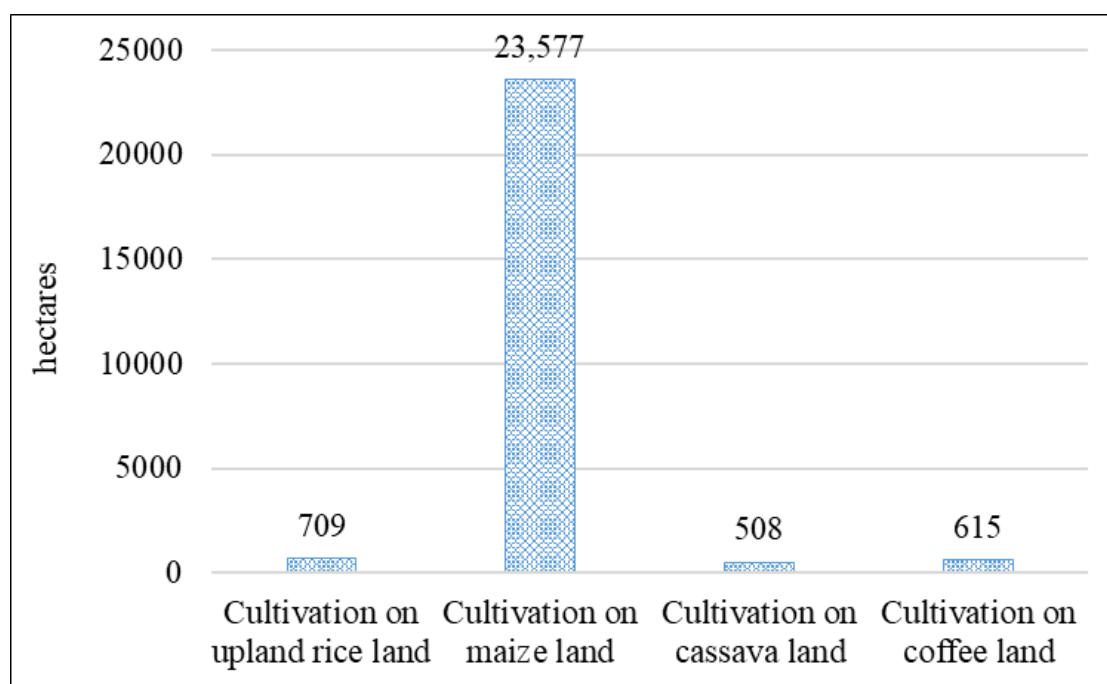


Figure 3. Transition crop area on sloping land in Son La until 2018

Sources: [10]

3.2. Status of policies on maize production in Vietnam and Son La

In Vietnam, there is a well structure in agriculture management, policy enforcement and decision-making among agencies from central to local levels (*Figure 4*).

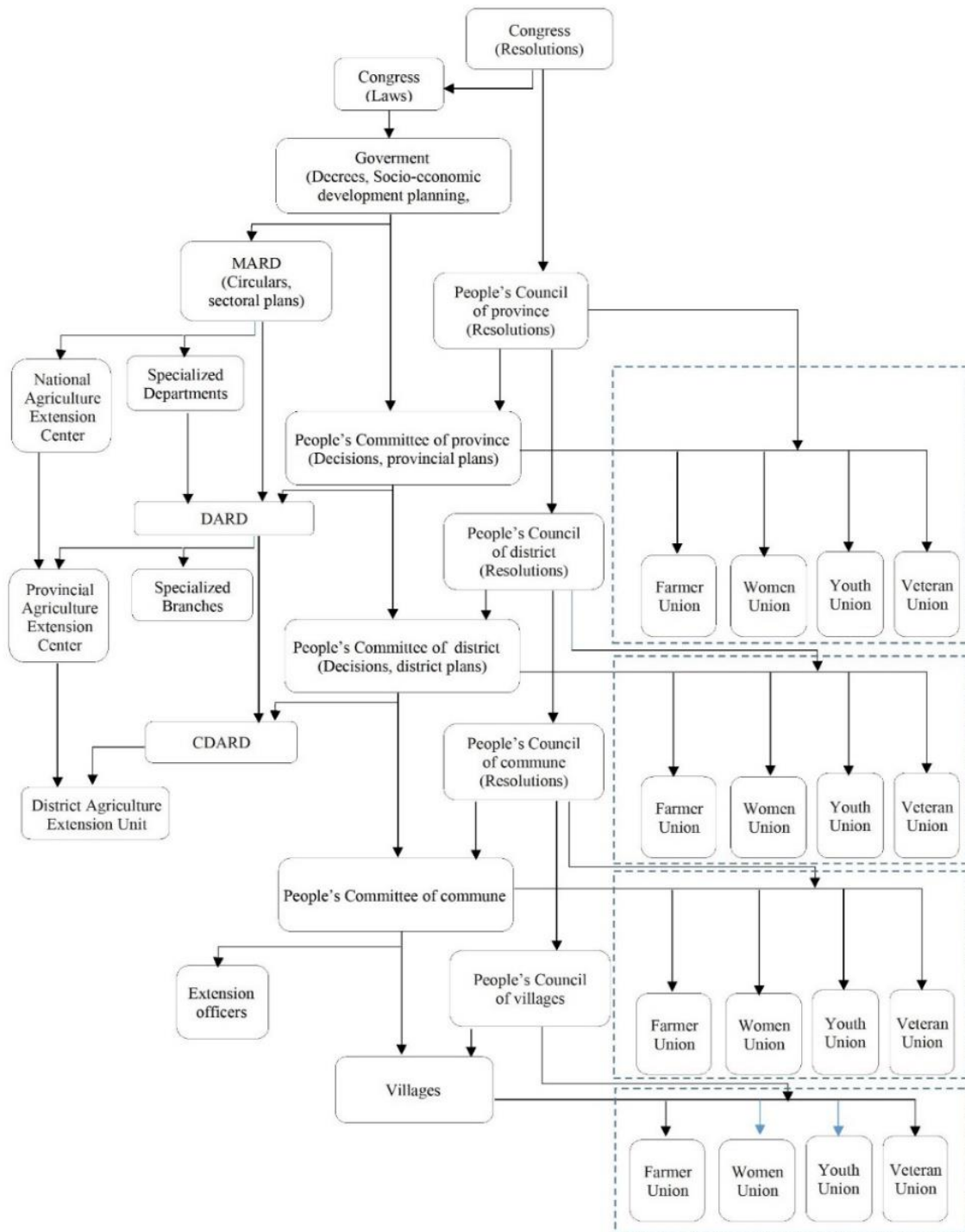


Figure 4. Organizational chart of policy management and enforcement agencies in agriculture in Vietnam

The organizational structure can be divided into three groups: (i) Group for direction (the Vietnamese Communist Party); (ii) Group for drafting, promulgating and state management (the National Assembly, the Government, ministries and ranking ministerial agencies, administrative agencies at provincial, district and commune levels); (iii) socio-political organizations (Women's Union, Farmer's Union, Youth Union, Veteran's Association). These agencies are responsible for drafting, promulgating and implementing policies related to agriculture.

3.2.1. Outstanding policies related to maize in Vietnam

Some plans and strategies in agriculture promulgated by the Government of Vietnam and the Ministry of Agriculture and Rural Development (MARD) consider maize as a mainstay crop. These policies point out the specific objectives and indicators of area, output and orientations to achieve those goals. Accordingly, maize should be developed in accordance with the value chain, and the technology application in maize production, preservation and processing. However, the existing policies to support maize development in Vietnam (including policies of land, credit, science and technology, extension, market) are utilized to all agricultural products, not only maize implication.

In 2007, MARD issued the Decision No. 20/2007/QD-BNN on approving the national strategy for post-harvesting of rice, maize, soybean and peanuts until 2020. Regarding maize, the goal by 2020, post-harvest losses are about 8-9%. Two years later, the Government issued the Resolution No. 63/NQ-CP on national food security. Accordingly, maize cultivation area was expected to reach 1.3 million hectares, with an output of 7.5 million tons. Specific tasks were set up to achieve the goal. Among those, food production areas (including maize) must be concentrated.

Especially, a remarkable national master plan issued by the Prime Minister in accordance with the Decision No.124/QD-TTg in 2012 clearly stated on maize production in the item 2b Part III. This document refers to expand the maize acreage by increasing the winter crop area in the Red River delta and increasing the maize acreage on single-rice crop areas in the northern midland and mountainous provinces and the Central Highlands. It also mentions the acreage of maize after 2020 at around 1.44 million ha in certain areas throughout the country. Moreover, it focuses on intensive cultivation of maize to ensure some 80% of raw materials for the animal feed processing industry. In the same year, the maize production is clearly mentioned in the Decision No. 824/QD-BNN-TT on approving the proposal for plantation to the year 2020 with the vision to 2030. Accordingly, after 2020, maize production area will be stable at 1.44 million hectares with the crop yield of 7.5 million tons, providing about 80% of raw materials for animal feed processing industry.

In 2013, MARD released an action program to implement the agricultural restructuring project in orientation of increasing added value and sustainable development under the Decision No. 1384/QD-BNN-KH. The program's mission to 2020 defined maize as one of the crops being encouraged to develop with large-scale production for animal feeding basing on the existing maize cultivation area and expanded area of the inefficient rice land. It also mentioned that maize cultivation would not apply actively irrigation because maize has been an imported product in large quantities. The action program referred to the solutions of applying genetic modify (GM) maize varieties; applying high technology and sustainable production processes towards good agricultural practices (GAP); saving water; increasing fertilizer efficiency; reducing pesticides and chemicals. All these applications aimed to reduce production costs and to increase the productivity, quality, food safety as well as to reduce agriculture emissions to protect the environment. At the same time, the policy showed an encouragement to promote training, agriculture extension and consultancy

services for farmers to improve skills of production, harvesting and preservation. This program gave its priority to the central agricultural extension projects for producing key products (including maize).

In 2016, MARD issued a separate strategy for maize development to 2025 with a vision to 2030 under the Decision No. 5448/QĐ-BNN-TT. Accordingly, three main objectives related to maize include: (i) Development of maize production based on the application of comprehensive technical packages to increase productivity, product quality and lower costs; to improve competitiveness, production efficiency and to protect cultivated land sustainably (ii) Development of maize production based on the production system which encouraged enterprises (especially the raising cattle and poultry enterprises) to cooperate with maize producers/cooperatives for purchasing fresh maize to dry to meet the breeding quality requirements; (iii) Encouragement of all economic sectors to mobilize resources to invest in maize production and product processing. The Government prioritized their investment in research, technology transfer, drying and preservation of maize. By 2020, the area of maize cultivation in the country reached 1,160-1,265 thousand hectares; the crop yield achieved 5.4 to 5.8 million tons, and the production value reached VND 28 million/ha/crop. The total maize area nationwide aims to reach 950-1,100 thousand hectares, with the crop yield of 4.8-5.5 million tons and a production value of 32 million VND/ha by 2025. By 2030, it refers to keep a stable area of maize cultivation in the whole country like the figure in 2025, but expects to increase the productivity to 0.52-0.53 tons/ha; to achieve around 5.0-5.7 million tons of the crop yield and about 35-40 million VND/ha of the production value.

Furthermore, to support the shifting from rice plantation to maize plantation, the Prime Minister issued the Decision No. 915/QĐ-TTg in 2016 which concentrates on providing producers fund for maize cultivation between 2016-2019. This Decision refers to certain areas in the mountainous provinces, northern midlands area, the northern central coast, the Central Highlands, Mekong delta and eastern South Vietnam. According to the regulation, farmers would be supported not more than 3 million VND per hectare for maize varieties when transiting of cultivation from rice to maize. However, this policy has not been implemented in Son La because it does not fit with the reality and the province's policies. The locality's direction is changing the crop structure on inefficient slope area (where farming maize, rice, etc.) to grow fruit trees those bring more economically benefits.

3.2.2. Policies to develop agriculture by Son La provincial authorities

At present, there is no direct policy for maize development as well as there is no supportive policy to maize production by Son La province (such as supports of seed, technologies, farming techniques, etc.). Only related policies on maize in some policies which directed the transition of crops on "inefficient sloping land" (mainly from maize cultivation land) to plantation of fruit trees. These policies include the Conclusion. No.121-TB/TU approved by the Standing Committee of Son La Provincial Communist Party in 2015 and the Resolution No.28/2017/NQ-HDND in 2017 stipulated the support for renovating mixed gardens and planting fruit trees. Since then, areas of maize cultivation fell down sharply. Especially, the Resolution No.28/2017/NQ-HDND in 2017 stipulated the support

for renovating mixed gardens and planting fruit trees which encouraged many farming households to change their cultivation methods.

In 2014, the People's Committee of Son La province issued the Decision No. 3528/QD-UBND on approving the project “Developing and improving the efficiency of commodity agricultural production of Son La province up to 2020”. Shortly thereafter, in 2015, the policy of planting trees on sloping land was approved by the Standing Committee of the Provincial Party Committee according to the Notice of Conclusion No. 121/TB-TU. Accordingly, fruit tree plantation on sloping land has been identified as a breakthrough step in developing agro-forestry economy, increasing economic efficiency, creating jobs and contributing to protecting the ecological environment, steadily reducing the area of food trees on sloping land.

In 2018, Son La People's Council issued the Resolution No. 76/2018/NQ-HDND on supporting the development of production, processing and consumption of safe agricultural products and foods in the province in 2018-2021. Accordingly, agricultural production households being members of cooperatives, cooperatives, unions of cooperatives and enterprises receive a lot of support when they have export agricultural products; register for a certificate of good agricultural production under VietGAP and Global G.A.P standards; building a product traceability system; building codes and bar codes; propagating and promoting products. For credit support, the support level is 35% of the loan interest rate at commercial banks and People's Credit Funds for production and business, not exceeding VND 500 million/project for construction investment. constructing traffic systems, electrical systems, in-field irrigation systems, warehouses for agricultural products, irrigation systems for the project or plan. Support one-time funding, but not more than VND 100 million/a cooperative to hire a certification organization eligible to be granted Global G.A.P certificate and similar standards.

3.3. Challenges to support maize sustainable production in Son La

Although maize is one of the main food crops for livestock and other purposes, the policy for the sustainable development of maize is rarely mentioned in major central and local policies. Policies on maize are often integrated into small components of development policies. However, during the implementation process, many policies still reveal limitations, or they are unsuitable with the specific case of Son La. Some challenges in the implementation of policies to support maize production in Son La might be faced with, including:

Firstly, there is a lack of policies to encourage linkages in agricultural production associated with high-tech application in processing and preserving maize.

In Son La, maize has been mainly produced and consumed at the household level. There have been no storage and processing facilities for maize products in the province. Meanwhile, the country's target states that 90% of maize commodities must be preserved in a modern warehouse system by the year of 2020 (the Decision No. 20/2007/QD-BNN). At present, the existing policies to encourage linkages in agricultural production associated with high-tech application in processing and preserving agricultural products according to raw

material areas do not mention on maize. Therefore, there should be a need to develop policies to support farmers, cooperatives, enterprises to accumulate agricultural land for large-scale production. In addition, it is necessary to review the existing policies and to take off policy barriers of land use, credit, and policy information access to attract domestic private and foreign enterprises to invest in hi-tech agriculture. Furthermore, the cooperation between farmers and enterprises will be further developed in the future. This relation comes not only from the needs of farmers and enterprises but also from the demands of the market. Therefore, local cooperatives and farmer organizations in the locality should be strongly supported. Besides, it is also in need to apply non-economic measures, community-based measures towards changing farmers' behavior, promoting a healthy linkage environment for stakeholders. At the same time, localities should have policies to encourage mobile processing of agricultural products associated with local raw material areas such as specific support policies of taxes, investment registration procedures, labors, etc.

Secondly, the credit policies for maize production have not really brought into full play.

The Vietnamese government has issued and implemented a series of preferential lending policies for agricultural development since 1999. In Son La, farmers who cultivate maize can easily access concessional loans when the Bank for Agriculture and Rural Development (Agribank) brings their services to all communes through their transaction team who base at the headquarters of the commune People's Committee. However, the research results showed that informal credit (granted by traders) is still the farmers' main choice despite much higher interest rates than the banks' offers. This is because the loan payment period (regulated by Agribank and the Bank for Social Policies) is not relevant to the reality (the farmers have not yet sold maize at the time). The effectiveness of micro-credit programs is still relatively low [3; 16]. More than 50% of maize farming households cannot access loans from banks [6].

The challenges that farmers and cooperatives in Son La are facing with including: the lack of production budget and the increasing input costs (especially the cost for seeds and fertilizers) [5]. Whereas the farmers are not interested in the supportive loans for buying materials for agricultural production due to some difficulties in obtaining financial invoices. Because, in order to complete the procedures for loans and interest rate support, the households must submit financial invoices ("red" invoices). Thus, they have to pay an additional value-added tax expense from 5% to 10% of the bought product value. In addition, many households have not been granted land use certificates yet. Therefore, they do not have enough legal documents to submit for loan mortgages. Furthermore, the short-term loans do not attract the households, is also the reason to make the policies become inediquate in the local practice.

The regulations on interest rate to support for buying machineries, equipments and supplies to serve the agricultural production under the Decision No.497/QD-TTg dated 17/04/2009 (and the amending and supplementing Decision No.2213/QD-TTg dated January 31/12/2009) has been only applied to the group who bought light trucks with a tonnage of less than 05 tons and a loan amount of over VND 200 million. This policy has

not been applied to other groups. The main reason of the policy's late implementation to all groups is due to the strict loan procedures and regulations, such as the requirement of submitting land use right certificates or mortgage assets and having a plan to use machines and supplies; a requirement of locally assembled machines with a rate from 40%, meanwhile, loans are small and short term. In fact, local farmers have mainly used Chinese-made or second-hand Japanese machines with low prices but have many features, which are suitable for their farming.

Some policies supporting the reduction of post-harvest losses for agricultural product have been recorded as slowly deployed in Son La such as the Decision No. 68/2013/QĐ-TTg dated November 14, 2013 by the Prime Minister. The main reason for this situation is the cumbersome loan procedure, resulting in the households' difficulty in loan access. According to this Decision, the machines bought by loans must be 100% brand new if the borrowers would like to have preferential interest rates. Additionally, the loan can only be disbursed at 70% of the machine price. Meanwhile, the households expect to have their own decision of purchasing the machines as they would like. This is the reason why the banks do not want to disburse loans due to their concerns that households may use the loan for the wrong purposes (for example, they may buy second hand machines instead of brand new ones as requirements).

Therefore, it is necessary to have policies to guide and encourage various credit types for farmer organizations to enhance their access to the capital sources such as establishing and operating village savings and loan association groups (VSLA). In addition, it is necessary to review, adjust and supplement credit policies to support agricultural production in the orientation of increasing the loan credit, reducing loan procedures, and expanding the credit line for farmers/cooperatives in accordance with the actual conditions of production and consumption of short and medium-term crop products. At the same time, it should be under consideration of researching and formulating policies to switch from post-investment support to pre-investment support and direct support.

Thirdly, it is a lack of policies to encourage scientific and technological researches in maize production, processing and preservation.

At present, maize in Son La has been still mainly produced on a small scale, with traditional farming methods with low yield and high production costs. Furthermore, maize is cultivated in areas with steep slopes that requests of investments in new varieties, fertilizers and pesticides to ensure the yield. Therefore, it is necessary to develop and promulgate specific policies and action programs to support researches as well as to identify appropriate technologies and techniques for each area and each type of crop in terms of maize cultivation, production and post-harvest preservation. Furthermore, supports for research and application of biotechnologies, high technologies for agricultural development should be included in the policies. At the same time, there should be a policy to encourage the participation of various stakeholders (such as policy makers, enterprises, farmers, technology experts, researchers and other partners) in implementing the policies and the programs. Meanwhile, the local authorities and management agencies could play as the connectors among those parties and would provide legal or service supports. In addition, it

is necessary to set up a system of legal documents specifying the Government's supports for spontaneous researches and initiatives by individuals and organizations, including the regulations on the direct supports from the state budget.

Additionally, farmers in Son La should be provided assistance to overcome difficulties in applying cultivation solutions in sloping land such as minimal land preparation, legume intercropping, grass plantation line band, and small-scale cultivation ladder. At the same time, it is necessary to research to understand the impact of these technical measures when widely applied by farmers. These research results will be the significant scientific base for designing appropriate mechanisms and policies to promote apply these practices across the whole region.

Fourthly, the agricultural extension activities for maize are still limited.

At present, there is no policy on agricultural extension methods (including attached budgets and manpower). Additionally, there is no guidance on the using structure of the extension budget in the direction of increasing funding for information dissemination, training, agricultural extension support in groups, and supports for replication. It is also a lack of specific regulations on cooperation between stakeholders in planning activity; linkages of the agricultural extension activities with other livelihood supports as well as monitoring and evaluating extension activities in one area. Furthermore, there are no clear distinction and specific priority orientation between "extension for livelihoods" (targeting the impoverished people and poor areas) and "extension of commodity production" (targeting more favorable areas) in agricultural extension programs. The impact of extension programs on maize yields is not clear [14; 16]. Agricultural subsidies (for seed variety) seem to be ineffective. Even maize farmers who received the subsidized seed variety had lower production compared to those who did not by [15].

The interviews with local leaders revealed that the capacity of agricultural extension staff in some localities has not met the working requirements due to their limited ability in communication or insufficient professional knowledge, resulting in low enthusiasm and responsibility among extension force. In addition, there is a shortage of policy measures to support capacity building, to develop job descriptions and work plans for commune extension staff as well as village extension collaborators.

Moreover, only a few of technical training programs on maize farming, processing and consuming have been introduced to the farmers. Those are mainly the introduction workshops provided by trading companies and trial groups to sell their varieties or fertilizers. Meanwhile, the extension activities mainly focus on industrial crops and fruit trees. Many varieties are purchased from traders or local shops without information of manufacturing units as well as no technical instruction. Whereas the agricultural extension centers are only allowed to check the variety profiles, not allowed to monitor and inspect the quality of the varieties supplied by the providers. In recent times, there has been a tendency to encourage the introduction of transgenic maize varieties for cultivation without assessing their impacts on the ecosystem and the environment, which bring the concerns by the regulators and maize growers.

Therefore, specific coordination regulations for stakeholders at provincial and district levels should be developed. This activity will support the locality in their policy planning process, integration of capital investments, monitoring and evaluation of the extension activities as well as production supports in the localities. Furthermore, the identification of extension needs at the provincial level should be integrated in the participatory socio-economic development planning process. At the same time, there should be a mechanism to use the commune's plans which are developed basing on the participatory method as a fundamental to integrate resources for agricultural extension and production support. These resources come from the national programs of 135, 30a, rural restructure and other projects such as agricultural vocational training. Moreover, it is necessary to apply the decentralized mechanism to communes, so that they can actively sign contracts in agricultural extension services basing on the needs of the local farmers.

Besides, it is necessary to introduce production models and methods of sustainable maize cultivation on sloping land (such as intercropping between maize and other crops) to ensure both improving soil nutrition, preventing soil erosion and generating better income for local farmers. This solution also aims to ensure maize production in combination with growing fruit trees and other crops to promote the sustainable production. At the same time, strictly control of maize varieties should be seriously under the consideration before cultivation. In addition, the communication method and messages should be changed to fit with the localities by various forms such as village meetings or village loudspeakers.

Fifthly, the market policies for maize are still relatively lackluster.

In recent times, Vietnam has participated in many bilateral and multilateral trade agreements. The international integration is both an opportunity and a challenge for Vietnam's agriculture, including maize production because many enterprises, cooperatives, farm owners and farmers have not been able to adapt in time to the requirements. The reduction of tariffs in the agreements creates significant challenges for maize production in Vietnam with the increasing competition between imported maize and domestic production maize when the tariff is only from 0 to 5% compared to 15-20% previously. At present, Vietnam has also abolished tariff quotas on imported maize since 2005 [20]. At the same time, the application of neomercantilism by countries to protect their agricultural markets as well as the application of food safety and quarantine control measures Vietnam's plants still have many gaps, that put great pressure on maize production/export.

In Son La, the policy implementation indicates that policies on the agricultural markets are also the weakest supportive policy group in the product supply chain, including maize. Almost all production households/enterprises do not receive the supports of information on markets. Though information is provided by various methods such as website or newsletter. However, the messages have not been covered with all related information of the agricultural market in general as well as the maize markets in particular. At macro level, market fluctuations have not been in-depth analyzed. Additionally, the information is not updated. Moreover, the budget for trade promotion programs and market information is insufficient. Therefore, it results in the impossibility of increasing resources for purchasing market information and training.

The interview results also showed that the product market information in Son La is facing with the lack of statutory policies in sharing and coordinating information resources. Most of the cooperatives and farmer households have been lacked of market information, resulting in low product competitiveness compared to trading enterprises. In many localities, many households have massively shifted to plantation of mangoes or other fruit trees without information of product output markets. The cooperatives, small and medium enterprises are not provided essential supports and guidance of finding and evaluating the potential markets for their products in the target markets. Moreover, they are also not provided the information of tariffs and tax incentives.

Additionally, many market policies promulgated by the central agencies, those have revealed certain shortcomings and limited effects when applied at the localities. Some macro-level policies have been in "suspended planning status" and could not apply into practice due to the lack of specific guidance to the localities or there is no instruction by the local authorities. For example, in 2018, after five years of implementation, the Government issued the Decree No. 98/2018/ND-CP with the aim to encourage the development of cooperation and linkages in the production and consumption of agricultural products replacing for the Decision No. 62/2013/QĐ-TTg. However, this decree has not had a circular or technical guidelines for implementation. Besides, the efficiency of sanctions and policy implementation also results in the low effectiveness of the sale contracts between cooperatives/farmer groups and enterprises. In addition, there is a shortage of policy measures to encourage the enterprises to sign direct contracts with farmers through the local cooperatives.

Therefore, it is necessary to study, develop and implement trade protection barriers (quota, voluntary export restrictions, export subsidies, technical standards) for imported maize to support domestic maize production. Accordingly, it is a need to focus on building appropriate import quotas and technical barriers for imported maize. Also, market information services for farmer organizations and cooperatives should be provided through programs of information and knowledge dissemination. Besides, there should be capacity building and assistance programs for farmer organizations, including 1) accessing market (negotiation, bargaining, signing contracts); 2) improving legal knowledge and legal aid; 3) building, developing and managing organizations; 4) supporting in technical assistance and training on production standards for farmers. Furthermore, a consideration of establishing a specialized organization in market and trade promotion for localities is strongly recommended. This unit will be responsible for conducting international trade promotion; working directly with enterprises and farmers' organizations to help them analyze domestic and international markets; guiding them how to find and assess the potential, target markets and providing information on tax, regulations, standards and other related requirements.

4. Conclusion

Maize is one of the main food crops for livestock and other purposes in Vietnam and Son La province in particular. The policies for maize are mainly integrated into certain development policies. Meanwhile, provincial and district agencies do not have their specific policies on maize production. Even the policies which refer to maize, have revealed their

shortcomings in the implementation at the localities. In addition, the policies have been also recorded as in low effectiveness. Furthermore, the policies to support the development of maize production such as policies on land use, credit, agricultural extension, science and technology, markets are all general provisions. There is still a lack of policies on sustainable maize farming. Compared with the national plan on maize production to 2025, with orientation to 2030, the farming area in 2020 reached about 79% and the output achieved 82% only. At present, maize farming area may be going to decrease due to the low price and economic benefits of maize. This might cause the failure of many major policies in implementation. Therefore, there should be well studies and adjustments in the orientation of the local realities to bring strategies and plans into practice,

In Son La, maize is no longer the main crop in the province, although the area of maize cultivation is still large. Over the last five years, maize acreage and maize production has decreased significantly due to the transition trend from planting maize to fruit trees and other crops on sloping land. There is no supportive policy on maize production by the province or district authorities including technical guidance or supports on varieties and farming techniques. The province is focusing on investment and development in fruit and organic agriculture programs through specific policies to support market promotion, development orientation, finance and credit policies and technical measures. Accordingly, in the period 2015-2020, the maize production area in Son La decreased sharply, from 159.9 thousand ha (2015) to 84.6 thousand ha (2020), a drop of about 47%.

This paper also analyzed five challenges to achieve sustainability in maize farming in Son La. Those include (i) the lack of policies to encourage linkages in production associated with high-tech application in maize processing and preserving; (ii) the low effectiveness of policies to support credit for maize production; (iii) the lack of policies to encourage scientific and technological researches in maize production, processing and preservation; (iv) the limitation of agricultural extension activities; (v) the lack of market policies for maize. Based on the analysis results, the article as well clarified certain problems need being addressed to ensure sustainable maize production.

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DETERMINANTS OF RESIDENTIAL SATISFACTION WITH RURAL PUBLIC SERVICES: THE CASE OF NAM DINH, VIETNAM

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Abstract

The paper uses 3 forms of rural public services (clean water supply, environmental hygiene, and water resources) in Nam Dinh province, Vietnam as a case to analyze the effects of factors on the quality of rural public services and residential satisfaction with the quality of such services in the same area. From the data collected based on the 5-point Likert scale, the authors used Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), Structural Equation Modeling (SEM), and Multi-Group Analysis (MGA) to shed light on the influence of the factors. The research results reveal that the factors including reliability, responsiveness, competence, tangible physical facilities, and prices have positive influences not only on service quality but also on residential satisfaction with rural public services. The study also shows the level of residential satisfaction with such services. The research results are the basis for the recommendation of some policy changes in providing rural public services to scale up residential satisfaction with these services as well as improve the provision of public services targeting residents in the process of building a new model for rural areas.

Keywords: *Nam Dinh, public services, rural areas, rural public services, satisfaction, Vietnam.*

1. Introduction

Vietnam is a country where the majority of the households (almost 70 percent) live in rural areas. Rural areas are under the development strategy of the Vietnamese Government. In rural areas, rural public services play an important role in the socio-economic development of localities. With two groups of public services for life and public services for production, they are making positive contributions to promoting production development, sustainable poverty alleviation, improving quality of life, and ensuring social equity for rural people.

Currently, the living standard of rural people in Vietnam increasingly improving, along with the per capita income increases, leading to the rise in the demand for rural public services regarding quantity and quality. Besides state entities, private enterprises are also strongly involved in providing these services. Rural people have better access to rural public services. However, the question of the quality of these services and the satisfaction of rural

residents is still left unanswered. Therefore, we decided to choose the research topic: “Determinants of Residential Satisfaction with Rural Public Services: The Case of Nam Dinh, Vietnam”

The purpose of the article is to identify and evaluate the impact of factors on residential satisfaction with the current rural public services in Vietnam through a case study to propose potential appropriate recommendations for improving the quality of rural public services in Vietnam.

The article uses Nam Dinh province as a case study. Our research attempts to deal with issues by investigating three basic rural public services including rural clean water supply, environmental hygiene (waste collection and treatment), and water resources in Nam Dinh province.

2. Literature Review

2.1. Concept of public services and rural public services

Public services can be broadly understood as the ones that the State is in charge of, serving the basic and essential needs of the people, not for profit. Basically, public services are supposed to serve the necessary common interests of society. Accordingly, rural public services are regarded as the types of services provided by the State to meet the demand of rural areas.

The most basic public services that are often mentioned and have a great influence on the lives of rural people usually include education, health care, irrigation, environmental hygiene, transportation, clean water supply, and industrial and agricultural extension services... Then, these rural public services can be divided into two groups: services for agricultural production (e.g. industrial and agricultural extension services, veterinary medicine, plant protection, irrigation...) and services for residential livelihood (e.g. health, rural clean water supply, electricity...).

Rural service provision includes three key dimensions: Demand, Supply, and Governance with regulations to monitor service provision systems. The three dimensions may be illustrated as follows:

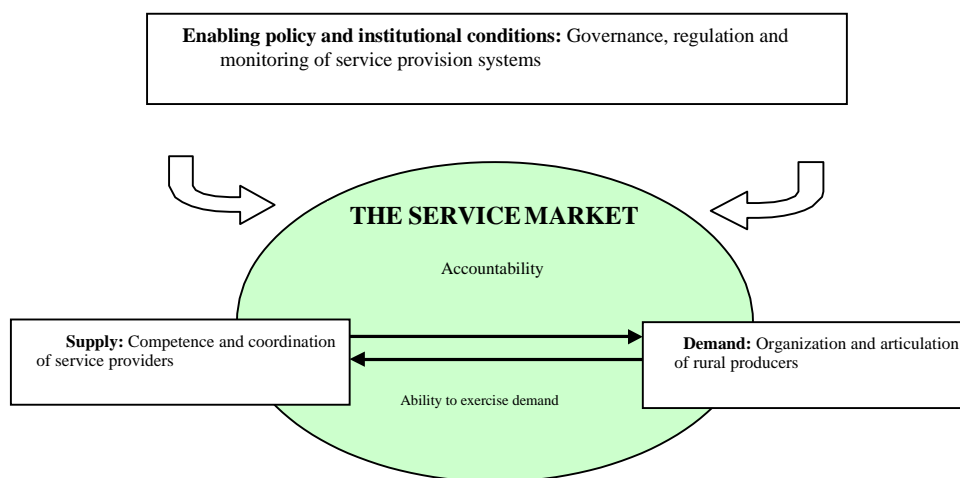


Figure 1. The three dimensions of rural service provision

Source: Jens Rydger et al (2008)

While the private sector is strongly involved in the provision of rural public services, the State still plays the role of the important actor. Therefore, from the administrative perspective, the management of rural public service provision in Vietnam is quite tight.

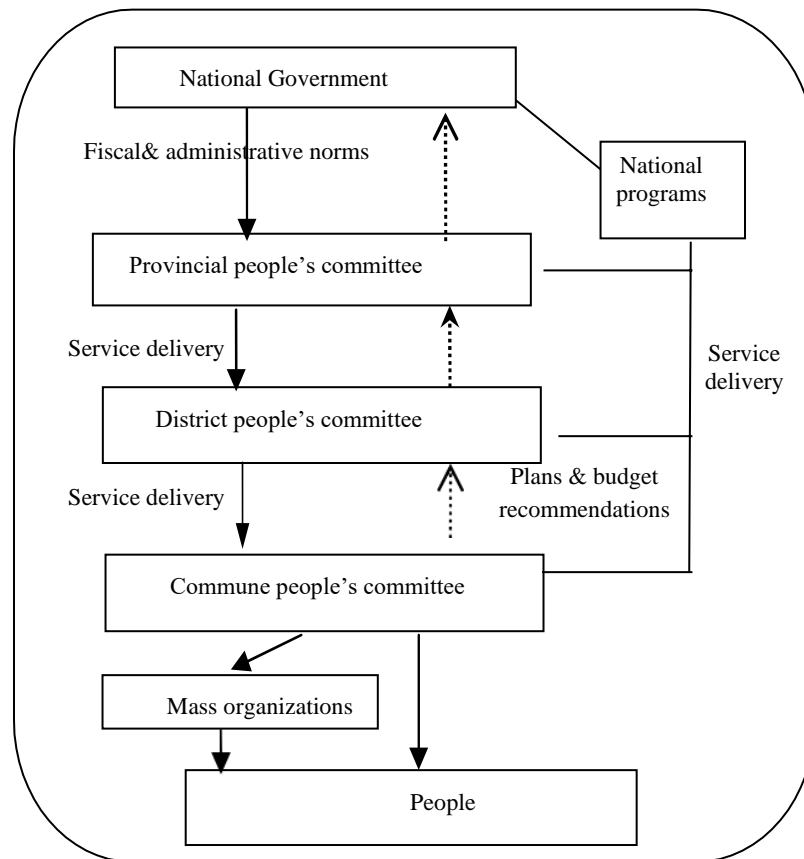


Figure 2. Administrative organization of rural service delivery in Vietnam

Source: Le Huu Anh et al (2011)

The role of rural public service:

Poverty alleviation and livelihood security: Poor and ethnic minority producers in remote areas have access to relevant services that allow them to make informed livelihood and production choices based on their specific livelihood situation and production capacities, and effectively contribute to the elimination of hunger and poverty.

Food security: Rural services enable farmers to meet domestic demands for food security through the production of staple food commodities.

Improving the quality of life: Rural public services are not only for production but also for life. Therefore, rural public services also satisfy the needs and contribute to improving the quality of life of rural people.

Sustainable development: Rural public services may protect the rural environment.

2.2. Satisfaction and service quality.

Understanding customer satisfaction could be considered the fundamental principle of this research work. The definition of customer satisfaction given by Philip

Kotler (Kotler et al. 2013) says that: Customer satisfaction depends on a product's perceived performance in delivering value relative to a buyer's expectations. If the product's performance falls short of the customer's expectations, the buyer is dissatisfied. If performance matches expectations, the buyer is satisfied. If performance exceeds expectations, the buyer is delighted.

Satisfaction could also be described as a process that starts with the formation of customers' expectations and ends with communication of the obtained experience. However, how a person assesses the conducted service is a very subjective thing. Philip Kotler also asserted that: "Customer satisfaction is closely linked to quality. Many companies have adopted total quality management (TQM) programs in recent years. Quality has a direct impact on product performance, and hence on customer satisfaction".

Quality is an elusive and indistinct construct. Often mistaken for imprecise adjectives like "goodness, or luxury, or shininess, or weight" (Crosby 1979), quality and its requirements are not easily articulated by the consumer. Service quality is a measure of how well the service level delivered matches customer expectations. Delivering quality service means conforming to customer expectations consistently (Lewis and Booms 1983).

Service quality is often assessed based on the feedback of service users (Parasuraman & et al., 1985; Cronin & Hult 2000; Vázquez, 2001...). Most of the studies evaluate service quality or customer satisfaction with the method based on the 5-point Likert scale. The major instrument designed in rating the level of customer satisfaction with services is the SERVQUAL scale that was developed by Parasuraman et al., which produced significant progress in the knowledge and measurement of assumed quality of service. It was further designed by Zacharias et al.18 and Yen et al. SERVQUAL has five (5) major areas of measurement such as tangibility, reliability, responsiveness, assurance, and empathy.

2.3. Current provision of some rural public services in Nam Dinh

2.3.1. Research field

Nam Dinh is a Northern province of Vietnam. It has an area of 1,668 km² and a population of 1.78 million (in 2020), of which the rural population accounts for about 70%. This is a plain province with relatively flat terrain and convenient transportation. GRDP per capita reached 45.8 million VND (2021) (equivalent to 1,982 USD).

2.3.2. Current status of providing some rural public services in Nam Dinh

Rural clean water supply

In Nam Dinh, the number of rural households using clean water from centralized water supply works is 337,660, reaching 64.46%. The remaining households use water from other small sources such as open wells, drilled wells, rainwater, or river water...

There are 53 centralized water supply works in the province (of which the private sector manages 28). The designed capacity scale is 177,429 m³/day, guaranteed to meet the demand for clean water of the people in the same area. The water quality of these structures is reflected as quite guaranteed. The current fee applied for clean water service ranges from 3,500 VND/m³ to 8,200 VND/m³. This price is basically in line with the affordability of rural people.

Environmental hygiene

According to the statistics of Nam Dinh province, the amount of domestic waste generated in rural areas is about 660 tons/day. The total amount of waste collected is about 580 tons/day (accounting for 88%). Daily-life garbage is collected 3 times/week with the fee not exceeding 8,000 VND/person/month. There are 177/204 communes having domestic waste treatment facilities in rural areas, including 105 incinerators and 77 landfills. However, the incinerators mainly have a small capacity and do not satisfy environmental standards.

Water resources

According to the Law on Irrigation, the irrigation system consists of a culvert system, pumping station, and water conduit and transfer system.

Currently, there are 609 pumping stations, 5,410 culverts, and 3,290 water transmission and transfer systems. Nam Dinh's free-of-charge irrigation system is widespread throughout the province and provides water for about 113,000 hectares of agricultural land, creating a water source for livestock, poultry, and aquaculture, being a resource supplying domestic water for about 1.8 million people and production facilities.

However, this system is quite old and rarely fixed. So, it is only suitable for small production but large production conditions which are increasingly common.

3. Method

The article applies the mixed method with specific methods are used such as desk research, in-depth interviews with experts, business owners, managers, the services providers, and residents, and a sociological quantitative survey

The research used both primary and secondary data provided by local authorities and agencies. Primary data were collected from 578 households in 2021.

In this study, the research team surveys customers' perceptions of the quality and satisfaction of rural public services, then using the following models in the following order: (1) Scale testing model with 3 techniques: Cronbach's Alpha test, exploratory factor analysis (EFA), confirmatory factor analysis (CFA). (2) *Structural equation modeling* (SEM) and multi-group analysis (MGA). Analysis techniques are performed on SPSS 20 and AMOS 20 software.

Research model

In this study, the research team surveyed customers' perceptions about the quality and satisfaction of rural public services based on a 5-point Likert scale. Then, the study performs the tests of the reliability of the scales, the influence of factors, and regression estimation on the relationship between such influencing factors on the level of customer satisfaction. This quantitative analysis, on the one hand, allows the discovery of the factors affecting the satisfaction of customers with rural public services in the area, and on the other hand, identification of the causes that are the basis for improving satisfaction in the future.

The study uses 5 criteria as influencing factors, including Reliability (TC); Responsiveness (DU); Tangibility (HH); Capacity (NL); Price (GIA). The factor 'service

quality” (CL) plays the role of a mediator between satisfaction and the first 5 factors. Satisfaction (HL) is the result of the overall effect and is a dependent variable.

The research model is designed as follows:

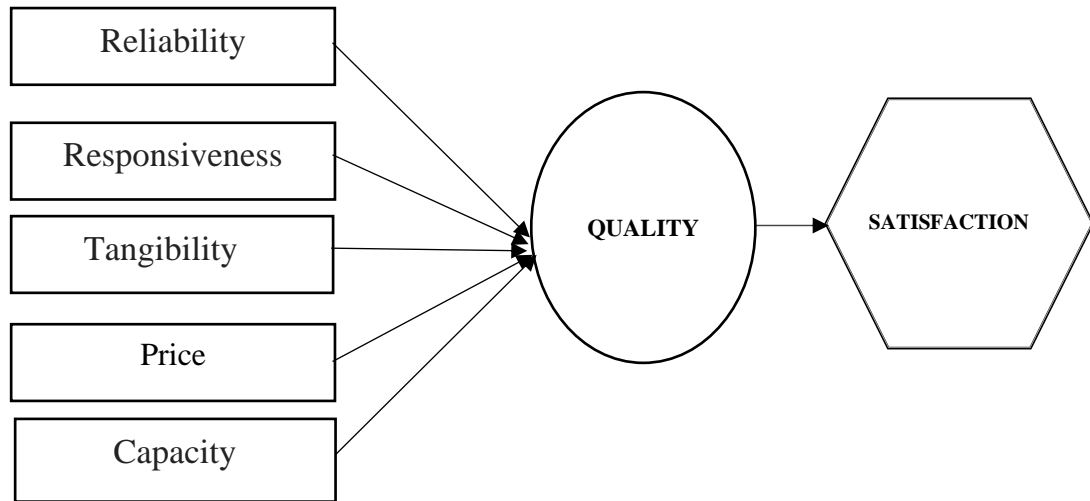


Figure 3. Research model on rural public services

The observed variables of each factor are coded and the content is interpreted in the following table:

Table 1. Coding of observed variables

Influence factors	Observed variables	Items	Hypothesis
Reliability (TC)	TC1	Information is conveyed correctly	H1 +
	TC2	Service providers always keep their commitments	
	TC3	The problem is fixed quickly without errors	
	TC4	Information about the service volume used is correct	
Responsiveness (DU)	DU1	Staff is ready to help customers with procedures	H2 +
	DU2	Transaction time is suitable and fast	
	DU3	Working hours are convenient for people	
	DU4	Time to deal with residential requests is always available	
Tangibility (HH)	HH1	The company has modern facilities	H3 +
	HH2	Enough capacity to serve the needs of the people	
	HH3	Transaction location is stable and convenient	
	HH4	Staff uniforms are neat and easily identifiable.	

Influence factors	Observed variables	Items	Hypothesis
Capacity (NL)	NL1	Qualified and experienced staff	H4 +
	NL2	Always respect customers and make them feel secure	
	NL3	Problems emerging in service provision are well addressed	
	NL4	The difficulties and desires of customers are always taken care of	
Price (GIA)	GIA1	The price is suitable for residential income	H5 +
	GIA2	The initial contribution cost is appropriate	
	GIA3	Reasonable repairing and maintenance costs	
	GIA4	The payment method is convenient and suitable	
Service quality (CL)	CL1	The quality of the products is guaranteed in line with the commitment	H6 +
	CL2	Highly satisfying the needs of production and residential life	
	CL3	Technical facilities and equipment are modern	
	CL4	Service attitude is proper	
Satisfaction (HL)	HL1	Customers are satisfied with the public service provided	Dependent variable
	HL2	Residential expectations of service quality are met	
	HL3	Continue to use rural public services	
	HL4	Recommend for neighbors and relatives to use the service	

Data

The data was collected through a survey by questionnaires for households that have been using the above-mentioned 3 types of services in 4 districts of Nam Dinh province: Yen Yen, Nam Truc, Giao Thuy, and Hai Hau. The research team distributed nearly 600 questionnaires, and 578 were collected. Each service has 186 responses. A total of 558 responses are valid. With each factor in the model, the questionnaire includes 28 questions corresponding to 28 observed variables, using a 5-level Likert scale. The scales are shown in table 1 above. The minimum required sample size is 140 (28 X 5) observations with 28 observed variables. The survey sample size has exceeded the sample size requirements.

4. Results

4.1. Descriptive statistics of the survey sample

SPSS 20 software was used to produce descriptive statistics. The results are presented in Table 2.

Table 2. Descriptive statistics of the survey sample

Types	Value			Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Environmental hygiene	Valid			0	372	66.7	66.7
				3	186	33.3	100
				Total	558	100	100
Water resources	Valid	0		372	66.7	66.7	66.7
		3		186	33.3	33.3	100
		Total		558	100	100	
Rural water supply	Valid			0	372	66.7	66.7
				3	186	33.3	100
				Total	558	100	100

Source: Analytical results using SPSS 20

4.2. Test of Cronbach's Alpha

The results of Cronbach's Alpha test for the scale are presented in Table 3 showing that Cronbach's Alpha of all items is higher than 0.6 and the total variable correlation coefficient > 0.3 . Thus, with the original 28 observed variables, after removing 5 observed variables (noted in Table 3), the remaining items meet the requirements for EFA analysis.

Table 3. Results of testing Cronbach's alpha coefficients of scales

Scales	Number of observed variables	Cronbach' Alpha	Note
Reliability (TC)	3	0.778	remove the observed variable TC2
Responsiveness (DU)	3	0.721	remove the observed variable DU2
Capacity (NL)	3	0.75	remove the observed variable NL1
tangibility (HH)	3	0.794	remove the observed variable HH4
Price (GIA)	3	0.766	remove the observed variable GIA1
Service quality (CL)	4	0.765	-----
satisfaction (HL)	4	0.821	-----

Source: Analytical results using SPSS 20

4.3. Exploratory factor analysis (EFA)

Using EFA analysis on SPSS 20 software, after removing some observed variables with loading factor < 0.5 , variables have converged in 7 groups and satisfied the test requirement (Table 4). The results show that all scales have KMO coefficient > 0.5 ; Total

variance extracted > 50%, Eigen Value coefficients > 1. Therefore, it can be seen that the factors are consistent with the research data. As a result, 7 factors were extracted including 23 observed variables used for the subsequent analysis of CFA.

Table 4. Test results of scale EFA coefficients

Scales	KMO	Sig	Total variance extracted (Extraction Sums of Squared Loadings)	Eigen Value
Independent variables	0.693	0.000	0.6809	1.247
Service quality	0.70	0.000	0.5809	2.348
Satisfaction	0.755	0.000	0.6531	2.612

Source: Analytical results using SPSS 20

4.4. Confirmatory factor analysis (CFA)

CFA analysis on AMOS 20 software produces normalized CFA results shown in Figure 4.

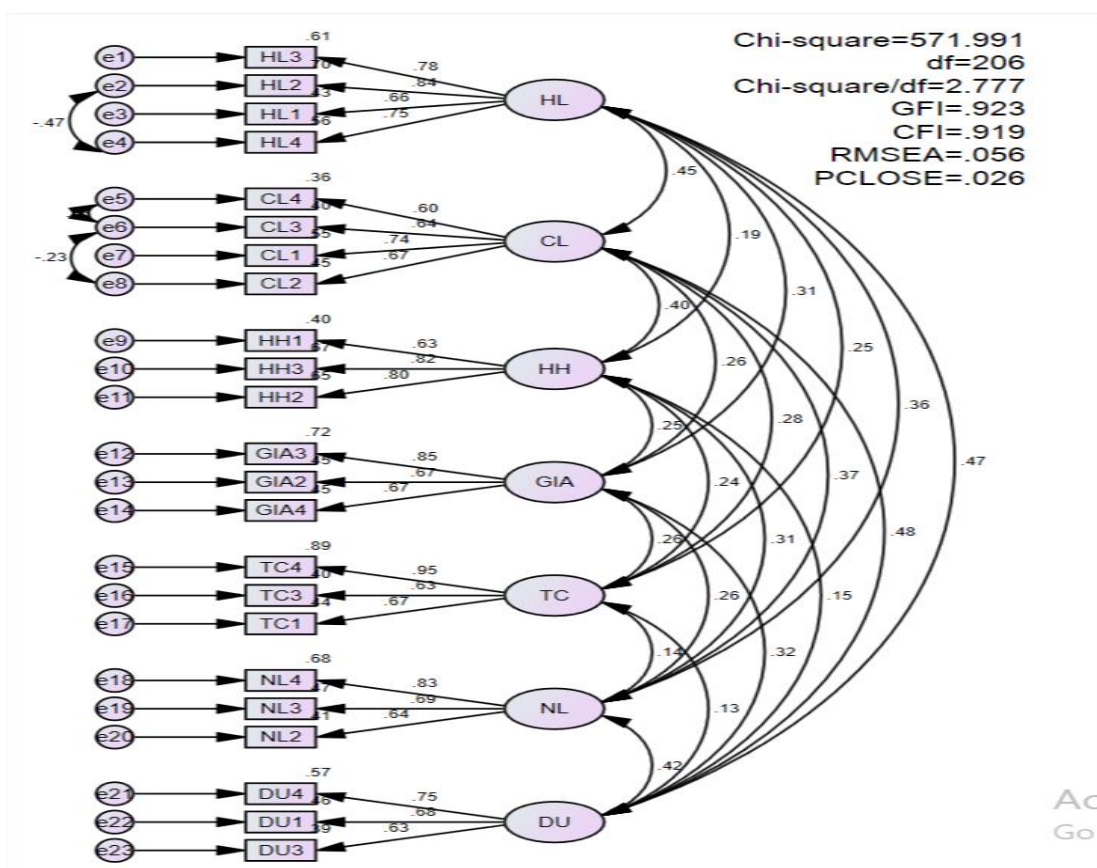


Figure 4. Normalized CFA analysis results

Performing the model's fit test, it shows that the model has 206 degrees of freedom; Chi Square value = 571,991 with P-value = 0; GFI = 0.923 > 0.9; CFI = 0.919 > 0.9; RMSEA = 0.056 < 0.06; Chi-Square = 2,777 < 3; Thus, according to Hu & Bentler (1999), the analysis results show that the data are consistent with the proposed model.

The research team continues to test reliability, convergent validity, and discriminant validity. The data in Table 5 shows that the reliability of CR is > 0.7 ; The total values of variance extracted VEA $> 50\%$. Thus, it can be concluded that the components in the scale are reliable and convergent.

Analysis of the correlation coefficient between the factors corresponding to the diagram in Figure 1 shows that the maximum value is 0.47, which is quite small compared to the threshold of 0.85, so the factors satisfy the condition of discriminant value.

Table 5. Results of the tests of reliability and convergence of functional quality scale

Scales	CR	AVE (%)
Reliability (TC)	0.764	0.522
Responsiveness (DU)	0.842	0.573
Capacity (NL)	0.761	0.512
Tangibility (HH) (HH)	0.797	0.571
Price (GIA)	0.777	0.541
Service quality (CL)	0.800	0.580
Satisfaction (HL)	0.759	0.508

Source: Analytical results using AMOS 20

4.5. Structural equation modeling (SEM)

SEM model was used to test the model and research hypotheses. The model estimation results show that there are two concepts: (1) Service quality and (2) Residential satisfaction, in which, satisfaction depends on the quality of the service. The normalized SEM results are shown in Fig. 5.

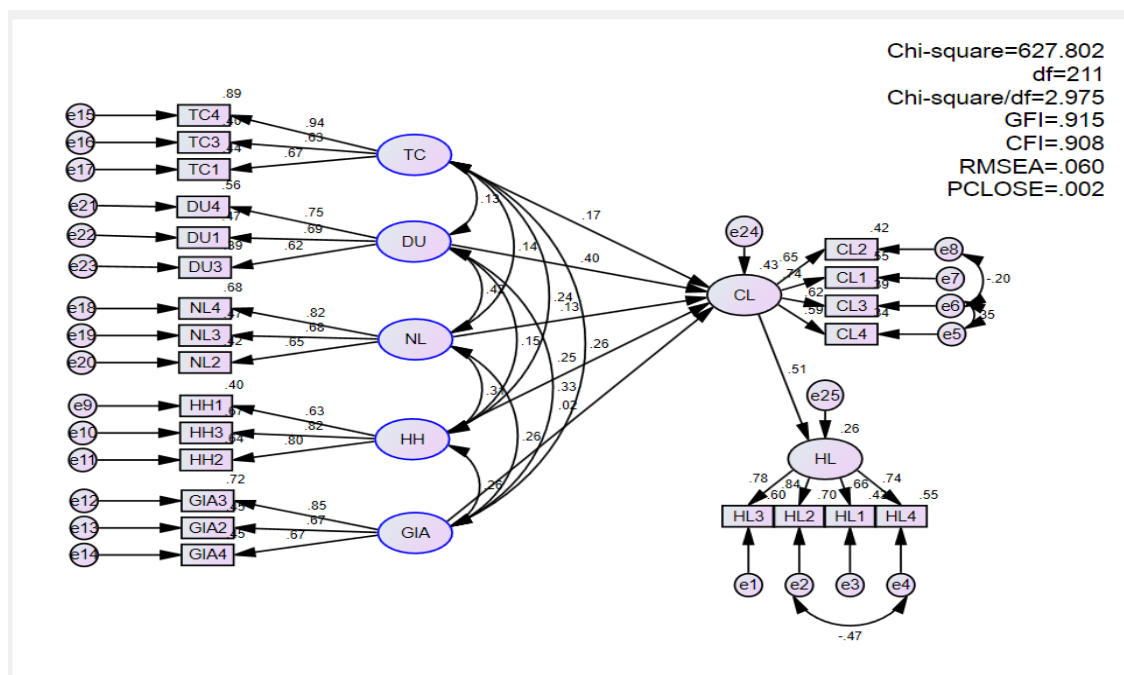


Figure 5. Standardized SEM model results

The SEM model has 211 degrees of freedom, with the following indicators to ensure the validity: Chi-Square/df = 2.975 < 3; GFI = 0.915 > 0.9; CFI = 0.908 > 0.9; RMSEA = 0.06). The main parameter estimation results show that the estimated coefficients are statistically significant and greater than 0. Thus, the hypothesis about the impact of quality factors on satisfaction is supported. Besides, the estimated coefficients of the variables are all statistically significant, except only one variable, GIA, which has no significant impact on Quality with $P=0.73 > 0.05$.

The results are shown in Table 6.

Table 6. Test of causality in SEM (unstandardized)

Relationship	Unstandardized Estimated results				Standardized (Estimate)
	Estimate	S.E.	C.R.	P	
CL<--- TC	.107	.030	3.609	***	.174
CL<--- DU	.298	.050	5.957	***	.405
CL<--- NL	.096	.042	2.261	.024	.133
CL<--- HH	.304	.069	4.420	***	.255
CL<--- GIA	.014	.041	.345	.730	.018
HL<--- CL	.632	.079	8.018	***	.513

Source: Analytical results using AMOS 20

From the last column of Table 6, with the standardized estimation results, the following remarks can be made:

The factors of Reliability, Responsiveness, Capacity, Tangibility, and Price all have a positive impact on the quality of rural public services. The factor ‘Responsiveness’ has the strongest impact, followed by the Tangible, the Reliability, the Capability, and finally, the Price.

The factor ‘Quality’ has a positive impact with a fairly large weight on residential satisfaction. This is sound

In addition, the Squared Multiple Correlations coefficient table shows that the factor ‘Quality’ only explains a little more than 30% of the variation of the factor ‘Satisfaction’, while the remaining 5 factors contribute more than 44% to the change of the Quality factor

4.6. Testing the research hypotheses

From the above estimation and analysis results, the following conclusions can be made about the research hypotheses:

H1 is supported: Estimation coefficient = 0.107, $p = 0.000$ shows that an increase in reliability in service delivery will improve service quality, thereby improving residential satisfaction.

H2 is supported: Estimation coefficient = 0.298, $p = 0.000$ shows that increasing responsiveness in service delivery will improve service quality, thereby improving residential satisfaction.

H3 is supported: Estimation coefficient = 0.096, $p = 0.024$ shows that increasing the service capacity of staff in service delivery will increase service quality, thereby improving residential satisfaction.

H4 is supported: Estimation coefficient = 0.304, $p = 0.000$ shows that increasing equipment for service delivery will increase service quality, thereby improving residential satisfaction.

H5 is supported: Estimation coefficient = 0.014, $P = 0.73 > 0.05$: Do not support the hypothesis H5 that an increase in service delivery prices will increase service quality and thereby increase residential satisfaction.

H6 is supported: Estimation coefficient = 0.632, $P = 0.000$, there is enough empirical evidence to say that increasing service quality will increase people's satisfaction with rural public services.

4.7. Multi-group analysis with SEM model

To test whether residential perceptions differ on the impact of factors on service quality and satisfaction towards the 3 products and services provided, it is necessary to use the multi-group analysis method. To perform this test, the study has estimated two types of models: Mutable and Invariant. With the support of AMOS 20 software, two models have been estimated as shown below.

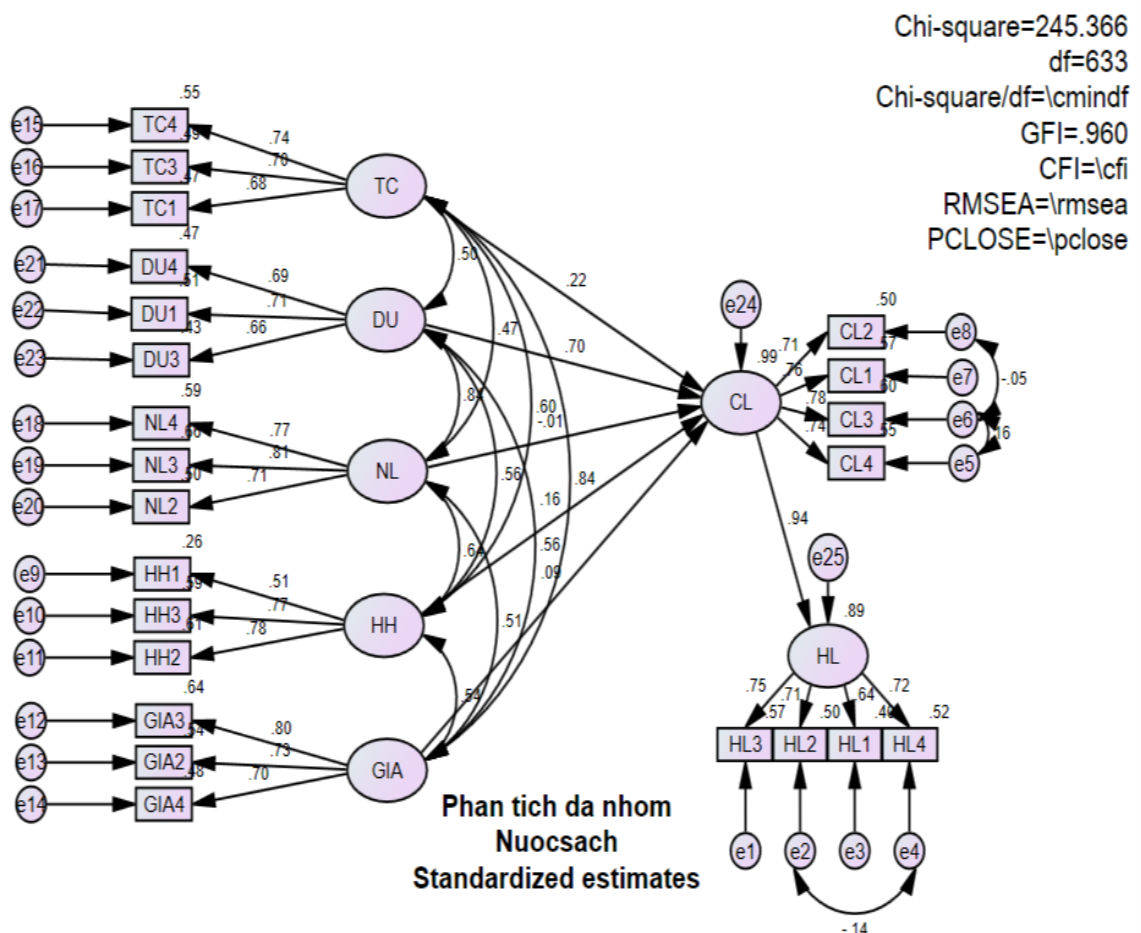


Figure 6. Mutable model

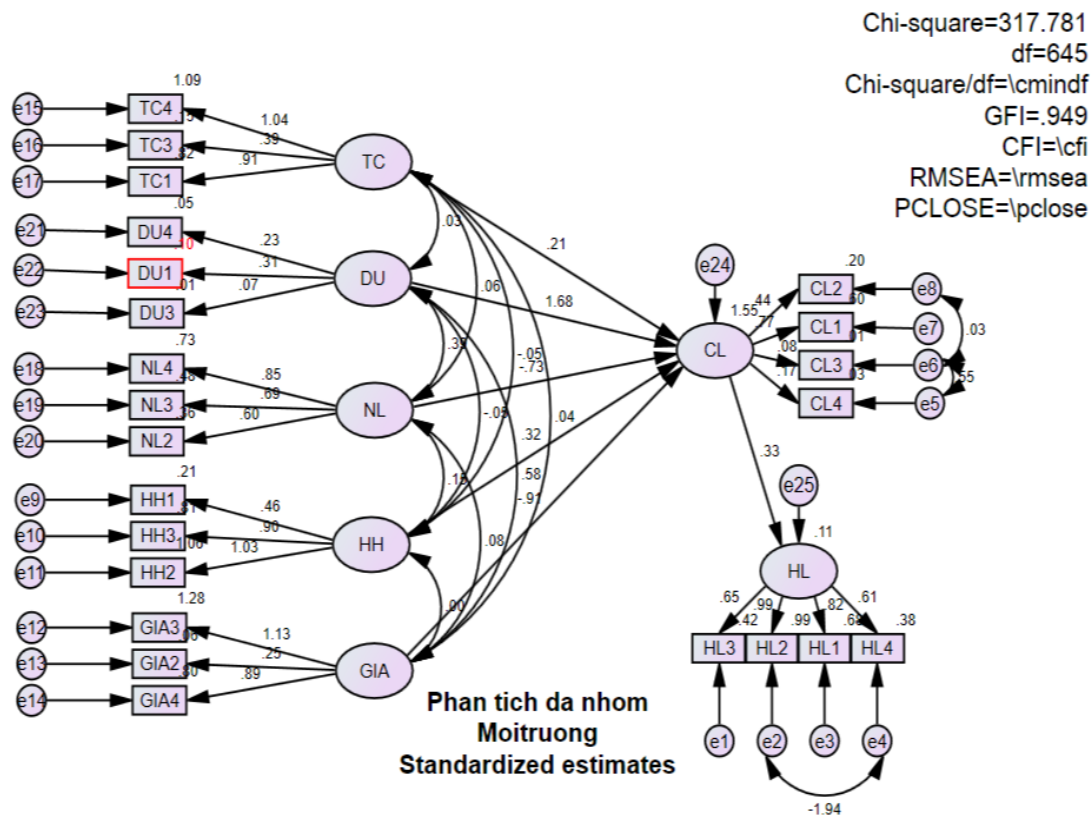


Figure 7. Invariant model

The indexes of the Chi-Square value and degrees of freedom of the two models are presented in Table 7, and the P-value is calculated. With a very small P-value (approximately zero), we support the assumption that there is a difference in residential perception about the relationship between factors for the services being studied.

Table 7. The value of the multi-group structure model

Mode	Chi-Square	df
Mutable model	1795.393	633
Invariant model	1891.984	645
Difference	96.591	12
P-Value	2.58372E-15	

Due to the difference in the evaluation of the 3 services mentioned above, the comparison will use the Mutable model. Using the mutable model (Figure 6), the authors have arranged the relevant indicators in Table 8 for the three fields of *Rural clean water supply*, *environmental hygiene*, and *water resources*. Table 8 shows that there is not much difference between the two fields of *environmental hygiene* and *water resources*. However, the field of *Rural clean water supply* is very different from the other two fields. Specifically, in the 5 factors considered, there are 4 factors affecting the service quality having statistically

significant impacts and only the tangible factor's impact is statistically insignificant. Moreover, the estimated coefficients all have values greater than 0, satisfying the assumptions of the research model. In general, in the field of clean water supply, the impact of factors on service quality and satisfaction is greater for the other two areas. In particular, the explanatory level of the factors to the dependent variable in the field of clean water supply is also superior to that of the other two fields, respectively 93.2% for the 'Quality' variable and 71.8 for the 'Satisfaction' variable.

Table 8. Comparison of differences in evaluation of public services

Sector	Relationship	Indicators			
		Estimate Unstandardized	P-Value	Estimate Standardized	Squared Multiple Correlations
<i>environmental hygiene</i>	CL<--- TC	.154	.038	.230	CL: 18.5 %
	CL<--- DU	.201	.025	.269	HL: 5.7 %
	CL<--- NL	.047	.454	.073	
	CL<--- HH	.111	.206	.153	
	CL<--- GIA	-.101	.315	-.098	
	HL<--- CL	.337	.006	.238	
<i>water resources</i>	CL<--- TC	.114	.018	.130	CL: 28.2 %
	CL<--- DU	.102	.022	.212	HL: 18.8 %
	CL<--- NL	.147	.257	.033	
	CL<--- HH	.213	.031	.113	
	CL<--- GIA	-.223	.452	-.032	
	HL<--- CL	.227	.012	.421	
<i>Rural water supply</i>	CL<--- TC	.055	.250	.069	CL: 93.2%
	CL<--- DU	.685	***	.630	HL: 71.8%
	CL<--- NL	.619	.002	.299	
	CL<--- HH	.026	.843	.030	
	CL<--- GIA	.103	.022	.134	
	HL<--- CL	.969	***	.847	

Source: Analytical results using AMOS 20

5. Conclusion and Recommendation

5.1. Conclusion

Based on survey data, the article has carried out a quantitative study on the factors affecting service quality and residential satisfaction with rural public services in Nam Dinh province. Such results lead to the following conclusions:

CFA analysis shows that the models are suitable for survey data. The scales all ensure convergence value, unidirectionality, reliability, extracted variance, and discriminant value. The SEM analysis shows that the selected research model is quite suitable for the survey data.

The study has identified factors that positively affect service quality and residential satisfaction, in which the strongest impact is the factor 'Responsiveness' followed by the impact of the tangibility and Reliability. The impact of quality on satisfaction is also significant. Besides the commonly used factors, the study has tried to add the 'price' to the research model. However, the influence of this factor is statistically insignificant.

Analysis of multi-group in the SEM model has also shown that there are differences in residential perception of the impact of factors on quality and residential satisfaction with rural public services. Research results in the field of clean water supply are the most convergent. That partly shows that people have more interest in clean water services than in the other two areas.

The research model only examines 3 services that do not necessarily represent all forms of rural public services. It is also the room for the authors to continue to further explore in the future.

5.2. Recommendations

Along with the program of building a new model for the countryside being strongly implemented in rural areas of Vietnam, rural public services have also been expanded in both scale and type of services. Recently, the provision of rural public services has tended to shift sharply from the role of the State to the private sector, creating increasingly fierce competition. Therefore, improving the quality of rural services is an urgent need, a vital factor for suppliers to improve residential satisfaction. Drawing on the findings, the authors propose the following recommendations to improve the quality and satisfaction of rural public services:

-Further enhancing the responsiveness of service providers to the people. Specifically, staff should always be ready to help people with procedures related to service registration; fast transaction time; flexible working hours to create more convenience in daily life and agricultural production activities.

-Increasing investment; modernizing facilities and equipment to meet people's needs; working style is becoming more and more professional.

-Improve people's trust in the service individual providers. This is reflected in the timely and accurate communication of information related to products and services. Suppliers need to ensure commitments on quality and price; publicity and accuracy of the volume of services used to ensure fairness for beneficiaries of rural public services.

-Through the survey of people, the service capacity of the 3 research services is still not reliable, and there is a significant difference. In the coming time, service providers need to further improve their professional qualifications, capable of quickly solving problems emerging in the supply process; respect residential opinions and pay more attention to people's difficulties as well as reasonable wishes.

-The research results also show that the impact of the price factor on satisfaction is not statistically significant. This shows that the price of rural services is not currently a serious concern of the people. Therefore, to improve service quality, service providers can negotiate at a more favorable price, to ensure the balance between the quality of services provided and the reasonable interests of investors.

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SOLUTIONS ON DEVELOPING MARINE ECONOMY IN QUANG BINH PROVINCE IN THE CURRENT PERIOD - VIEWING FROM THE PERSPECTIVE OF ECONOMIC PHILOSOPHY

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Abstract

On the basis of an overview of the basic theoretical issues of the marine economy, the researchers focus on surveying and assessing the current state of the marine economy in Quang Binh province. Basing on the economic philosophy point of view, the research objective, the authors analyze and evaluate the current situation, and offer solutions to develop the marine economy in Quang Binh today in a practical and meaningful way. All the explanations of the issue are seen from the perspective of economic philosophy of the researchers. Research on the panorama of marine economic activities such as: marine economic activities, the basic factors affecting the development of the marine economy, the impact of globalization and internationalization on the development of the marine economy in Vietnam. Then, reflecting specifically the development of marine economy in Quang Binh, the locality has many comparative advantages in marine economy.

Keywords: *Quang Binh province, perspective of economic philosophy, solutions on marine economic development*

1. Introduction

The world is entering a new stage of development, with the trend that is increasingly affirming the great importance of seas and oceans. The scarcity of raw materials and energy leads to frequent and intense market competition, territorial disputes and national conflicts. "Reaching out to seas, exploiting the oceans" [4, p.12] has become a strategic action slogan of the whole world.

Vietnam, blessed with nature, is a country with a large area of seas and islands in the East Sea with 3260 km of coastline and more than 3000 islands and rocks. It is estimated that Vietnam's scale of the sea and coastal economy has the average of about 47 - 48% of the country's GDP. The strategy for sustainable development of Vietnam's marine economy to 2030, with a vision to 2045 affirms: "It's obligatory to become a country which is strong in the sea, enriching from the sea, on the basis of promoting all potentials from the sea, developing comprehensively marine industries with a rich and modern structure, creating a fast, sustainable and highly efficient development with a long-term vision" [4, p. 5]. This is a complete strategic orientation, as well as a clear direction for the current development of Vietnam's marine economy.

Quang Binh is a province in the North Central Coast with a marine exclusive economic zone covering an area of more than 20,000 square kilometers, with a coastline of 116.04 kilometers and five small coastal islands with a total area of 185 hectares. This is a place with a particularly important position in the strategy of socio-economic development, security and defense for the whole North Central region and is the gateway to the sea on the East-West corridor connecting the Trans-Asia route from Northeast Thailand via National Highway 12A with international shipping through Hon La seaport. Quang Binh marine economy plays an important role in the socio-economic development of the province with a strategy of comprehensive development of industries from the marine economy, including: marine minerals, fishing and farming, marine tourism and entertainment, research and education...

However, in the context that the whole world is strongly moving to the sea in the 21st century, the scale of marine economic development in Quang Binh province today is not commensurate with the potential and the values that the sea brings. In the face of the above actual situation, based on the economic philosophy point of view, the aims of the research, analyzing, and evaluating the current situation, and offering solutions of developing the marine economy in Quang Binh is very practical and meaningful today. On the basis of an overview of the basic theoretical issues of the marine economy, focusing on surveying and assessing the current state of the marine economy in Quang Binh province, some viewpoints and solutions are proposed to develop the marine economy of Quang Binh in the period of economic integration. All the explanations of the problem are seen from the perspective of economic philosophy of the researchers.

2. Method

Research object is Quang Binh marine economy, strategy for comprehensive development of industries from marine economy, including: marine minerals, fishing and farming, marine tourism and entertainment, research and education.

Research tools ensure scientific principles. Thoroughly researching theoretical perspectives associated with practice, viewed from the perspective of economic philosophy to serve the construction of Vietnam today.

Collecting and analyzing data from specific research methods are: comparative research method, specific historical synthesis, field survey and systematic method.

Methods of researching documents and texts; observation method; methods of processing data collected by mathematical statistics. Observational and interview methods are used to detect research problems.

3. Results

3.1. Marine economy, the role and factors affecting marine economic development in Quang Binh province

The important role of the marine and ocean economy for the current and future economic and social development is increasingly clearly demonstrated by the extremely rich and diverse marine resources that are satisfying the increasing demand of the society.

From the perspective of economic philosophy in the narrow sense, marine economy is all economic activities at sea, including: maritime economy (sea transportation and seaport services); seafood (fishing and aquaculture); offshore oil and gas exploitation; marine tourism; salt making; searching - rescuing services and island economy. Marine economy in a broad sense means all economic activities taking place at sea and economic activities directly related to marine exploitation in the coastal mainland. To be suitable for the purposes and research subjects, the researchers present the marine economy in three main fields: Fishing, aquaculture and seafood processing; Maritime economy; Sea travel.

Referring to the role and factors affecting the economic development of the oceans and seas, the strategists all agreed that: Oceans and seas are humanity's last reserve of food and fuel resources in the 21st century, especially when the world is facing a crisis of lack of natural resources on land as follows:

The first is the marine economy in transportation development. Developing sea transport which connects the most countries and has the lowest transport costs but can accommodate the largest volume of traffic. It is the development of shipping that has promoted the trade of nations to become efficient.

Secondly, it is the marine economy in the development of the oil and gas industry. Today's oil and gas industry has become one of Vietnam's spearhead industries, the country's leading export industry (more than 3 billion USD annually), associated with the marine economy. Almost all of Vietnam's oil and gas reserves are located in the continental shelf. On the area of the continental shelf with a water depth of up to 200m, reserves of about 550 million tons of oil and 610 billion m³ of gas have been discovered. Potential reserves are estimated at 0.9 - 1.2 billion m³ of oil and 2,100 - 2,800 billion m³ of gas.

Thirdly, it is the marine economy in mineral exploitation. Many minerals have large reserves such as bauxite, iron ore, rare earth, apatite, ilmenite placer...with a total reserve of about 10 million tons. The accompanying minerals are zircon, monacid with high economic value. This is a fairly large source of raw materials that can serve the TiO₂ powder production industry.

Fourthly, it is the marine economy in the development of the processing industry. The sea provides more and more variety of raw materials for the processing industry such as: fish, shrimps, crabs, oysters, squids, seaweeds, pearls... in the form of wild fishing and farming. According to the Directorate of Fisheries, the value of fishery production in 2020 increased by 6.25% compared to 2019. The total output of all kinds reached about 8.15 million tons, up 4.9% over the previous year. Thus, the development of aquaculture and fishing plays an increasingly important role in the economic development of the country in general and the processing industry in particular.

The fifth is marine economy with national defense and security. The characteristics of topography and tides make Vietnam's seas dominate and influence in a very tight way, which is vital for national and regional security and defense. Vietnam's seas and islands are located in the East Sea, in the region with the very dynamic economic development of the Asia-Pacific.

It can be said that the marine economy plays an increasingly important role in the national economy, the marine economy has become a driving force for the development of industry and other economic sectors because the sea is the gateway to exchange with the world. world, creating favorable conditions for the import and export of goods at low cost. Then, clearly analyzing the conditions and potentials of natural - social conditions for the development of marine economy in Quang Binh province. Listing completely on the local marine economic development policies, focusing on developing the strong industries, the economic achievements achieved as well as specifying the outstanding obstacles from which locals provide basic and feasible solutions to promote the potential of the marine economy and to improve the economic efficiency in marine economic activities in Quang Binh. The province is determined to bring sea and inland waterways "effectively exploiting existing ports. Calling for investment in building Hon La port, upgrading Gianh Port and some other ports serving international and domestic shipping routes. Strengthening the socialization of dredging and clearing river channels"[3, p. 35].

3.2. Main solutions to develop marine economy in Quang Binh province today

To implement marine economic development, it is necessary to: promote basic survey of coastal areas and planning; mobilize investment capital sources; expand international and regional cooperation with other localities; develop science and technology human resource; strengthen the State management apparatus; promote the combination of economy and defense, which can be divided into the following solutions:

3.2.1. Solutions on implementing effective management of marine economic development in Quang Binh province today

That is implementing effective management. Quang Binh is striving to be one of the leading provinces in developing the marine economy of the North Central Coast in the future. It is especially important to improve the effectiveness of the competent authorities in managing and directing the province's marine economic development. Competent agencies related to marine economic development planning must properly perform their functions and tasks, specifically:

Firstly, the Department of Agriculture and Rural Development is a specialized agency performing the state management function on: agriculture; forestry; salt - making; fishery; irrigation and rural development. Therefore, it is especially important that the Department take measures in different periods to prevent and control floods and storms; safety of agricultural products, forest products, aquatic products and salt during the production process until they are put on the market.

Secondly, Quang Binh Department of Fisheries performs the function of State management of fisheries in the province, including: aquaculture, exploitation and processing of aquatic products, and protection and development of aquatic resources inland and at sea; The Department needs to come up with strategies, development plans, long-term, five-year and annual plans, programs and projects on fishery activities in the province in accordance with the total plan for socio-economic development. The Department needs to guide, inspect and organize the implementation of regulations on decentralization of management of

fishing vessels, fishing ports, fishing wharfs, shorelines, storm shelters of fishing vessels and registration of fishing vessels. Actively inspect and guide the production, harvesting, preservation and processing of salt in localities of the province.

Thirdly, Quang Binh Department of Tourism undertakes the state management of tourism in general and sea tourism in particular. The Department needs to take measures to protect, embellish, exploit and rationally use marine resources effectively. Moreover, strengthen the development of marine tourism promotion programs to promote Quang Binh tourism widely throughout the country as well as internationally.

Fourthly, state agencies involved in marine economic fields must associate the process of marine economic development with the process of urban development planning, industry and product development planning. Developing a marine economic strategy should clearly show the key investment direction. Competent agencies must consider the role of science - technology development and high-quality human resource training as the main orientation for the development of all fields of marine economy, gradually bringing the marine economy to enhance their potential and strengths.

3.2.2. Solutions on implementing policies to support marine economic development in Quang Binh province today

In recent times, the marine economy of Quang Binh province has achieved remarkable achievements. However, there is still no marine strategy and specific development programs to fully promote the potential of Quang Binh marine resources. Therefore, in the process of developing the marine economy, it is necessary to have supportive policies to create momentum for the favorable development of the marine economy as follows:

Firstly, Quang Binh needs to strongly develop the marine economy in order that this strength becomes a spearhead economy of the locality, especially improving the capacity of offshore fishing in close association with investment in fishery infrastructure such as ports, shipyards, and establishing seafood processing factories.

The second is promoting administrative reform and give incentives to fishermen. Leaders of departments should offer many preferential policies for fishermen to borrow money to expand production, support them to build new fishing ships, replace engines, buy crew insurance, and hull insurance.

Thirdly, ensuring safety and security for marine economic activities is also one of the policies to support the development of Quang Binh's marine economy. The Provincial Sub-department of Irrigation and Flood - Storm Control needs to strictly adhere to the motto "Prevent actively, respond promptly, and overcome quickly and effectively". Safety for fishermen and means of transportation at sea during the rainy and stormy season needs to be done right from the fishermen community. It is necessary to consciously learn how to avoid natural disasters, well comply with maritime safety requirements, follow the instructions and directions of flood and storm prevention agencies, and reduce damage caused by natural disasters.

The fourth is attaching importance to marine science and technology development and human resource training to serve marine economic sectors. The province must soon develop mechanisms and policies of attracting overseas Vietnamese experts and highly qualified foreign experts to Quang Binh to participate in research, teaching, consulting, and assuming management positions of marine science and technology research.

3.2.3. Solutions on focusing on regional development and regional connection to develop marine economy in Quang Binh province today

In economic development thought, it is very vital to connect with each other to develop. If economic activities are carried out according to the locality, everyone can do it on their own, and the economic management follows administrative boundaries, it is very difficult to develop. Quang Binh province should not develop massively and sporadically, but it must share and focus on its main development direction in its role with the entire North Central region.

Firstly, the advantage of Quang Binh province's marine economy is in the field of fishing, aquaculture and seafood processing, therefore, connecting with neighboring provinces is an important factor to help this field develop its strengths. Connecting in fishing, in sharing farming experiences and seafood processing methods will help provincial leaders as well as businesses to be active in source raw materials, reduce costs, create stability for product output, but also contribute to increase product value, create a closed process from production, processing to product consumption.

Secondly, the potential for sea tourism is great, therefore, Quang Binh must know how to choose outstanding tourism topics to connect. Promote more tourism products for the tourism industry, contribute to rationally and effectively exploit tourism's potential.

Thirdly, Quang Binh Port needs to connect with ports of neighboring provinces such as Vung Ang Port, Cuu Lo Port, Chan May Port, etc... in engineering geological investigation, geodynamics and archaeological geology of sea areas and terraces. continent; apply adaptive solutions to minimize the impact of climate change and sea level rise on the operation of seaports; control the pollution of the environment around the port... Quang Binh port system is in the port planning of the whole region, sharing experiences in this new field of marine economy to interact with each other and develop together.

3.2.4. Solutions for state-owned enterprises to develop marine economy in Quang Binh province today

Firstly, businesses need to set out specific mechanisms and policies for themselves. In order to have a new development direction, which is suitable to actual conditions, state-owned enterprises should not be tied to the old mechanism, must create conditions for cooperation, external relations, association and cooperate development models. It is necessary to build for themselves an appropriate organizational, management and production structure.

Secondly, it is necessary to actively review and adjust long-term and medium-term strategies and develop specific production and business plans each year to ensure a healthy,

efficient and sustainable financial balance; Investing in science and technology application and training high-quality human resources will contribute to overcoming the limitations of mechanisms, policies and efficiency of production and business activities.

Thirdly, improve the quality and efficiency of production and business activities: This is an extremely important issue for businesses. In the process of participating in production and business activities, especially in the fields of marine economy, improving the quality and efficiency of production and business activities must be a top priority.

3.2.5. Solutions for private enterprises to develop marine economy in Quang Binh province today

Firstly, strengthen the application of new science and technology: Innovation in production and business is very necessary for private enterprises. Participating in marine economic activities, private enterprises must always find new production methods and regularly innovate techniques. Only in this way can large-scale production be created, even connection between production fields and industries.

Secondly, human resource development: The marine economy is a dynamically developing economic sector, therefore, the quality and quantity of human resources involved in this field must always be improved. From managers and leaders to workers directly involved in production and business, they need to be regularly trained and retrained to meet new demands.

Thirdly, attract investment capital: The marine economic sector, due to its scale and nature, requires businesses to have a large capital source to be able to sustain. The capital source of enterprises themselves is only a part of the capital to maintain business operations. With action programs, specific production and business plans, as well as activities to promote and introduce businesses that call for and attract investment capital from outside. With strong capital, the programs and plans of the enterprise can operate effectively. The level of investment attraction also shows the production and business capacity of the enterprise.

4. Discussion and Conclusion

Quang Binh province focuses on developing the marine economy in five key areas in order of priority: fishery economy; sea tourism; the port system development, port services and shipping; development of economic zones, industrial parks and coastal urban areas; development of the industry of building and repairing ships, boats and floating vehicles.

From now to 2030, Quang Binh will develop the marine economy in the direction of multi-industry and multi-field in which, aquaculture and fishing are basic, accounting for the largest proportion of the total value created by the marine economy. Gradually form economic zones concentrated in coastal areas associated with Hon La seaport, and develop marine economy with sea tourism; well solve social problems in coastal areas; The province strives to, by 2030, bring the proportion of GDP of the sea to over 30%; raising the living standards of people in the coastal area to double the current level, bringing the income of each person in the coastal areas in the province to USD 2500/year.

Quang Binh marine economy actively attracts many economic sectors and forces to participate in marine economic development. For the area of communes and wards adjacent

to the sea, the province will fully promote its advantages in terms of geographical location, traffic, investment attraction, labor and economic development, people's livelihood, creating dynamic development of the whole region; Strive for the per capita income of this region to be 1.2 - 1.4 times higher than the per capita income of the whole province and coastal strip of the country by 2025, and 1.4 - 1.6 times higher by 2030, gradually narrowing the gap between rich and poor. Quang Binh builds and operates non-tariff zones in association with investment and effective exploitation of Hon La port along with existing national highways and border gates to form an important gateway to the East Sea of Southern Laos, Northeast Thailand and Mekong sub-regions. Thus, from now to 2030, Quang Binh will continue to build and invest in economic zones, complete approved functional zones and expand economic sectors. At the same time, invest in building a new modern urban area with financial, banking, securities, postal and telecommunications services up to international standards, ensure the province's development trend of marine economy is in line with international standards, with the general trend of the country.

Discussing the results is that it is necessary to step up the investigation, survey, research, establishment and management of a database and information system on marine resources and marine environment to provide timely scientific arguments serving planning and making policies and laws for the general and unified state management of seas and islands. For the coastal provinces, such an outcome will help to conserve and sustainably develop marine ecosystems, protected areas and nature reserves that have been recognized internationally and nationally. Arrange space for development of seas, coasts and islands which is suitable to ecological conditions of each region. Control pollution sources from land discharged into the sea, prevent pollution from marine activities and transboundary pollution in scope. Actively prevent and combat marine disasters and respond to negative impacts of climate change. It is necessary to develop specific mechanisms and policies to attract, train, employ and develop human resources for marine economic development in which it is necessary to focus on investing in training key and spearhead marine economic sectors. Strengthen international cooperation, open the door for foreign investors in training marine personnel to acquire advanced training technology and modern training equipment.

In summary, the marine economy plays a very important role in socio-economic development as well as in enhancing the position of a country, especially in the period of industrialization, modernization and international economic integration of Vietnam today. Quang Binh has a lot of opportunities to develop the marine economy. However, due to obstacles in awareness, management, material and technical facilities, etc... the exploitation of resources from the sea is not commensurate with the position and role of the marine economy as well as the favorable opportunities brought by objective and subjective conditions. In this research, solutions on marine economic development in Quang Binh province in the current period - from the perspective of economic philosophy, the researchers have contributed to clarifying the theoretical and practical basis of marine economic development; at the same time, making survey and evaluating reality, thereby confirming the achievements and pointing out the difficulties and limitations in developing the marine economy in Quang Binh province. More important is to propose some solutions to develop Quang Binh's marine economy in the current period.

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THE IMPACT OF PRODUCT QUALITY ON THE INTENTION TO EXPERIENCE TOURISM ACCORDING TO OCOP STANDARDS IN VIET NAM

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Abstract

The study focuses on analyzing and evaluating the influence of product/service quality on the intention to experience tourism according to OCOP standards in Vietnam. Two main data sources are used:

Secondary data include documents, newspapers, laws, ... about the OCOP program in Vietnam from 2018-to 2020, and primary data collected from the survey which is based on decision No. 1048 / QD-Ttg 2019. Research results found that product quality has a positive impact on the intention to experience OCOP tourism products. From the research results, the authors will make suggestions and recommendations for points that need to be amended and supplemented for the current OCOP tourism products to encourage customers to use the product in the future.

Keywords: *The quality of OCOP tourism product, Intention to travel, Vietnam*

1. Introduction

During the past 60 years, the tourism industry has always been in focus, in each period, governments have determined the position of tourism in the socio-economic development strategy of the country by the revolutionary requirements. Currently, overcoming many difficulties, and challenges, the tourism industry has been making significant contributions to the country's socio-economic development, preserving and promoting the values of national cultural heritage.

Recently, Vietnam has begun to develop rural tourism. The development of this form of tourism has contributed to providing employment opportunities for the local community, facilitating the development of the local economy through the sales of tourism products and services, contributing to the development of the local economy, and enhancing a local and national

image. Especially, [TP1] with the integration and the development of society, rural tourism has become more attractive to tourists. This is also one of the goals of the OCOP program.

In Vietnam, the OCOP program was absorbed in 2006 with the implementation of the project "One commune, one product" by localities and started implemented strongly from 2013 onwards with the pioneer province of Quang Ninh. The program has contributed to restructuring agricultural production, handicrafts, improving production value, and developing own brands of many localities. As yet, the OCOP program has been widely deployed in 63 provinces and cities across the country.

This paper is structured as follows. **In section 1**, we give a general introduction to the state of tourism in Vietnam in general and about OCOP tourism products in particular. **Section 2**, provides an overview of the study. **Section 3**, the research model and hypotheses. **In section 4**, we provide methodological aspects. **Section 5**, Presents and analyzes some of the results. **In section 6**, we make the conclusion

2. Literature Review

There is much research and approaches on the relationship between product (service) quality and customer purchase intention (use) in the world.

Chapin (1974) examines the Activity Pattern Model of tourism which has 2 factors: trends and opportunities to promote action influence the choice of tourism products/programs. There are two sub-variables in the element of opportunity (promoting action): availability and quality (location, program, and service). The model has initially demonstrated the impact of tourist destination product/service quality as a motivating factor for customers to participate in the travel experience.

Sultan & Simpson (2002) mention that since European passengers found the service quality of US airlines to be less than that of their international carriers, substantial efforts may be needed by US carriers to improve the service they offer to attract Europeans. This has obvious implications for airline alliances, such as the Star alliance between Air Canada, Varig, SAS, Lufthansa, Thai Airlines, and United Airlines. It remains unclear, however, whether US carriers see these alliances as a way of improving their service quality, or whether they are merely seeking to circumvent international laws governing their ability to reach what appear to be attractive markets. In the long term, the success of an alliance may be jeopardized if partners are perceived not to offer the same level of service.

Another research by Tsiotsou, R., (2005) refers to quality levels and their relation to involvement, satisfaction, and purchase intention, marketing bulletin. The main objective of the study was to investigate the effect of perceived product quality on product involvement, consumers' overall satisfaction, and purchase intentions. This investigation confirmed previous findings on the critical role of perceived product quality on consumer behavior and led to the identification of the effects that different levels of perceived quality have on involvement, overall satisfaction, and purchase intentions. Besides, Tsiotsou, R., (2006) also mentioned that perceived quality had a direct and an indirect effect (through overall satisfaction) on purchase intentions, overall satisfaction had a direct effect on purchase intentions and involvement had an indirect effect on purchase intentions through overall satisfaction and perceived quality. The results of

the study provide several theoretical and practical implications. There are contradicted findings on the influence of perceived quality on purchase intentions. In some studies, perceived quality has been found to have a positive direct effect on purchase intentions (Carman, 1990; Boulding et al., 1993; Parasuraman et al., 1996), whereas others report only an indirect effect through satisfaction (Cronin and Taylor, 1992; Sweeney et al., 1999).

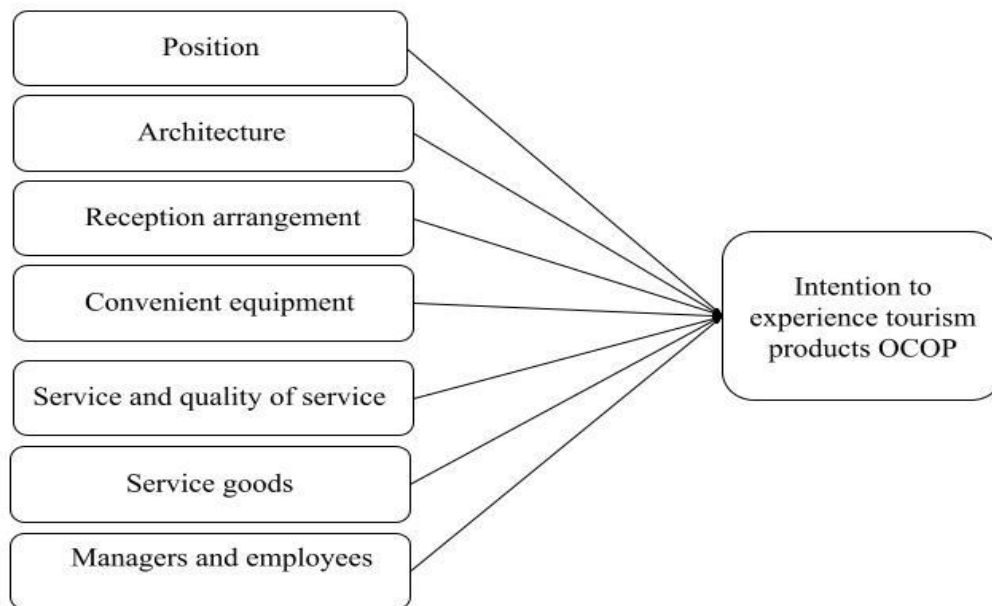
In 2013, authors Tariq, M., Nawaz, and coworkers made important discoveries. The research paper has shown that a certain influential buying motive for multinational brand cosmetics is quality, and this is the only reason that attracts more than half of their users.

Model

The research model includes:

Independent variables are components of product quality according to OCOP standards: (1) Position; (2) Architecture; (3) Reception arrangement; (4) Convenient equipment; (5) Service and quality of service; (6) Service goods; (7) Managers and employees.

The dependent variable in the model is “OCOP tourism experience intention”, in which product quality components directly affect the intention to experience tourism according to OCOP standards.



Source: Authors' estimations

Research hypotheses include:

H1: “Position” has a positive impact on the “Intention to experience tourism products OCOP” of customers.

H2: “Architecture” has a positive impact on the “Intention to experience tourism products OCOP” of customers.

H3: “Reception arrangement” has a positive impact on the “Intention to experience tourism products OCOP” of customers.

H4: “Convenient equipment” has a positive impact on the “Intention to experience tourism products OCOP” of customers.

H5: “Service and quality of service” has a positive impact on the “Intention to experience tourism products OCOP” of customers.

H6: “Service goods” have a positive impact on customers’ “Intention to experience tourism products OCOP” of customers.

H7: “Managers and employees” have a positive impact on the “Intention to experience tourism products OCOP” of customers.

2. Method

Participants: Customers who have knowledge about OCOP and have never experienced tourism products according to OCOP standards

Qualitative research methods: Conduct direct phone interviews with 20 customers in the research group. Through this method, the research team can evaluate which factors are appropriate, which factors need to be adjusted and removed from the model; At the same time, the research team checked the appropriateness of the research variables' scale and adjusted it to come up with an official scale for researching a large scale. The result of this research phase is that the research team comes up with research models and hypotheses that are suitable for the research topic, adjusted

Quantitative research methods: Implemented through questionnaires sent/distributed to research subjects on a large scale to test the proposed research model and hypotheses. The results of this phase are the data, scientific evidence, and proving the proposed hypotheses and models.

Data collection

Secondary data collection

Data used in this study is collected from books, reports, websites, and especially studies on product quality, tourism product quality, consumer behavior, program OCOP process, and relevant theoretical knowledge.

Primary data collection

The questionnaire approached research subjects through social networks in the form of an online survey to ensure that all survey respondents had access to the Internet. The total number of responses was 235; and after a vote filtering procedure, the number of responses that were reliable and included in the analysis was 210 (89,36%).

Data analysis

Data was entered and processed, and statistical analysis was carried out through Microsoft Excel 2016, and SPSS 20 software. This study includes descriptive statistics, Cronbach's alpha reliability test, and factor analysis. explored EFA, Pearson correlation analysis, and ANOVA analysis of variance. Descriptive statistics were used to examine variables of interest, including demographic variables. Analyze Cronbach's Alpha coefficient to evaluate the reliability of the scales and compare the correlation coefficient of

the total variable to eliminate inappropriate observed variables. Exploratory factor analysis (EFA) to test the scale value, and determine the correlation between variables in the data set. Pearson correlation analysis to test the close linear relationship between the independent variable and the dependent variable. The ANOVA method was used to find the differences according to individual characteristics.

3. Results

Table 1. Descriptive statistics of the sample

Factors	Variables	Mean	Standard Deviation
Position	VT1	3.99	.773
	VT2	3.66	.818
	VT3	3.82	.778
	VT4	4.35	.806
Architecture	KT1	3.88	.975
	KT2	3.87	.918
	KT3	4.00	1.019
	KT4	3.96	.858
Reception arrangement	BDT1	3.90	.844
	BDT2	4.11	.893
	BDT3	4.22	.950
Equipment	TTB1	3.99	.671
	TTB2	4.11	.952
	TTB3	4.28	.882
Service and quality of service	DV1	4.35	.847
	DV2	4.32	.835
	DV3	3.84	.860
	DV4	4.06	.739
Service goods	HH1	4.00	.941
	HH2	3.94	.881
	HH3	3.99	.867
Managers and employees	QL1	3.79	.945
	QL2	3.47	.954
	QL3	3.71	.884

Source: Authors' estimations

With the value commentary in table 4.8, we can see that the minimum value is 3.66 and the maximum value is 4.35. This thing for the history of big part is the same to all variable of modeling that the authors put forward.

The standard deviation is the degree of variation of the variables around the mean value. The larger the standard deviation, the more different the respondents' opinions. With TTB1 the variable has the smallest standard deviation of 0.671 for the homogeneity seen in the customer's assessment, there is not a big difference. In contrast, with KT3 the variable with the largest standard deviation is 1,019 responding to different reviews from customers.

Table 2. Regression results with dependent variable “Intent to experience tourism according to OCOP standard”

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
Constant	-0.032	0.261		-1.121	0.903		
Position	0.218	0.048	0.221	4.513	0.000	0.867	1.154
Architecture	0.119	0.042	0.159	2.855	0.005	0.675	1.482
Reception arrangement	0.098	0.038	0.130	2.565	0.011	0.816	1.225
Equipment	0.165	0.044	0.199	3.765	0.000	0.745	1.343
Service and quality of service	0.229	0.047	0.260	4.845	0.000	0.724	1.382
Service Goods	0.091	0.041	0.128	2.203	0.029	0.619	1.615
Managers and employees	0.100	0.038	0.136	2.626	0.009	0.775	1.291

Source: Authors' estimations

From the regression results of the table, we can see that all 7 components of product quality have Sig coefficients less than 0.05. This Sig coefficient shows that the product quality factors in the model are consistent with the study and have an influence on intention. On the other hand, the Beta coefficients of the 7 factors are all more than 0, showing that they have a positive impact on the intention to experience tourism according to the OCOP standard. Which, the Beta coefficient of the variable “Service and quality of service” is the largest (by 0.229), so this is the factor that has the strongest influence on the intention to experience OCOP tourism.

Based on the results, we can write the regression equation as follows:

$$\text{Intention} = -0,032 + 0,218\text{Position} + 0,119\text{Architecture} + 0,098\text{Reception arrangement} + 0,165\text{Equipment} + 0,229\text{Service and quality of Service} + 0,091\text{Service Goods} + 0,100\text{Managers and employees}$$

From the table and the regression equation, it can be seen that all beta coefficients are greater than 0 showing that the independent variables are positively related to the dependent variable.

According to the results of the ranking table of the importance of the independent variables in the regression model, the variable "Service and quality of service" has the strongest impact on the dependent variable "Intention", determining tourism experience according to OCOP standards" is the weakest variable "Service Goods".

After testing the statistical hypotheses, we concluded that: All components of product quality have a positive impact on the intention to experience tourism according to OCOP standards of customers. At the same time, components of product quality have different levels of impact on tourists' intention to experience tourism according to OCOP standards.

4. Conclusion

The paper uses a model to develop hypotheses about the relationship between product quality and tourists' intention to experience tourism according to OCOP standards. In general, many previous studies are showing that product quality influences intention, consumption behavior, and choice of a tourist destination.

Through analyzing and testing variables according to the model, we found that the service factor and service quality have the greatest influence on the individual's intention to experience tourism according to OCOP standards, through which the trend of evaluating product quality can be seen.

The topic has contributed a small part to help the subjects in the OCOP tourism business group better understand the product quality requirements of tourists, from which some businesses have had many solutions to perfect their products according to OCOP standards, thereby supporting and creating jobs for people.

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TRANSFORMING LIVELIHOODS OF PHU XUYEN DISTRICT RESIDENTS (HANOI CITY) IN PROCESS OF BUILDING NEW RURAL AREAS

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Abstract

The writing studies the livelihood transformation of the Phu Xuyen District residents (Hanoi City) in the context that the building of new rural areas is based on the lively choice and job change, on the basis of effective calculation. The new-style rural building program has been conducted in Phu Xuyen district, Hanoi city in the context of stagnant local economic development, residents' deep attachment to agricultural production with low per capita income, and unsecured infrastructure. Therefore, they face several challenges, especially changes in production methods, land and environment, etc. By data collection methods combined with fieldwork, in-depth interviews with households in Phu Xuyen district have shown the difficulties in the process of building a new countryside. Accordingly, the problems arising in the process of the farmers' livelihood are under discussion when the process of building new rural areas carried out alongside the process of urbanizing the countryside is happening vigorously.

Key words: *livelihood transformation, livelihoods, new rural areas, Phu Xuyen District*

1. Introduction

According to the Vietnamese dictionary, livelihood can be understood as “a job to earn one’s living” (Linguistics, 2010). According to the researchers, livelihood “studies the material aspect of life in its social and cultural context. It studies how the links of production, distribution and consumption have taken part in the whole structure of social life and the vital role of the perfect whole that has created that living society” (Evens, 2001). The idea of livelihood introduced by Robert Chambers in the middle of 1980s of the 20th Century maintained that “livelihood includes energy, property, the way of getting access (the reserves, resources, the right to ownership, the right to use) and the necessary activities for life” (Chambers, 1983). After that, it was developed by Chambers, Conway and other researchers in early 1990s of the 20th Century (Robert Chambers & G. Conway, 1992). There are a lot of ways of getting access to livelihood and different definitions of livelihood; however, the above-said concept comprises a lot of elements that can make influences on the living activities of each individual or household. Fundamentally, the livelihood activities are decided by each individual or farm household by basing on their own abilities, at the same time they are under the impact of institutions, policies and social relations established by these individuals and households in the community. So, livelihood is understood as having assembled all the resources and capacities that human beings can afford, in combination with decisions and activities of their own in order to make their living as well

as reaching their targets and wishes. Livelihood of each individual or household is set up by three main pillars: property (resources) of livelihood, livelihood strategy and livelihood results. In the next studies of the World Commission of Environment and Development (WCED), Chambers & Conway came out with a relatively complete livelihood concept. According to them, livelihood includes capacities, property (the reserves, resources, requirements and access) and the needed activities to ensure the means of living. Livelihood is sustainable only when it can be able to cope with and to recover after the shocks, maintain or improve capacities and property and provide the opportunities of sustainable livelihood for the next generations. The sustainable livelihood is understood as being able to cope with and to recover after waves of crisis and shocks, to maintain and enhance the capacities and property and supply the opportunities of sustainable livelihood for the next generation and contribute to the real benefits of other livelihoods at the local level and at the short-term, long-term global level. In the context that society moves and develops constantly, transforming livelihood is an inevitability that can be seen through the process of a change of jobs, the people's judgement of the quality of life, the change of living level of households.

Samuel Popkin has selected the way of getting access to the economy so as to study the activities of the farmer individual with the presumption that individual is a man of rationality with self-interest. By basing himself on the concepts such as the individual choice and decision making, he had analyzed the economic behaviours of the farmer in the life of agricultural economy and in the village's everyday life activities. So, the farmer is always closely connected with farm household, just because the farmer has never existed separately; on the contrary, they have always operated in a capacity of a member of a farm household. According to Popkin, the Vietnamese peasant is a "rational peasant" (Popkin, 1979) who has always paid attention to the individual interests of their own family and making investment for their own through the short-term and long-term plans. They have always sought the reasonable choice in the context that urbanization is happening rapidly in the present-day rural areas. The present-day peasants know how to respond to the market and regard their farm work as an investment to obtain the economic effectiveness. (Schultz, 1964), reflected right in their thinking: "The peasants are now very sensitive and it is impossible to orientate them. They only do it when they find it beneficial to them" (An in-depth interview, male, 57 years old, a communal cadre).

Max Weber has divided the social actions into 4 categories in order to analyze the social movement (Hung, 2008), in which there is a change in the social-job structure. In which the rational action - tool is an activity to carry out the weighing up, calculation, choice of a tool, a means or a target in such a way as to have the highest effectiveness. It can be seen in any society, traditional or modern, that man always has the "calculation and choice of a job to be suitable to their abilities and standards and to the actual conditions of society (it means taking other people into account too) so as to obtain the highest productivity, quality, effectiveness and benefits. This is a wise, reasonable choice of action and also an element making an important influence on the change of the social-job structure in the current society" (Anh, 2016). Therefore, a study of a peasant's livelihood transformation from the rational perspective (the choice, transforming a job in a pragmatic way on the basis of effective

calculation) is a basis for explaining the choice by the peasants in the villages who have chosen this job, not other jobs so as to ensure the life of their own and of their families.

In this case study, Phu Xuyen District is the South Gate of Hanoi Capital City, with an important road system connecting the capital city with the provinces in the neighbourhood of the Capital City. The district also has a planning on developing the commodity agricultural production, the traditional handicraft villages with trade names, high value and natural ecological balance of Hanoi. The advantages of Phu Xuyen District are the agricultural production and the traditional handicrafts; however, the farm work and craft villages only stop at a small scale, with spontaneous, fragmented development without any concentrated planning and its development is yet to be on a par with potential. In recent years, beside the advocacies and policies concerning agricultural development, the farmers, countryside and residents of Phu Xuyen District have expressed their dynamism and activity in transforming their mode of livelihood and job choice that both ensure the household income and contribute to building the prosperous and civilized rural areas.

2. Method

By basing on the field work survey materials in 2019-2021, the figures from the reports on the economic-social development in recent years by Phu Xuyen District (Hanoi City), the writing has started to analyze the livelihood transformation of the Phu Xuyen district residents on the horizontal side of the economic structure; it means considering the transformation of the job such as agriculture, small handicraft industry, trade and services and other economic activities.

The writing has also used the ethnological field work method, in which there are some in-depth observations and interviews. At the time when the field work was taking place, the COVID-19 pandemic was developing complicatedly with the social distancing measures being taken then, thus making the researcher's movements, contacts and meetings with the local cadres and people more difficult. In each research area, the author of the writing tried to ensure the diversity in gender, age groups and social composition of the objects under interviews, with attention being paid to the opinions of the peasants, because they were the objects deeply influenced from the advocacies and policies being implemented in the localities, particularly the process of rural renewal and rural urbanization which were happening vigorously. The author conducted interviews and discussions with about 200 subjects in Chuyen My, Phuong Duc, Nam Trieu, and Van Tu communes. The target audience is quite diverse, including: commune leaders, village officials, farmers' associations, women's unions, farmer households, business households, and traditional households. The objects of the interviews were implemented in the way of "a rolling snow ball" with a view to creating a diversity in objects and interview contents until all the suitable information was available

3. Results

3.1. The traditional livelihood of Phu Xuyen district residents

a. In the agricultural area: According to the materials on the development history of Phu Xuyen District, the communes and villages here used to be built on the slope of high mounds, in the interior side of the dike, along the Nhue River, especially for the villages that

lay in the low land areas of Phu Xuyen District, all the houses' foundations had to be filled with more earth (earth was dugged from their ponds to raise their houses' foundations) so as to be able to avoid any floods. However, during the rainy season that fell annually in July and August, these houses were unable to avoid being submerged in water. During the flood season, all the villages looked afloat like the islands and the locals had to travel on their bamboo-made boats, or as the locals call it: *“they travel by hand in six months and on foot in six months”* (Dang Van Tu & Nguyen Ta Nhi, 2011). The peasants' life here relied all the year round on the fifth-month crop (or summer paddy crop) and on catching fish in the rice fields. The field work was entirely dependent on the tide of water. If the tide rose high, it was flooded, if very low, a drought happened or as the locals called it: *“the rice plants were burnt in summer crop, got rotten in spring crop”* (Dang Van Tu & Nguyen Ta Nhi, 2011).

Cultivation: Due to the characteristics of the low-lying land, cultivation is considered as the main livelihood of Phu Xuyen district residents. In the past years, all the rice plant varieties for production were mainly two crossed rice plant varieties called Khang Dan and Q5 which were put into large-scale cultivation. Apart from two main crops, the winter plants that includes the soya-bean plants, potato plants and vegetables are also cultivated to increase the farmers' income. In 2010, the value of agricultural production was put at VND 438.14 billion, a 14.8% reduction as compared to that in 2009. It was because of the diseases in animals and poultries. The prolonged rain spell in late October 2008 had caused inundation, thus causing a total loss of the winter rice crop and a number of areas under aquaculture. The value of agricultural-aquacultural production in 2010 stood at VND 517.45 billion, an average increase of 1.63% in the 2006-2010 period, and obtained 4.17% of the whole 2000-2010 period (People's Committee of Phu Xuyen District, 2019).

Livestock breeding: In the 2000-2010 period, the indicators of development in the herds of buffalos, cows, pigs, and flocks of poultries, water fowls had been maintained and increased in number, especially the hatching of breeds in the Phu Yen and Dai Xuyen communes; every year, about 18 million to 20 million breeds are provided for the market. The proportion of livestock breeding (including aquaculture) in the value structure of agricultural production reached 44.38%. In 2010, there were 64,022 pigs, the total live weight pork was put at 11,126.70 tons. The pig farming was shifted to the modern method and the commodity production was carried out in the concentrated areas. The total flock of poultries in 2010 was numbered in assorted 829,000 and the output of poultry meat was put at 2,267 tons. The district's livestock breeding sector has been developing in the direction of supermeat, supereggs and industrial production. The value of husbandry production in 2010 was obtained at VND 429.50 billion, accounting for 30.51% in the agricultural sector's structure (Que, 2011).

Table 1. Agricultural production value in the period 2000 - 2010 of Phu Xuyen district

Type	Export (heads)	Output (tons)
Total pig herd	64,022	11,126.70
Total poultry herd	829,000	2,267

Source: (Que, 2011)

Aquaculture: Phu Xuyen is an area having the great potential of aquaculture with the total land area of 3,600 hectares under aquaculture and fishery. The total area for aquaculture in the whole district in 2010 was 1,361 hectares. The increase of the areas under aquaculture is mainly due to the transformation of the low-lying areas into aquaculture and fishery in combination with rice planting or breeding of waterfowls. A number of communes had transformed the rice growing areas in the low-lying areas (the winter crop was inundated) into the farming mode of rice growing-fish breeding, waterfowls raising, bringing about high economic efficiency. However, the transformation of land from producing mainly the rice to the rice-fish production still had a spontaneous character, so it was yet to create the production areas of concentrated character.

b. The traditional handicraft industry: In the far-off days, Phu Xuyen District was regarded as the cradle of many age-old famous craft villages, creating jobs and improving the lives of the farmers during the post-harvest leisure time. Many products of these craft villages have their brands in the market. In the Phu Xuyen district area, 156 over 156 villages and groups of residents have got involved in doing the crafts with 78 craft villages having been maintained and developed; 39 villages have been recognized as the craft villages with the criteria for the city level, in which there are 9 villages doing the inlaid mother-of-pearl, 10 villages doing the *Té* grass weaving, 10 villages doing the carpentry, and 12 villages doing the garment and shoes production (People's Council, 2021). The whole district has got 22,100 craft households, accounting for 40% of the total households of the district with around 28,500 labourers. In 2008, Phu Xuyen District became a district of Hanoi City after the capital city had expanded its administrative border line. Many craft villages in Phu Xuyen District continued to have developed, transforming gradually to the direction of clusters and areas of craft villages, to have built their trade centres and formed the commercial enterprises right at these craft villages. From these craft villages, not only the lives of the residents here have been improved, but also the fine value of human life has been maintained and conserved.

c. Commerce and services: In the old days, Phu Xuyen District used to be a place where many towns had been concentrated, to be the trade centres, “with the landing busy with boats cruising in and out”, to exchange goods and trading activities. With its advantages of having the traditional crafts, the trade-services activities of the district have developed strongly both in quantity and quality and the commodity market has become ever more abundant and diverse. In the 10-year long period, the district had repaired and renovated 13 rural markets with a cost of VND 8.880 billion. Until 2020, the district had 17 rural markets, 1 supermarket and a system of utilities shops doing the general business in the residential areas (People's Committee of Phu Xuyen District, 2019).

3.2. Livelihood transformation of Phu Xuyen District residents in the process of building new rural areas

Right from 2010, Phu Xuyen District started implementing the Program of National Targets to build new rural areas. Based on the practical situation in the locality, Phu Xuyen District decided to take two breakthrough contents in building new rural areas, including:

Firstly, building and organizing the implementation of convention on new rural areas to replace the convention of cultural villages; *secondly*, carrying out the plan on agricultural mechanization. After more than 10 years, there is a change in the job structure, bringing along with the labour and job transformation of the local residents. The Phu Xuyen district residents have got their calculation in transforming their business mode in the direction of both maintaining and developing the traditional crafts and further developing the trade and services activities and participating in various new livelihood forms. Specifically:

a. In the agricultural area: A lot of scientific and technical progress and new models had been applied such as rice production with the application of the SRI improved intensive measures, or tray rice sowing and transplanting by machines. Until 2018, the land areas under transplanting with machines of the communes reached 1,719 hectares, accounting for 10% of the areas under transplanting of the whole district; basically, areas under rice plants had been harvested by harvesters; the current number of transplanters is put at 148, there are 2 automatic tray transplanters, 35 combined harvesters; the areas under high-quality rice plants is 2,656 hectares, equalling to 30% of the total land areas; there are some pilot models for new rice varieties such as CXT30, JO2, Đai Thom 8, Bắc Hương 9 that have yielded the first good results. Some concentrated production areas with high-quality rice have been formed in Hoang Long, Tri Trung, Phuong Duc and Hong Minh communes, the special areas under vegetables and fruits (Hong Thai, Khai Thai, Minh Tan and Quang Lang communes). Productivity, output and quality of products of various plants have been improved. The production values of the horticulture in 2018 was put at VND 695.4 billion, accounting for 46.5% of the production values of the agricultural sector, a 11.8% reduction in structure as compared to that in 2010. The economic structure had transformed in the positive direction (People's Committee of Phu Xuyen District, 2019). In 2020, the proportion of agriculture will account for 15%, the construction industry will account for 69.4%, and trade and services will account for 15.6% (District P. C., 2020).

Table 2. Value of Agricultural Production, 2018

Agricultural sector	Production value (billion VND)	Industry structure ratio (%)
Cultivation	695.4	46.5
Breeding	747.2	50
Seafood	395.5	3.5

Source: (People's Committee of Phu Xuyen District, 2019)

Table3. Economic structure of Phu Xuyen district in 2020

Industry Production	Value (billion VND)	Economic structure ratio (%)
Agriculture	1,469.13 15	15
Industrial	6,831.73	69.4
Trade and service	1,539.16	15.6

Source: (District P. C., 2020)

Phu Xuyen District is one of the leading districts in Hanoi that have implemented the tray rice sowing and transplanting by machines. The district and communes and agricultural cooperatives have always paid attention to creating conditions and having a lot of mechanism and support policies to encourage and develop the model of tray rice sowing and transplanting by machines in the district areas, such as to support the funding to buy transplanters or to support more areas for transplanting by machines. In the Phu Xuyen district area there have appeared a number of typical models of tray rice sowing and transplanting by machines that have been visited and learned by the collective units and individuals inside and outside Hanoi City. Tray rice sowing and transplanting by machines have helped the peasants reduce their workforce, whereas rice seedlings have been rarely damaged by rats and insects. At the same time, it is possible to reduce the use of plant protection products, especially pesticide which is harmful to environment and biodiversity in the agricultural production areas and human health. Therefore, this measure has been unanimously supported by the peasants who are now active in production.

Livestock breeding and aquaculture have strongly shifted from the small, separate breeding mode to the form of livestock breeding farms with joint venture and linkage by applying the model of high-tech agricultural production. From the small, separate breeding mode, the Phu Xuyen district peasants have taken bold steps in shifting to the livestock breeding farms with the joint venture and linkage outsourcing breeding. At present, in the Phu Xuyen area there is a number of models that have applied high technologies to agricultural production with high economic efficiency and ensured food safety such as the model of growing asparagus in Hong Thai commune with the use of the irrigation water system, or growing in the membrane houses; the model of growing cantaloups in Minh Tan commune; a number of concentrated livestock breeding farms in Phuc Tien, Chau Can, Quang Lang, Tan Dan and Hong Thai communes where new imported breeds are used and the breeding is carried out according to the technology of close-knit breeding facilities with a temperature, humidity and lighting regulating system, with the automatic manger system ((People's Committee of Phu Xuyen District, 2019).

b. In the small-scale industries: The district continues to maintain and develop the production of traditional, small industries and import some new industries so as to step by step transform the reasonable labour structure according to the criteria of building new rural areas. Up to now, many products of the craft villages have got their own brands in the market such as Phu Yen leather shoes, Van Tu garments, Chuyen My inlaid mother-of-pearl, Tan Dan and Van Nha wooden goods or Dai Thang iron, hardwares which have been introduced and sold in the inner city of Hanoi, Ho Chi Minh City and many other localities nationwide. The rattan and grass woven products have been exported to the Western and Eastern European countries and they have been much sought after there; the annual export value increases by 15.5%. The household and craft villages economies have promoted their effectiveness, creating jobs and increasing the labourers' income, improving the people's living standards and maintaining firmly the stability in the grass-root establishments.

c. The appearance of new forms of livelihood: Large-scale trade and services are the two areas with the rapid development and average increase of 8.8% per year. The investment and business environment has been improved; the number of enterprises having registered for business is in the year-on-year increase; district has now got 595 enterprises in operation, an increase of 214 enterprises (People's Committee of Phu Xuyen District, 2019). The commodity market is diverse and abundant; the forms of services (such as telecommunications, banking, restaurants, hotels...) have seen relatively vigorous development, thus meeting the requirements and serving satisfactorily the people's life and production and business activities. Together with the repair and renovation of the rural markets, the local residents have also developed more of small business trades and expanded more supermarkets, the utilities shops system and general business in the residential areas. Initially, there has been formed a number of supermarkets and trade centres. In some craft villages, a number of households have shifted to supply the input materials to products when they have recognized the high profits brought about by the supply chain as compared to the direct production chain. As observed, in the villages of Chuyen My, Phu Tuc, Dai Thang and Tan Dan communes, the households with their houses upfronted to the road have opened their shops with adverts. Some households have acted as the clues to receive the materials to supply them to the craft-doing households. Some clue establishments have designed the products, looked for customers and then placed the orders for the households in the villages to produce them, thus ensuring the outlet of the handicrafts of the craft villages.

The impact of the Industrial Revolution 4.0 has opened up a lot of consumption channels. Nowadays, the craft villages have not only sold their products in their shops, but also sold them through the on-line trade channels, social net working sites and through the Internet. The modern peasants have known how to make full use of the advantages of information technology, meeting the requirements of contacts in work and in life. We conducted in-depth interviews with 4-5 fine art production facilities and they said that: the skilled artisans in Phu Xuyen District have also built the state-of-the-art electronic trade environment, had the on-line interactive with their customers so as to together take part in design and model of products, boosted the selling of goods on the Internet and accelerated the linkage in the production process (An in-depth interview, female, 40 years of age, owner of the production establishment). Some inlaid-mother-of-pearl, fine art wood work producing establishments such as Hoang Hiep wood work producing establishment, My Ha wooden goods, Dai Cat inlaid mother-of-pearl picture producing establishment, Bich Ngoc fine art products have built their own e-trade webpages in order to advertise their products. Some of these establishments have promoted their on-line trade through the social net working sites, or through the foundation of applying information technology.

d. The appearance of the forms of small trade and business: The conversion of agricultural land and the form of urban space have contributed to forming a number of new livelihood activities, such as lodging houses, trading in the items of household appliances, food and foodstuffs and providing other services within the villages and communes. As observed, in a number of villages there have appeared individuals and small private

organizations doing realty business and trading. The real estate trading market is not only hectic in the central areas such as Phu Minh market town or the areas adjacent to the inner city, but also these realty trading activities have become bustling in the villages of the district. Besides, a number of other services in service of urbanized life has also appeared such as services of entertainments, café, beer bars, gyms and so on. Some other spontaneous jobs of seasonal character like motorbike taxi, technological motorbike taxi, pawn service, fast food stalls, ceded café have also become popular.

4. Discussion and Conclusion

The livelihood transformation of the Phu Xuyen District residents in the process of building new rural areas has got both the positive and limited aspects.

Firstly, the livelihood transformation has made a contribution to improving the income of the farmer's household. Agricultural production has seen a lot of positive changes in productivity, quality, income value on farming unit. Fusing and exchanging the rice fields and granting the certificates of farming land use rights had been completed. Changing the plant and animal structure in the positive direction, forming the areas specialized in farming the high-quality rice plants, in growing the safe fruits and vegetables, in breeding animals, poultries and fisheries have helped increase the farmers' income. That technical progress is applied, the model of high-tech applying agricultural production and the mechanization of farm work are realized in production have helped the peasants reduce their toiling farm work, improve productivity and farming efficiency over one production hectare unit.

In the context of national modernization and building new rural areas, the peasants nationwide in general, in Phu Xuyen District in particular continue to play the central role of the economic and social development of the rural areas. In the economic integration and development of a modern agriculture, there have appeared the "groups of new peasants" in the rural society. They are the "owners of farms, the agricultural businessmen, the strata of agricultural labourers, the hired hands in agriculture or the people operating in the service areas in the rural areas. These are the children of the market, of the rural modernization and industrialization" (Thang, 2015). The tendency that the peasants produce commodities has been happening vigorously after the Renovation, until the State issued the Program on building new rural areas, the 2012 Law on Cooperatives, the 2013 Law on Land and many other policies and measures to give support to agriculture and this trend has developed more strongly.

Secondly, proactiveness and dynamism of the peasants of Phu Xuyen District have been markedly manifested, contributing to promoting their subject role in the process of building a prosperous and beautiful rural area. When the peasants are proactive in choosing jobs conforming to the new context with the help of the local authorities, their subject role in Phu Xuyen District has been raised. In a discussion with 15 people including district economic officials, representatives of farmers' associations, cooperatives and agribusinesses, most of the interviewees said that: a number of typical examples from the peasants' proactiveness in having cooperation and linkage in production such as the models of linkage of Phu Thang and Phu Hung Cooperatives with the enterprises in the area so as to serve the

people doing the tray rice sowing and transplanting by machines; the Hong Thai vegetable and fruit cooperative with Mr. Le Duc Trinh as director is the model of growing the asparagus with high technology for the first time in Phu Xuyen District; the model of growing the safe cress plants and raising the thorny turtles in Khai Thai commune; the models of growing the green asparagus in Hong Thai, of producing substrate for tray rice seedling in Dai Thang commune and so on (An in-depth interview, male, 50 years of age, a cadre of the economy section in the district). With the efforts of the local authorities and the peasants' proactiveness, the material and spiritual life of the households in Phu Xuyen District has become much better now. Average per capita income is VND 55 million per year (in 2020, it was VND 52 million per person). 100% of dilapidated houses have been eliminated; the rate of households which are able to use hygienic water now is 100% (in which 41.8% can be able to use clean water); the health stations in communes have now had doctors, thus ensuring the examinations and treatments for the local residents (People's Committee of Phu Xuyen District, 2019). Environment and rural landscape have been improved, so the cultural, art performances and sport events have developed vigorously. Through this, it can be seen that the rural peasants in the new era are considered as the ones who have now known how to renew, how to make rich from farming. They have expressed their subject role right in their choosing jobs and livelihood in a proactive and calculating manner. Especially, production mode and model of the peasants here are not merely the manual work, but they have "shifted to apply the scientific and technical achievements (mechanization, automation, high technologies), produced commodities in the direction of serving the market demands" (Chien, 2019). The new peasants have got the changes in quality from the small peasants to the market, industrialized peasants.

However, the transformation of jobs and production has caused environmental pollution in the craft villages and the plant growing and livestock breeding areas, badly impacting the peasants' health. Even though there are now a lot of modern machines and facilities, the state of dust, smoke and noise in the craft villages is still happening and there is yet to be any ways for thorough-going settlement. The impact from living waste and industrial waste is great. As observed, wastes from the craft villages have blackened the Nhue River, causing bad smell all the year round. In 2021, during a one-week field trip in Phu Xuyen district, we asked about people in craft villages, living near Nhue River, they said: "About 15 years now, sometimes I had seen the villagers fishing out floating fish and shrimps for their food, but right after that they had stomach ache, so from then on, nobody had the gut to catch fish there. Later, this black water had come in waves, thus having scarce living fish and shrimp" (An in-depth interview, male, 40 years of age, small trader). Apart from that, livelihood transformation is still one of the reasons that have increased social ills in the localities. It is clear that the process of urbanizing together with the change in the economic structure in the rural areas has made an impact on the change of jobs of the majority of peasants, from agriculture to non-agriculture. In many villages, particularly the villages having got vigorous speed of urbanization, the people's life is richer, but their life style has also changed faster with social ills happening in a more complicated manner such as gambling, drinking, smoking and injecting drugs, prostitute and social violence. Many

restaurants and karaoke shops have mushroomed with latent danger of causing social disorder and unsafety.

The livelihood transformation of the Phu Xuyen District residents has not only been directly impacted from the Program on Building New Rural Areas, but also it is necessary to place it in a linkage closely connecting it to the process of urbanization, industrialization and modernization. The process of building new rural areas with a series of policies to support in capital, techniques, machines and equipment has broken the single-rice crop system together with the form of small, separate livestock breeding and cultivation and self-sufficiency of the traditional agriculture and it has shifted to diversify the breeding and planting on a large scale with commercial and industrial character. The model of large-scale agricultural production in accordance with the mode of commodity production of the modern peasants has been developing strongly in the Phu Xuyen rural areas, thus changing fundamentally the economic status and role of the peasants, contributing to forming and setting up the new relationship networks in the countryside. The groups of new, rich and modern peasants who are the owners of agricultural production, small handicraft industry, services establishments in rural areas have appeared a lot.

According to the general planning on building the capital city of Hanoi to the year 2030, the vision to the year 2050, Phu Xuyen District is a suburban district, in the south of Hanoi City with the fundamental characteristics that it is the new urban development area with supporting industries, high-tech agriculture and services, a new growth pole at the Southgate of Hanoi City. In the future, there will be a lot of challenges for the managers so as to have policies and solutions for suitable adjustment in relation to the job and stability and development of the rural households in the context of fast urbanization of rural areas./.

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VOCATIONAL TRAINING FOR RURAL WORKFORCE IN VIETNAM NOWADAYS: A SOLUTION FOR SUSTAINABLE RURAL

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Abstract

Nowadays, Vietnam has still been a backward agricultural country, the quality of the workforce is very poor, mainly untrained workers, and labor productivity is very low. Therefore, vocational training for the rural workforce must be identified as the breakthrough so that Vietnam can keep up with the requirements of the fourth industrial revolution, to meet the requirements to build modern agriculture and sustainable rural areas. By statistical method and document analysis, the article will focus on assessing the current situation of the workforce in rural areas, and vocational training for the rural workforce in order to recommend solutions to improve the quality of vocational training for the rural workforce toward sustainable rural construction and development.

Keywords: *Vocational training, rural workforce, vocational training for rural workforce*

1. Introduction

After more than 35 years under the leadership of the Party to carry out the comprehensive renovation of the country, Vietnam's agriculture has achieved many great accomplishments. However, those results have still not been proportional with the potential and advantages of Vietnam, especially in agricultural and rural development, there are still imbalances and large disparities between regions, the agricultural economy has changed slowly. One of the main reasons for this situation is that the majority of workers in rural areas have not received vocational training and low labor productivity. Acknowledge of this, the Party and State have issued many guidelines and policies to improve vocational training for rural workforce, considering it as the task of the entire political system and of the whole society in order to conduct industrialization and modernization of agriculture and rural areas. However, vocational training for rural workforce has also revealed many limitations such as demand forecasting for vocational training, job support and product consumption which have not been good; vocational training has not been linked with the use of workforce, so many workers after completing their studies do not follow the profession they have learned; the workers themselves have not been able to identify the profession they study and the ability to apply it to practice... leading to the fact that the quality of vocational training has not been

proportional with the expectations and investment of the State. Therefore, it is necessary to have an overall assessment of the status of vocational training for rural workforce and to have solutions to improve the quality of vocational training for rural workforce.

2. Method

The data on agriculture and rural areas used in this article are secondary data officially published on the General Statistics Office of Vietnam, the Ministry of Agriculture and Rural Development, the Ministry of Labour, Invalids and Social Affairs and the data, analysis and assessment related to labor, employment, and vocational training for rural workforce have been collected through published scientific works... On the basis of diversified data available, the authors have used statistical - comparative, analytical - synthesis, deductive - inductive, logical - historical methods... to analyze, assess, and clarify the research problem.

3. Results

3.1. Theoretical basis of vocational training for rural workforce

** Vocational training*

The concept of training is understood in many different ways, training is "making a person capable to meet certain standards" (*Hoang Phe, 2002*); "is the process of equipping workers with certain professional and professional knowledge so that they can undertake a certain job" (*Mai Quoc Chanh - Tran Xuan Cau, 2008*); "Training is a purposeful, organized process of activities to acquire knowledge, skills and techniques in theory and practice, creating competency to successfully perform a social activity (necessary profession) (*Luu Thi Duyen, 2014*). Vocational training (vocational coaching) "is a teaching and learning activity to equip learners with necessary professional knowledge, skills and attitudes to be able to find a job or create a self-employment job after completing the study course" (*National Assembly, 2006*). Thus, referring to vocational training is to teach practical skills, occupations or knowledge related to a specific field, so that learners can acquire and master knowledge, skills and occupations in a systematic way, which prepares that person to be able to perform a certain job.

** Rural workforce*

Rural workforce is all the productive labor activities that create material wealth of the workers in rural areas. Rural workers are those in agriculture, rural industry, rural services... (*Duong Ngoc Thanh - Nguyen Minh Hieu, 2014*). Due to the specificity, Vietnamese rural workforce has some characteristics such as being highly seasonal; rural workforce is abundant and diverse in age; poor qualification, very low industrial style; production is mainly based on experience and health; simple labor organization; rudimentary labor tools...

** Vocational training for rural workforce*

Vocational training for rural workforce is a purposeful and organized activity to teach knowledge, skills and techniques of a certain occupation to workers in rural areas, thereby creating competency for those workers to be able to successfully perform the trained job. Thus, "Vocational training for rural workforce is the combination of vocational training and

vocational learning, which is the process by which lecturers teach theoretical and practical knowledge so that rural workers will have a certain qualifications, skills, techniques, ingenuity, professional proficiency to meet the requirements of rural socio-economic development” (Nguyen Van Dai, 2012). The above concepts have stated very clearly about the operation method and the products created from vocational training activities for rural workers in terms of technical aspects, but have not mentioned the products in terms of the effectiveness of the vocational training activities for rural workforce. Therefore, the concept of vocational training for rural workforce should be understood as follows: Vocational training for rural workforce is a teaching and learning activity to equip rural workers with necessary professional knowledge, skills and attitudes for rural workers so that learners after graduation can practice (find a job or create their own jobs) in order to help rural workers improve their incomes and improve their quality of life in line with society development (Dinh Trung Thanh et al, 2021).

** Project "Vocational training for rural workforce until 2020"*

On November 27, 2009, the Prime Minister issued the Decision No. 1956/QDTTg, approving the Project "Vocational training for rural workforce until 2020". The objective of vocational training is to serve human resources for new rural construction and at the same time to serve human resources for restructuring agricultural production. Financial resources for vocational training in general and vocational training for rural workforce in particular in Vietnam include the sources from the state budget and non-state budget. State budget sources include 3 contents: regular funding, capital construction investment funding and national target program capital funding. Financial sources outside the state budget include: Tuition fees, enrollment fees, revenues from services, production and business activities, technology transfer consultancy, investment capital, sponsorship from organizations and individuals domestic and abroad.

3.2. Current status of rural workforce in Vietnam

Nowadays, Vietnam is still a country with an outdated economic structure, the quality of human resources is still very low, knowledge is still not the main driving force contributing to economic growth and labor productivity... Especially in rural areas, production and business farmers are still mainly based on experience, unskilled labor is common, so efficiency and productivity in agriculture are still much lower than many countries in the region and the world. According to statistics, by 2020, the workforce of the whole country will be 54.84 million people, a decrease of 924 thousand people compared to the previous year (equivalent to a decrease of 1.66% compared to 2019). The workforce consists of 53.6 million employed people and more than 1.2 million unemployed. Women (47.4%) account for a lower proportion than men (52.6%). Although there has been an increase in the proportion of the workforce in urban areas in recent years, up to now, still 66.9% of the workforce in our country is concentrated in rural areas (General Statistics Office, 2021).

Trained workers in Vietnam can be generalized in the following points:

Firstly, the proportion of trained workers in the total number of workers is very small. By 2020, Vietnam has about 13.2 million trained people, accounting for about 24.0% of the total workforce. Currently, there are more than 41.6 million people in the country (accounting for about 76.0% of the workforce) who have not been trained to reach a certain level of professional and technical expertise. Thus, our country's human resources are young and abundant, but the skill level and technical expertise are still too low (*General Statistics Office, 2021*).

Secondly, the proportion of trained workers also has large difference between economic regions, the region with the highest percentage of trained workers is the Red River Delta and the region with the lowest percentage of trained workers is the Mekong Delta (Table 1).

Table 1. Percentage of workers from 15 years and over who are working in the economy have been trained by economic region

Region	Year 2010	Year 2015	Year 2017	Year 2020
Nationwide	14.6	19.9	21.4	24.0
Red river delta	20.7	27.5	25.2	32.6
Northern Midlands and Mountains	13.3	17.0	17.1	20.5
North Central and Central Coast	12.7	19.4	20.6	22.7
Highlands	10.4	13.3	14.3	16.9
South East	19.5	25.3	21.1	29.5
Mekong Delta	7.9	11.4	12.1	14.9

Sources: (General Statistics Office, 2018) and (General Statistics Office, 2021)

From Table 1, it can be seen that the increase in the proportion of trained workers in Vietnam's economy has been very slow, from 14.6% in 2010 to 24.0% in 2020. The Red River Delta is the region with trained workers account for the highest proportion of 32.6% in the country, while the Mekong River Delta has the lowest percentage of trained workers at 14.9%, and the Highlands also has only the lowest percentage of trained workers which is 16.9%. Thus, it can be easily seen that the two key areas of agricultural production in our country have the lowest trained workers. This may be the main reason leading to the shortcomings and limitations in agricultural development in Vietnam in recent years.

Thirdly, the structure of professional and technical qualifications of trained workers in Vietnam also has many shortcomings, specifically, skilled workers only account for 5.3%, intermediate professional level is 3.7%, college degree is 2.7% and university degree or higher accounts for 9.3% (*General Statistics Office, 2018*). By 2020, the elementary level will only accounts for 4.7%, intermediate level accounts for 4.4%, college accounts for 3.8%, university or higher accounts for 11.1%. Thus, in general, trained workers in Vietnam are not only small in number at all levels, but also has an inadequacy in the structure of trained professional and technical qualifications, Primary and intermediate vocational training is still very small, which proves that the phenomenon of "excess teachers, shortage of workers" due to the mentality of "degree preferential" in the Vietnamese population which still persists.

Fourthly, there is still a big gap between urban and rural areas, between men and women... Although the general trend of trained workers has increased over the years, however, the increase in trained workers' faster growth mainly occurs in urban areas, while in rural areas the increase is very slow... (Table 2).

Table 2. Proportion of trained workers by gender and by urban and rural areas

Year	Total	By gender		By urban and rural areas	
		Men	Women	Urban	Rural
2005	12.5	14.3	10.6	27.2	7.6
2010	14.6	16.2	12.8	30.6	8.5
2015	19.9	22.4	17.3	36.3	12.6
2017	21.4	24.0	18.7	37.9	13.7
2020	24.0	26.9	20.9	39.7	16.3

Sources: General Statistics Office, 2018 and General Statistics Office, 2021

From the data in Table 2, it can be seen that the proportion of trained workers by gender is still different between men and women. In general, the percentage of trained female workers is always lower than that of male workers. This shows that cultural barriers for women in the education and training process still exist. However, the difference is not large, which shows that the supportive policies of the State and other institutions have come into effect, contributing to building a fair and equal society.

However, the ratio of trained workers between rural and urban areas, although has been shortened in recent years, still has a large difference, specifically, in 2005 the proportion of trained workers in urban areas is 27.2%, in rural areas is only 7.6%, in 2010 the proportion is 30.6% and 8.5% respectively and by 2020 the corresponding rate will be 39.7% and 16.3%. In particular, there is also a large difference in professional and technical qualifications between trained workers in rural and urban areas, specifically in urban areas: primary level is 6.1%, the intermediate level is 5.9%, college-level is 5.6%, university or higher is 22.1%, the corresponding rate in rural areas is 4.0%, 3.7%, 2.9% and 5.7% (*General Statistics Office, 2021*). Study of trained rural workers, we find that there are major gaps, specifically trained workers aged 15 years now working in the fields of agriculture, forestry and fisheries only account for a very small proportion, only 2.4% in 2010, 4.2% in 2015, 4.1% in 2016 and 4.2% in 2017 (*General Statistics Office, 2018*). By 2020, untrained agricultural, forestry and fishery workers will be 12.57 million people, accounting for 89.97% of the total number of agricultural, forestry, and fishery workers in working age (*General Statistics Office, 2021*).

Thus, although in Vietnam over the last few years, the number of trained workers has increased, but so far only 13.7% of rural workers have been trained. Especially in which only 4.2% (in 2017) and more than 10.0% (in 2020) of employees in the fields of agriculture, forestry and fishery have been trained, this is really a great challenge for Vietnam in the

process of international integration, major barriers in building a comprehensive agriculture and modern rural areas. In order to strongly transform the rural economic structure, improve the productivity and quality of agricultural products, build a sustainable agriculture, and develop comprehensively and sustainably, many measures must be taken, especially increase in the proportion of trained workers in rural areas, especially those in the fields of agriculture, forestry and fishery is the most important. To do so, we must continue to promote and improve the quality of vocational training for rural workers.

The reasons leading to low quality of rural workforce are: Firstly, the awareness of rural workers about improving their qualifications and skills is still low. Secondly, the ability to access information, especially information on science and technology of rural workers is still limited. Thirdly, vocational training has not yet closely followed the structure of rural workforce and has not been associated with the practical needs of localities and businesses. Fourthly, the vocational training system in rural areas has not been developed, and the qualifications of the vocational training teachers are still low...

3.4. Vocational training for rural workforce in Vietnam today

According to statistics, in the period from 2010 to 2015 in Vietnam, nearly 3.2 million rural workers received vocational training, reaching 70.8% (the target of the Project 1956 set out in this period was to train for 4.5 million people). In which, more than 2.1 million rural workers were supported for vocational learning under the Project's policies, reaching 90.4% of the plan. The number of female rural workers receiving training support reached more than 994 thousand people, accounting for 45.8% of the total number of people receiving vocational training support (*Ministry of Labor, 2016*).

In the period 2016 to 2019 in Vietnam, 4.9 million rural workers received vocational training, reaching 89% of the period plan. In which, the number of rural workers who were supported with primary-level vocational training, training for less than 3 months was 2.85 million people (of whom there were 850,000 agricultural learners and about 2 million non-agricultural learners); 450,000 ethnic minority people, 200,000 people from poor households, 60,000 people with disabilities, the remaining were other subjects. The proportion of rural workers having jobs after vocational training in the period 2016 - 2019 reached over 81%. There were more than 134,000 poor households who have participated in vocational training and have escaped from poverty, over 165,000 households who have participated in vocational training, had jobs and had incomes higher than the local average. Vocational training for rural workers in our country has been more focused on quality than quantity. The proportion of agricultural and non-agricultural vocational training has also changed with 70% of workers having learned non-agricultural occupation, and only 30% having learned agricultural occupation. In the 2020 plan, the whole country will conduct vocational training at primary level and other vocational training levels for 1.68 million people, in which training will be provided at primary level and under 3 months of training for about 1 million rural workers. The proportion of workers having jobs after training is over 80% (*Dinh Trung Thanh et al, 2021*).

The achievements of vocational training for rural workers bring many values, the number of trained rural workers increases, making an important contribution to the implementation of the criteria for building new rural and restructuring the agricultural industry towards modernization. Survey results on the benefits of vocational training for rural workers have shown that, 92.80% of the families who have been asked said that, thanks to vocational training, adults in the family have new jobs or skills to enter new jobs. Family income has increased, thereby improving living standards; 69.20% of the respondents said that they have new jobs in their localities, especially those in the service or non-agricultural sectors. Many households have organized the production of goods under contracts with enterprises, creating new value chains. Some households have cooperated with each other to create new production models; 93.70% of households have learned more professions, learned new techniques and new technologies, so they have enough money to buy motorbikes, refrigerators, computers, and repair or expand houses. Some families, thanks to learning techniques and technology, have changed professions such as from small business to computer repair, from farming to producing slicers and peelers. (*Pham Tat Dong, 2022*).

However, in recent years, vocational training for rural workers in Vietnam has also revealed some major shortcomings such as low quality of vocational training; the effectiveness of vocational training for rural workers is not uniform across regions of the country; the determination of the list of training occupations for rural workers, especially the list of agricultural occupations in some localities, is still scattered, not derived from agricultural production planning, new rural development planning; the initial investment in facilities and equipment for vocational training are still scattered and lacking in synchronicity; in many localities, the work of consulting on vocational training, profession choosing, surveying vocational training needs has not really come from the needs of learners but mainly by the movement; vocational training has not been linked with employment, so many workers after completing their studies do not follow the profession they have learned... (*Dinh Trung Thanh et al, 2021*). Thus, one of the solutions that must be taken to develop sustainable agriculture is to improve vocational training for rural workers so that farmers can master modern agriculture or occupation transfer responding to the trend of industrialization and modernization of agriculture and rural areas.

4. Discussion and Conclusion

4.1. Some solutions to improve the quality of vocational training for the rural workforce

To promote the achieved accomplishments, overcome shortcomings, limitations and promote vocational training for the rural workforce to meet the requirements of industrialization and modernization of the country, building comprehensive agriculture, it is necessary to implement some of the following solutions:

Firstly, the Party and State must identify vocational training for the rural workforce as one of the breakthrough solutions to accelerate the process of restructuring the agricultural industry and building new rural areas. Vocational training for the rural workforce is one of the breakthrough solutions to accelerate the process of agricultural restructuring and building new rural. To do so, it is necessary to strengthen communication

work, helping rural workers to timely grasp information about vocational training, and have the opportunity to choose and learn occupations that are suitable to their conditions, capacity, and development trend of high-tech agriculture. On the one hand, it is necessary to socialize vocational training and vocational training schools for rural workers; give priority to vocational training for farmers whose agricultural land has been acquired, shrunk, and converted. On the other hand, the State also needs to do a good job of managing and unifying the focal points of vocational training in the localities, avoiding overlap, waste, and loss.

Secondly, developing vocational training networks in rural areas. Establishing vocational training institutions, investment from infrastructure to material foundations, teaching and learning equipment. Expanding the training scale as well as developing the number of students, diversifying vocational training institutions with more professions, especially the market has demand. Establishing more vocational training schools in rural areas, especially in key areas of agricultural production. Upgrading vocational schools regularly, especially to ensure training quality, have practice rooms for students, to connect with production facilities for students to practice at the workshops and at the same time having contracts to supply workers after vocational training for factories to both create jobs for workers and attract workers to attend vocational training. Building some mobile vocational training institutions to meet the vocational training needs of workers in remote, mountainous areas, ensuring fairness, and equality and creating opportunities for everyone who wishes to participate in vocational training. It is necessary to encourage all economic sectors to invest in the vocational training system, especially the private sector. In the future, it is necessary to further encourage vocational training centers in rural areas to develop the number of technical workers and reduce the number of untrained workers. In addition to the economic sector, the State also encourages other sectors such as economic sectors with foreign investment capital... to participate in support.

Thirdly, improving the competency of vocational training and nurturing in rural areas. Vocational training centers and continuing education centers of the provinces in the region need to diversify types of training and nurturing for rural workers. The development of orientation and vocational training must be associated with the socio-economic development strategy, with the development needs of socio-economic industries of each locality, focusing on the development of projects and types of diverse vocational training, etc. especially, jobs have been created after they are trained. In order to improve the quality of vocational training for rural workforce, it is necessary to quickly improve the qualifications of vocational teachers, agricultural and technical officials, etc. Vocational training for rural workforce can only achieve actual efficiency when there is a close combination between vocational training centers, universities, colleges, research institutes, production facilities, enterprises and efforts of rural workers.

Fourthly, businesses and production units need to actively coordinate with vocational training institutions and provide vocational training to attract rural workers to participate in locally training. Local vocational training and job centers need to build the model of signing training contracts such as promoting forms of vocational training under

contracts with enterprises inside and outside the locality; signing contracts with enterprises for rural workers to transfer occupations from agriculture to non-agricultural industries...

Fifthly, learners need to actively search for information to choose profession which is suitable with the trends and requirements of the fourth industrial revolution. Learners need to be proactive and self-disciplined in the learning process to improve their qualifications, capacity, professional skills, foreign languages, and practice industrial style to actively adapt to the requirements of modern agriculture. High schools need to do well in orientation activities for students. Currently, many students and parents still have misconceptions about occupations, especially occupations associated with agriculture and rural areas. Vocational training programs in high schools at all levels in rural areas, agriculture need to help students direct more towards occupations that will develop in the rural areas while still ensuring excitement such as if they love animals, they can choose livestock farming on farms, if they like driving, they can learn to drive trucks at businesses in the field of agricultural production, serving agricultural tourism (Pham Tat Dong, 2022).

Sixthly, improve living standards in rural areas. With the principle of social existence, material life determines social consciousness and spiritual life, so in order to improve the quality of training for rural workforce, help this force feel secure to study and practice, stick with the training profession, they must have supportive policies to improve the immediate economic life for them and their families. When the life of rural people is improved, they will have conditions to pay attention to improving their qualifications and technical expertise.

4.2. Conclusion

Sustainable rural development, building modern agriculture in association with vocational training for rural workforce is considered the key to transforming rural economic structure, contributing to the successful implementation of industrialization, modernization of agriculture and rural areas. In fact, trained workers in rural areas of Vietnam is still too low, so vocational training, especially job creation for workers after vocational training in rural areas is still a difficult issue. The majority of rural workers, after receiving vocational training, still have difficulty in finding jobs, self-employment or have jobs but have low and unsustainable incomes. In addition, a large number of rural workers have been trained but have not met the needs of the labor market properly, leading to underemployment or even unemployment. Therefore, in order to perform well in vocational training for rural workforce to build sustainable agriculture, it needs coordination from many sides: the State, local vocational training institutions, especially universities, colleges and enterprises must promote their leading role in innovating program content and improving training quality to meet the needs of the labor market.

Based on the research results, in our opinion, (1) In order to build modern agriculture and sustainable rural development, many solutions must be comprehensively implemented in terms of economy, politics, society and culture; (2) vocational training for rural workforce is considered the most important solution to promote modern and sustainable agriculture and rural development; (3) it is necessary to solve the problem of training and using rural

workforce to avoid wasting time, effort and money of the State and the People; (4) there should be coordination of many subjects in the process of vocational training for rural workforce; (5) thoroughly solving the problem of sustainable output for agricultural products so that farmers can guarantee production.

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DEVELOPMENT OF CIRCULAR AGRICULTURE IN THE MEKONG DELTA: OPPORTUNITIES AND CHALLENGES

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Abstract

The Mekong Delta faces climate change, depletion of natural resources, environmental pollution, etc. These challenges have been, are, and will be serious threats to the sustainable development of the socio and economical of the Region, especially for agricultural production activities. Circular agriculture is an urgent trend to solve these problems, contributing to the prosperity and sustainable development of Vietnam's agriculture in general and agricultural production in the Mekong Delta. Building and developing circular agriculture will contribute to the rational use of natural resources, protect the environment, change the production-consumption structure, bring about high economic efficiency and ensure livelihoods for farmers in the Region. The article summarizes some expected benefits of circular agriculture and analyzes the shortcomings when developing this agricultural economic model in the Mekong Delta in recent years. From there, propose solutions to promote the development of circular agriculture in the Mekong Delta, contributing to the Region's green growth and development strategy.

Keywords: *Circular agriculture, Mekong Delta, Mekong Delta: opportunities and challenges.*

1. Introduction

Over the past 30 years, agricultural farming systems in the Mekong Delta have shifted towards high quality, safe and organic production. Accordingly, farmers gradually change their habits from using more fertilizers and pesticides to more sustainable production and better adapting to climate change. Some ways to highlight such as "3 decreases three increase", "1 must five decrease", and "1 must six decreases". In economic irrigation techniques, VietGAP and GlobalGAP standards also apply more and more. Plant structure is also adjusted to avoid drought - salinity intrusion. However, agricultural production in the Mekong Delta generally still focuses on productivity and output. However, it has not paid attention to taking advantage of wastes from the production process, causing destruction of resources (redundancy fertilizers, pesticides, feed, loss, waste in harvesting, post-harvest, and consumption) and environmental pollution. In a report by the Department of Natural Resources and Environment of Tra Vinh province, each year, pangasius farms in the Mekong Delta emit more than 10 billion cubic meters of wastewater containing about 51,336 tons of

nitrogen and 16,070 tons of phosphate- untreated phosphorus; Intensive shrimp production has generated about 4.4 billion cubic meters of wastewater, including 25,344 tons of nitrogen and 6,336 tons of phosphorus (Tra Vinh Department of Natural Resources and Environment, April 2021). More worrying is the increasing use of pyrethroids, organophosphates, and organochlorine pesticides in the Mekong Delta. Some of the banned pesticides still in use include Methyl parathion and Methamidophos (organophosphate compounds) of WHO categories Ia and Ib (extreme and hazardous), respectively, and Endosulfan (chlorinated organic compounds) class II (moderately dangerous) (Nguyen, Hang T. (VietinBankSC), March 2021).

Faced with this situation, the development of circular agriculture is considered an essential foundation to ensure prosperity and sustainable development for Vietnam's agriculture in general and the Mekong Delta's agricultural sector in particular. Circular agriculture creates many economic and welfare values, solves resource scarcity, protects the environment, and contributes to climate change response, ensuring sustainable livelihoods for people in the Mekong Delta.

2. Method

The article is based on the methodology of Marxism-Leninism and thoroughly grasps the views and policies of the Party and the laws of the State. The article also used secondary data from various published reports from the World Bank, Food and Agriculture Organization of the United Nations (FAO), The United Nations Industrial Development Organization (UNIDO), General Statistics Office of Vietnam, and Experts' opinions were published in leading newspapers of Vietnam and the world, published articles in reputable journals. Then, the author's opinion is given based on analysis from scientific documents to legal documents, documents of the Politburo of Vietnam combined with an analysis of the actual situation to clearly explain the challenges and prospects of developing circular agriculture in the Mekong Delta in the new context.

3. Results

3.1. The concept of circular economy and circular economy in agriculture

According to the Food and Agriculture Organization of the United Nations (FAO) and the World Bank, in the agricultural sector in the last five years, Vietnam has always been a deficit country in terms of inorganic fertilizers and pesticides deep, with an estimated cost of billions of dollars (World Bank Regional Agricultural Pollution Study Group, 2017, pp.26-27). Also, according to a World Bank report, in 2013, it was estimated that air pollution alone caused Vietnam to lose 5.18% of GDP, and water pollution will expect to cost Vietnam up to 3.5% of GDP (World Bank, 2019). That is not to mention soil pollution and land degradation. Furthermore, the impact of climate change, especially the Covid-19 pandemic, which is still complicated globally, has been seriously affecting agricultural production - one of the critical sectors in the socio-economic development of Vietnam.

Faced with the above problems, many countries worldwide, including Vietnam, the transitioned from a linear economy to a circular economy. This sustainable development trend has always been of interest to the international community over the past decades.

Research by Stahel and Ready (1976) has shown that: "a circular economy is an economy with a completely closed product cycle, prioritizing reuse, repair and remanufacturing of goods. The production of new goods will positively impact job creation, economic competition, saving of natural resources, and protection of the environment. The United Nations Industrial Development Organization (UNIDO) considers the circular economy "a way to create value and towards the ultimate goal of prosperity; it works by extending the product lifecycle, transferring the waste from the end of the supply chain back to the beginning... thereby, using resources more efficiently by using them again and again" (UNIDO), 2017). In Vietnam, "*circular economy is an economic model in which design, production, consumption, and service activities reduce the exploitation of raw materials and materials, prolong the product life cycle, and limit the quality of products emissions and minimize adverse impacts on the environment*" (National Assembly, 2020). With these approaches, the circular economy is the opposite concept of the linear economy, which is considered an appropriate development model for realizing the goals of sustainable development (SDGs) and adaptation to deal with climate change. The circular economy is associated with and supports the implementation of 10 out of 17 common sustainable development goals: SDG2, SDG6, SDG7, SDG8, SDG 9, SDG 12, SDG 13, SDG 14, SDG 15, and SDG 17. In particular, targets directly related to the agricultural sector are SDG2 - Hunger eradication; SDG12 - Responsible consumption and production; and SDG15 - Sustainable land use (Nguyen The Chinh & Nguyen Hoang Nam, October 2021).

In agriculture, the circular economy is the process of agricultural production following a closed cycle through scientific and technical advances, biotechnology, and physicochemical technology. Then the wastes and by-products of this process are the input of other production processes. As a result, agricultural production will exploit and use resources economically and efficiently, minimizing waste and loss of harvest, creating safe and high-quality products, and significantly minimizing and eliminating waste causing environmental pollution, protecting the ecosystem and human health (Nguyen Thi Mien, 2021). At the same time, it contributes to raising people's awareness about the reuse of by-products and waste products in production and environmental protection. Thus, when operating and developing a circular economy in agriculture (also known as circular agriculture), it will ensure three sustainable development goals, which are: (1) Responding to the depletion of natural resources input and production materials; (2) Overcoming environmental pollution in the output development; and (3) Harmoniously combine economic growth, social development with environmental protection.

3.2. Benefits of operating and developing circular agriculture in the Mekong Delta

The disadvantages that appear when traditional agricultural production is applied too long with minor or inefficient agricultural manipulations; include a change in the area of land used, an increase in the number of inorganic fertilizers; an increase in the number of chemical pesticides (insecticides and weeds); increase CO₂ emissions and increase fossil fuel use. Meanwhile, circular agriculture aims to connect farming and production activities in a predetermined way so that the combination best matches, forming cyclic circles in production activities. As a result, agricultural production minimizes emissions to the

environment towards zero emissions (Nguyen The Chinh & Nguyen Hoang Nam, 10/2021). Therefore, operating the circular economy in agriculture will solve the problem of coping with the depletion of input resources and environmental pollution in the output development. Specifically, the main benefits that the circular economy brings to agricultural production in the Mekong Delta are:

About ecology. Circular agriculture helps restore and increase soil fertility through increased use of natural and sustainable nutrients (organic fertilizer products recycled from agricultural by-products and agricultural waste); diversifies crop rotation by combining crops and livestock under a closed system. From there, reduce chemical pesticides and herbicides by using integrated pest control. In the report Agriculture Pollution Overview in Vietnam: Crop Industry, in the Mekong Delta, farmers overuse fertilizers and chemicals in crop production at 360-160-120 (kg NPK/ha)); this rate is relatively high compared to the Red River Delta at 100-60-90K (kg NPK/ha); On average, pesticides were to applied 5.3 times/crop. An estimated 1,790 tons of molluscicides, 210 tons of herbicides, 1,224 tons of pesticides, and 4,245 tons of fungicides are wasted each year from unnecessary use in rice production in the Mekong Delta (Research Team World Bank Regional Agricultural Pollution Study, 2017, p.26). Excessive fertilization or continued use of pesticides over the allowable threshold causes many harmful impacts on the ecological environment. It increases the cost of agricultural production and has high environmental costs.

About environment. Circular agriculture has the potential to regenerate investment in the atmosphere by restoring and maintaining soil fertility; reducing soil erosion and chemical pollution in agriculture; increase the efficiency of water use by utilizing the wastewater output of one acts as an input source for another after being treated, or by applying optimal closed irrigation and cover crop cultivation techniques; reduce forest degradation; without loss of biodiversity and other impacts on land use. Furthermore, with a closed production cycle, making full use of the by-products/waste of this stage as input materials for different locations, reducing almost 0% of harmful waste to the environment. More importantly, it is possible to minimize greenhouse gas emissions or switch from a source of greenhouse gas emissions to a neutral place, even absorbing emissions when forest degradation is reduced to 35% freshwater instead of 55% (Khuat Dang Long, 2016). It is of urgent value in the face of saline intrusion in the Mekong Delta.

Economic. Developing circular agriculture helps rationally use resources/input materials and minimize or no longer have costs in using chemical fertilizers and pesticides. In the Mekong Delta, it is estimated that about 140,000 tons of N-82,000 tons of P-66,000 tons of K are wasted in rice cultivation every year, equating to \$150 million wasted every year. When agricultural production follows the circular economy model, farming by-products and wastes are utilized for recycling into useful products to serve the industry or as raw materials for other industries. Other ancillary businesses, thereby generating additional income for producers. For example, shrimp shells and heads in aquaculture areas produce Chitosan (a substance that helps prolong the preservation time of vegetables and meat; additives used in the processing of some beverages), SSE with the potential to collect 4-5 billion USD/year. Furthermore, rice straw by-products in rice cultivation are used to grow

mushrooms, corresponding to the amount of straw from 01 ha of rice cultivation, 250-300 kg of fresh mushrooms are obtained, with the selling price of 01 kg of fresh mushrooms from 25,000 VND-27,000 VND estimated at 01 hectares of rice farmers can earn from 6-8 million dong. Alternatively, produce microbial fertilizer in livestock (using all agricultural by-products combined with probiotics as a biological buffer for livestock, which is then used to produce organic fertilizer) with about 100 tons of microbial organic fertilizer, worth 300 - 500 million VND (Nguyen Thi Mien, 2021).

3.3. Actual situation of operation and development of circular agriculture in the Mekong Delta region

3.3.1. About the operation and development of circular agriculture

Although "circular economy in agriculture" or "circular agriculture" is still relatively new in Vietnam, the manifestations of this economic model have been established since the 1980s through different production models, such as Garden - Pond - Barn (VAC); Garden - Pond - Stable - Biogas (VACB); Garden - Pond - Stables - Forest (VACR) in the mountainous provinces or Garden - Pond - Lake (VAH) in the central areas. Among the above models, the VACB model is evaluated as a solution that brings economic efficiencies and helps overcome irrational waste management, rational use of agricultural by-products, and returns soil fertility. The safe handling of animal waste, generating renewable energy to create a fuel source for daily life, combating environmental pollution, reducing emissions, and reducing the greenhouse effect causing climate change. In general, the VAC/VACB model in the Mekong Delta was initially small, with a small household size to contribute to food security, hunger eradication, and poverty alleviation. Currently, these models have developed in both quantity and scale with improved forms flexibly in many households, farms, cooperatives, businesses, and significant economic groups. For example, the 2013-2019 Low Carbon Agriculture Support Project of the Ministry of Agriculture and Rural Development, with the support of the Asian Development Bank. The project is deployed in 10 provinces, including Tien Giang, Ben Tre, and Soc Trang (Quoc Anh, 11/2020). Recently, in agricultural production in the Mekong Delta, many new production models under the circular economy have appeared, typically:

** Models of "fragrant rice - clean shrimp" and "fish - river - pond."* In this modified model, the waste after shrimp and fish farming is a source of fertilizer to produce fragrant rice. At the same time, it combines the use of green mushrooms to control pests in organic aromatic rice cultivation. Furthermore, when shrimp and fish farming areas are linked to processing plants, waste and by-products from shrimp and fish are utilized to increase the production value chain, minimizing adverse impacts on the environment and residential communities. Currently, Dong Thap province has Vinafood and Vinh Hoan Joint Stock Company, which focuses on extracting valuable nutrients such as Chitosan, Peptide, Omega-3 in shrimp heads, shrimp shells, fish heads, bones, fish fat investigated into commercial products of high economic value (Nguyen Hong Quan, Nguyen Minh Tu, Dang Kim Khoi, Thach Phuoc Hung & Nguyen Kieu Lan Phuong, January 2022).

* *The model of "growing rice - growing mushrooms - producing organic fertilizers - growing fruit trees."* The feature of this model is to make use of raw materials from rice straw by-products in rice cultivation to grow mushrooms, straw residues after harvesting mushrooms are used to fertilize crops (fruit trees, vegetables). On fruit trees, significant by-products such as overhanging branches, weak branches, and plant residues are used by people as organic fertilizer to re-fertilize the tree (commonly applied on dragon fruit trees) not only to save money. Buying fertilizers also help manage pests and diseases and protect the environment. One of the units that successfully implemented this model was Co May Company of Dong Thap province when it introduced a new product, mushrooms. Organic straw is grown in a closed house without using any chemicals. The value of straw is also enhanced when straw mushrooms are processed into nutritious powder, vegetarian fish sauce, dried mushrooms, and fresh mushrooms (Phan The Cong & Nguyen Ngoc Quynh, 2021).

* *Model "production of organic fertilizer from agricultural waste"*. The model is operated on the principle of using by-products from cultivation (straw, corn, beans), domestic waste, livestock waste (pig manure, chicken manure, bird droppings, quail, cow dung) through the composting process (addition of manure, phosphorus) decomposes as organic fertilizer to care for and improve degraded soil, lack of nutrients, return soil fertility, and cultivate vegetables organic and safe vegetables. In addition, manure from livestock is also used to raise earthworms, harvested as food for chickens, ducks, and fish. As a result, agricultural waste can be reused as fertilizer stably while taking advantage of available raw materials to meet clean production requirements and reduce emissions and greenhouse gas emissions.

Although there are many potentials, experience (from developing VAC models or recycling craft villages), and achieving remarkable results through initiatives to apply circular economy in agricultural production, circular agriculture in the Mekong Delta is considered in the early stages, facing challenges and many difficulties in operation and development. This is demonstrated through the following issues:

Firstly, awareness of circular agriculture development. In the Mekong Delta, several agricultural production models in the direction of circular agriculture have appeared since the early 2000s. Nevertheless, issues related to circular agriculture have not been fully addressed comprehensively. Therefore, the role, benefits, nature, content, and criteria for evaluating the achievement of circular agriculture are still unclear or even nonexistent. Leading to the perception of state management agencies, agricultural production subjects of this model is still vague and incomplete.

Secondly, disseminating and providing relevant information about circular agriculture to agricultural producers has not had extensive effects. The organization has not been synchronized, and there has been no close coordination from the government-related parties. Many farmer households still do not understand/do not know the principles and requirements in circular agricultural production. This is one reason for the limited awareness of circular agriculture among most Vietnamese agricultural producers, especially farmers in the Mekong Delta. Besides, consumers and consumer behavior significantly impact the entire production

process in agricultural production. Therefore, the consciousness and behavior of consumers play a decisive role in the sustainable development of the Industry. However, because green consumption and green agriculture are still relatively new, it is challenging to change production and consumption habits immediately. Some consumers are still not aware of the negative impact of their consumption behavior on the environment, so they still have reckless consumption behaviors that seriously affect the sustainable development of agriculture—for example, using plastic bags and disposable plastic products instead of switching to using materials and products that can be completely recycled and reused.

Third, agricultural production also abuses inorganic fertilizers and pesticides in cultivation. The increase in the production of farm products, especially in farming activities, leads to the excessive use of chemical fertilizers, pesticides, and other plant protection chemicals. According to the World Bank's Regional Agricultural Pollution Research Group (2017), rice production has consumed about 1.5 million tons of N-1.6 million tons of P; The recommended fertilizer rate for maize cultivation is around 50–100 kg N, while in the Mekong Delta farmers typically apply 180-146-77 (N-P-K) kg/ha. Of the pesticides used, almost 20% are classified by WHO as highly hazardous, with an estimated 69,238 kg and 43,574 liters of pesticides and 69,640 kilograms of chemical sachets released into the surrounding environment without proper handling (p.26-27).

Fourth, the capacity to recycle and reuse by-products and agricultural wastes is limited. The Mekong Delta region still lacks capable enterprises in recycling and reusing used products and materials. Most agricultural enterprises in the area are small and medium-sized, and capital constraints make it more challenging to invest in technological innovation. On the other hand, the collection, sub-classification, agricultural waste, and investment in recycling technology have not been paid attention to because of the small and odd production scale. In addition, many localities have not paid attention to waste management or technical training and guidance for production facilities. Therefore, only about 10% of crop by-products are used as local fuel, 5% as industrial fuel, and 3% as animal feed; more than 80% have not been used and are discharged directly into the environment or burned, causing environmental pollution (Phan The Cong & Nguyen Ngoc Quynh, 2021).

Fifth, evaluate, monitor, and control pesticides and fertilizers; monitor food hygiene and safety standards. This is one of the weak points of Vietnam's agricultural production. The management quality of the entire value chain is divided into three segments: agricultural inputs, agricultural products, and product distribution to the market. There are too many specialized agencies to assess and monitor each piece, but coordination and cooperation among these agencies are minimal. This, in turn, leads to the lack of a traceability system for environmentally friendly agricultural/circulating practices such as VietGAP and other voluntary standards. As a result, it limits the capacity of the authorities to monitor the number of agrochemicals used and the quality of food. At the same time, the treatment and announcement of items that pollute the environment and increase harmful emissions in agricultural practices have not been implemented synchronously and effectively (Nguyen Do Anh Tuan and Dang Kim Khoi, 2014).

Sixth, supporting capital, science and technology, and highly qualified human resources. Recently, the Government has focused on boosting capital for agricultural development investment in the Mekong Delta. However, there is still a lack of clear legal regulations (or just a list of priorities) on credit capital for investment in technology and equipment when operating circular agriculture (currently, the money is still short of more than 20% of the demand) (Nguyen Thi Tuyet Nga, 2021). In addition, many critical fields of science and technology for agricultural development (biotechnology, information technology, post-harvest technology, processing technology, and deep processing); and scientific areas of the digital era (IoT, Bigdata, AI, Blockchain, Robotics, Quantum Computing,...) have not been deployed and applied much in agricultural production in the Mekong Delta. This comes from insufficient investment capital, a lack of highly qualified human resources, and slow implementation. According to the Labor-Employment Survey data from the General Statistics Office, the Mekong Delta is one of the regions with the lowest percentage of trained workers compared to the whole country, accounting for 13.3%, while this rate for the entire country is 22%; the Northern Midlands and Mountains region is 18.3%; the Central Highlands region is 14.2% (GSO, 7/2020).

3.2.2. About the regulatory policy and legal framework

In recent years, in the face of increasingly severe impacts of climate change and prolonged effects of the Covid-19 pandemic, it has posed a requirement to open up a new direction in agricultural economic development in the lowlands by the Mekong River. They recognized the role and trend of circular agriculture in developing the farm industry, protecting natural resources, protecting the environment, and ensuring the country's sustainable socio-economic development. The Party and State soon issued many guidelines and policies to create a favorable environment for developing this economic model, such as Directive No. 36/CT-TW, dated June 25, on strengthening the protection environment in the period of industrialization and modernization of the country. The directive clearly states that it is necessary to “promulgate tax and credit policies to support the application of clean technologies” (Politburo, 1998). Furthermore, the Strategy for Socio-Economic Stability and Development up to 2000, adopted at the Seventh Party Congress, emphasized that "economic growth must be associated with environmental protection". It was followed by Resolution No. 26-NQ/TW, dated August 5, 2008, of the Central Committee on Agriculture, Farmers and Rural Affairs; Resolution No. 24/NQ-TW, dated June 3, 2013, of the Central Committee on proactively responding to climate change, strengthening natural resource management and environmental protection, continues to emphasize and demand demand "promote the transformation of the growth model associated with economic restructuring towards green growth and sustainable development".

On the basis of the Party's policy, the State has issued documents such as: Decision No. 432/QĐ-TTg, dated April 12, 2012 approving Vietnam's sustainable development strategy for the period 2011-2020; Decision No. 1393/QĐ-TTg, dated September 25, 2012 supporting the National Strategy on Green Growth, this is a strategy to promote the process of restructuring and perfecting economic institutions towards effective use over natural

resources, through three primary goals: “Greening” production - Reducing the intensity of greenhouse gas emissions per unit of GDP and increasing the rate of renewable energy use - Greening lifestyles and sustainable consumption steady; Decision No. 899/2013/QĐ-TTg, dated June 10, 2013 approving the agricultural restructuring project towards high added value and sustainable development, emphasizing three pillars: economy, society and environment in agrarian development; Decision No. 593/QĐ-TTg, dated April 6, 2016 promulgating the pilot Regulation on linking socio-economic development in the Mekong Delta in the 2016-2020 period; Resolution No. 120/NQ-CP dated November 17, 2017 on sustainable development of the Mekong Delta in response to climate change. Moreover, recently, Decision No. 287/QĐ-TTg, dated February 28, 2022, approved the Master Plan for the Mekong Delta from 2021 to 2030, with a vision for 2050. These documents are the primary basis of important legal and political values that represent the shift and promote the agricultural sector in Vietnam in general, including the Mekong Delta region, to develop towards a circular economy.

However, in terms of State management, it can be seen that the barrier to the development of circular agriculture in Vietnam in general and in the Mekong Delta, in particular, is the lack of mechanisms, policies, and specific guidelines for this economic model. Many National Strategies on green growth and sustainable agricultural development; Projects on agricultural economic development of the Region were promulgated quite early but not synchronously to promote the development of circular agriculture, and specific regulations and guidelines have not yet been the issue. These limitations summarize in the following contents:

First, there is no separate official regulation regulating circular agriculture. The operation and development of the circular economy in general and circular agriculture in Vietnam in recent years has been carried out based on the guidelines, policies, and strategies of the Party or from different provisions of the law major/decreed. The conditions in these documents are scattered and general, mainly stating the principle of ensuring sustainable development in the exploitation and use of natural resources and environmental protection directly and covering the nature and requirements of circular agriculture. There has been no standardization of the circular economy in general and no criteria to identify, evaluate and guide the implementation of this economic model in agricultural production. Therefore, policies, support, and encouragement of circular agriculture have not been able to promote synergy to build a stable legal corridor.

Second, the regulations governing agriculture have not yet been developed, and issued adequate guidelines on criteria, standards, and regulations related to the collection, transportation, and reuse of agricultural by-products and waste from agriculture; regulating the quantification of indicators in circular agriculture; stipulating conditions, assessing environmental impacts and controlling and managing systems on the environment in agricultural production according to the circular economy. In general, the monitoring according to the environmental impact assessment framework and the granting of ecological practice certificates to agricultural enterprises, especially small-scale enterprises, and households, has not been

effectively or synchronized for various reasons. Therefore, it creates confusion when implementing and applying circular agriculture to producers and management agencies.

Third, policies and regulations supporting the construction and protection of agricultural product brands from the circular agricultural model have not been paid attention to and focused on. However, in this regard, it should be noted that Vietnam has integrated and is a WTO member, so when implementing support policies for circular agriculture, it is necessary to study and consider carefully to avoid confusion and "devaluation" as before. At the same time, the implementation and implementation of agricultural insurance in Vietnam so far have not been effective - when this is one of the solutions to contribute to overcoming production losses due to the impacts of the pandemic climate change or diseases (such as the recent Covid-19 pandemic) to help farmers restore production and stabilize their lives soon.

4. Discussion and Conclusion

It is to overcome barriers and challenges in the coming time in developing circular agriculture in the Mekong Delta. Therefore, it is necessary to implement the following synchronous solutions:

**** About the regulatory policy and legal framework***

Firstly, define a vision of circular agriculture toward green agriculture. The Government's top priority for the Mekong Delta is to develop models/indicators for circular agriculture or an idea for circular agriculture and the longer-terms rather than green agriculture in the trend green growth position in the whole region. In this strategy, industry development goals need to integrate with environmental resource protection goals; Green agriculture - rural development goals need to be consistent with the development goals of other sectors. This requires the cohesion and participation of many stakeholders, who can share the vision and work together.

Second, build a management system to operate the circular agriculture strategy and clearly define the role of central and local policies. It is necessary to develop high-level and multi-sectoral, synchronized policy support to implement the region's green agricultural growth strategy, including circular agriculture, and set standards to protect human health, ecology, environmental certification, and resource access in the Mekong Delta. At the same time, it is necessary to review and re-evaluate the effectiveness of the management apparatus in implementing the agricultural development strategy in the Mekong Delta to have a new proposal that is more effective and more suitable to the actual situation. In particular, special attention to the role of the specialized focal agency to manage, guide, and provide timely support to agricultural producers under the circular economy model. It is advisable to pilot studies on the model of regional administrative agencies in the Mekong Delta to facilitate the management and administration in implementing the region's sustainable development strategy.

Third, the Government needs to be proactive and strengthen the direction of reviewing, amending, supplementing, and perfecting institutions, policies, and regulations related to the circular economy and circular agriculture. The more transparent procedures and legal rules will help businesses and people implement circular agriculture more systematically, synchronously, and effectively. This issue includes the following:

- Carefully research when formulating and planning the development of circular agriculture according to the characteristics of the region/region, with an appropriate roadmap-especially the issue of exploitation and use of natural resources and environmental protection for large-scale foreign-invested production.

- Issue appropriate preferential policies on land, tax, and credit to mobilize resources for investment in large-scale farms that meet regional/international standards and regulations on administrative procedures. In particular, focus on developing credit policies suitable to household production models and small and medium enterprises, creating conditions for them to expand their production scale. At the same time, it is advisable to enlist financial and technical support from the international community and the private sector.

- For land policy and law, it is necessary to continue studying land classification, master plan, plan on mixed land use on agricultural - forestry land, and the problem of "land accumulation" serving large-scale farms. Accordingly, it is necessary to study and consider amending and supplementing the regulations on filing deadlines in the Land Law; this content should do according to the roadmap; develop legal rules on ways to lease, transfer, and contribute capital with land use rights between households or between groups of farmers and enterprises to expand the scale of circular agricultural production. In addition, adjusting regulations for agricultural real estate in the Law on Real Estate Business, the Law on Land, the Law on Housing, and related documents are added.

Fourth, it is necessary to issue regulations that directly regulate the circular economy in general and circular agriculture. Because this is a specific economic model directly related to and affects many fields such as the environment, natural resources, and local/regional ecological conditions, this can do in the direction of promulgation. Decree regulating circular agriculture. When developing and promulgating regulations related to the development of circular agriculture that needs to be quantified, such as allowable carbon emissions, national standards, and rules on identification and assessment of circular agriculture, for actors involved in circular agricultural production, there should be specific and interdisciplinary environmental protection assessment indicators such as agricultural supporting industries and related services. It is necessary to continue researching and depending on each group of industries, products, raw materials, and agricultural production scale and interdisciplinary with other fields to issue legal regulations suitable.

Fifth, planning and zoning land use. The Government and subjective ministries need to study, review, and re-evaluate land-use zoning plans in the Region to suit each locality's natural, economic, and social conditions, especially climate change. In addition, it requires that the authorities of each province/city in the Region have high coordination, association, and consensus. Contributes to exploiting and promoting competitive advantages in producing agricultural products of each locality. Furthermore, it strengthens industry linkage, facilitates technology transfer, and applies science-technology to aagrariagricultureral, helping to exploit and use land resources more rationally and effectively.

**** Raise awareness about circular agriculture***

For agricultural production in the Mekong Delta to develop according to the circular economy model, ensuring sustainable green growth, many parties must obtain consensus. In the long run, only when producers/consumers realize that circular agriculture brings tangible benefits to themselves, their families, and society, will this production model develop sustainably stable. Therefore, it is necessary to create a communication strategy on circular agriculture, including the following contents: role, benefits, nature, scope, criteria, and implementation method. Accordingly, strong propagated through mass media and integrated into high school to university training programs. At the same time, it is necessary to approve the role of local authorities, agricultural enterprises, and social organizations such as Agricultural Cooperatives, Agricultural Extension Associations, Farmers' Associations, Vietnam Consumer Associations, organize field visits to typical circular agricultural models in the country/region to apply appropriately and effectively to the natural conditions of each part and area.

**** Some other solutions***

Firstly, to improve the effectiveness and efficiency of state management of the circular economy in general and circular agriculture in particular. Management and supervision should carry out throughout the agricultural production process, such from exploitation and use of resources; to carry out a quantitative assessment of the impact on the environment; equipment, and technology in the production process (collection, classification, and recycling of agricultural by-products-waste, quality control of agricultural output products). In addition, because it is related to and affects many different industries and fields, it is necessary to coordinate between the management agencies. Accordingly, depending on the different levels of involvement, to determine the specific tasks and implementation progress for each industry, each field, and the responsibilities of several agencies and organizations that play a crucial role in specialized management.

Second, in the management and supervision of capital sources to support the development of circular agriculture. The government should prioritize and have a monitoring mechanism to ensure capital investment efficiency and funding for scientific and technical research and development activities in circular agricultural production. Accordingly, it is necessary to summarize the efficiency and level of investment in the development of circular agriculture in the past time, from which to draw lessons to continue to supplement and improve to suit the actual conditions of agriculture in the area.

Third, proactively develop human resources with professional qualifications in circular economy in general and circular agriculture, in particular, to approach and learn from experiences from countries around the world. Although the governing body is the Ministry of Agriculture and Rural Development, the Ministry of Science and Technology will soon proactively coordinate with other ministries, branches, centers/institutes, and educational institutions to prioritize resources for planning work, focusing on training high-quality human resources, promoting and developing circular agricultural models, researching markets for the output of circular farm products. Besides promoting socialization

and encouraging enterprises to participate in human resource training for the circular economy transformation in agriculture, focus on training local technical staff to promptly support and guide farmers in operating circular agriculture.

Over the years, the Party and State have had many undertakings and policies and implemented many solutions to bring the potential and advantages, creating a driving force for socio-economic development in the Mekong Delta region. Decision No. 287/QĐ-TTg, dated February 28, 2022, of the Prime Minister, further affirms the importance of the Mekong Delta not only in ensuring national food security and as a critical economic region with a strategic position for the country's socio-economic development. However, the challenges of climate change, depletion of natural resources, and environmental pollution have been and will seriously threaten the agricultural economic development of the region. Therefore, the development of circular agriculture is the optimal solution for the farming sector in the Mekong Delta to develop and grow sustainably.

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HALONG BAY: CURRENT STATUS OF TOURISM, POTENTIAL AND DEVELOPMENT OPPORTUNITIES

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Abstract

The article introduces Ha Long Bay and its tourism on the basis of analyzing the current tourism status of Ha Long Bay; outline the potentials and conditions for development and propose solutions to effectively and sustainably exploit tourism in Ha Long Bay. The strength of tourism development in Ha Long Bay is the beauty of the natural landscape and outstanding global value. Halong Bay tourism needs budget support for financial support from domestic and foreign human resource training projects and provincial funding to promote human resource training.

Keywords: *Ha Long Bay; travel; Halong Bay tourism; actual situation.*

1. Introduction

Ha Long Bay is located in the northeast of Vietnam, 165 km from Hanoi, has an area of 553 km² with 1,969 islands, of which 90% are limestone islands with an area of 434 km² and contains 775 islands. The West borders Dau Go Island, Dau Be Island (south) and Cong Tay Island (east). In 1962, Ha Long Bay was recognized as a national monument by the Ministry of Culture and Information of Vietnam and classified as a special national monument in 2009. Ha Long was recognized by UNESCO as a world natural heritage in 1994 for the special and universal value of the landscape, and again in 2000 for the exceptional value of geology and geomorphology. In 2012, Ha Long Bay was voted as one of the New Seven Natural Wonders of the World [1]. Ha Long Bay is a national monument of special importance in the Prime Minister's Decision No. 1272/QĐ-TTg dated 12/8/2009. The plan for tourism development in Vietnam to 2020 with a vision to 2030, approved by the Prime Minister on January 22, 2013 has identified Ha Long Bay as a particularly important resource.

2. Method

Research question

- How does the current status of tourism in Ha Long Bay contribute to the socio-economic and environmental development of Quang Ninh province?
- Solutions for effective and sustainable exploitation of tourism in Ha Long Bay?

Research methods

The study site was conducted in Ha Long city, Quang Ninh province, where the main data on tourism resources and parts of Ha Long Bay were collected at Ha Long City People's Committee, Department of Planning and Investment. Investment, Department of Sports and Tourism. Analytical, synthetic and comparative methods were used in this study.

3. Results

3.1. Current status of tourism in Ha Long Bay and potentials and conditions for development

Along with the development of national tourism, Quang Ninh tourism focused on Ha Long Bay and achieved certain achievements. With outstanding tourism potential, as a natural heritage of aesthetic value as well as geology and geomorphology, Ha Long Bay can be the most attractive tourist attraction in the world [2]. In addition, the advantages of the terrain, landscape, climate, flora and fauna of Ha Long have created a value chain for Quang Ninh and are being exploited in the form of nature tourism along with Ha Long Bay with cultural tourism of sea islands. The increase in the amount of visitors in Ha Long Bay is considered the fastest in Vietnam in recent years. With various types of marine tourism on the island such as eco-tourism, boating, swimming, mountain climbing, traditional cultural festivals, sightseeing, overnight stay on the bay, and experiencing the life of fishermen... develop strong. However, in recent years, tourism in Ha Long Bay only gives visitors some knowledge about nature, mainly focusing on the landscapes on the bay, while the heritage area has many conditions and opportunities for tourists to discover and experience Ha Long island culture [3]. Tourists also want to meet and interact with local people with specific cultures to discover about the lifestyle; traditional and modern culture of the local community; enjoy the forms of introducing national culture, performing arts, folk music, folk dance and annual festivals in the buffer zone, heritage quarter such as Tien Cong festival (Ha Nam, Quang Yen/Yen Hung), Quan Lan festival, Ba temple festival with typical values.

With the policy of developing various types of tourism, improving the quality and professionalism of tourism services in the direction of upgrading the class, not following the quantity, the central area of Ha Long Bay will be prioritized for developing ecotourism, cultural tourism. Developing products and services in the direction of introducing, discovering and contributing to the preservation of heritage values. In the past, with the development of the tourism industry, cultural tourism activities in Ha Long area have achieved initial results. But effective cultural tourism activities are still very low compared to their inherent potential, do not create a strong attraction, make a sustainable and unworthy contribution to tourism economic development. Most tourist resorts and hotels currently do not have cultural tourism programs, cultural tourism maps and cultural tourism content [4]. In addition, there are issues that need to be resolved such as: the balance between ecological environment conservation and tourism development; tourism development must go hand in hand with the protection of environmental landscapes and heritage values, developing community-based tourism; understand and effectively exploit the natural conditions and advantages of Ha Long Bay, creating a new development in terms of quantity and quality of tourism services; continue to expand and develop new routes and tourist attractions; continue to upgrade the system of infrastructure, accommodation, tourism and entertainment services, create diverse tourism products to form high-quality tourist centers and centers; organize international cultural events and seminars.

Resolution No. 07-NQ/TU dated May 25, 2013 of the Quang Ninh Provincial Party Committee on tourism development in Quang Ninh province in the period of 2013-2020, with a vision to 2030 [5] has determined the true value of the Gulf. Ha Long Bay and its marine tourism resource system are the driving force to accomplish the overall goal: to strive to turn Quang Ninh into an international tourism center, a leading national tourist destination. Modern and synchronous tourism facilities; diversified, special, high-quality tourism products, strong brands, bold cultural identities of ethnic groups in the province, capable of competing with countries in the region and internationally; this is a spearhead economic sector, a driving force for rapid and sustainable socio-economic development, national defense and security. In order to promote the full potential of tourism in Ha Long Bay, effective solutions to exploit tourism resources in Ha Long Bay are always the top research and implementation priorities of state management agencies in Quang Nam. Ning. A. Assessment of the status quo Halong Bay tourism contributes to economic development - society and the environment of Quang Ninh province. The report proposes a plan to implement solutions for effective and sustainable exploitation of Ha Long Bay. Research results also help tourism businesses develop their business strategies to improve the quality of tourism services to satisfy customers. At the same time, there are solutions to improve products and strategies to expand the tourism market of Ha Long Bay.

Shipping Terms

Ha Long has favorable conditions to develop into a center of tourism, an industry, trade and transportation along the ASEAN-Vietnam-China economic corridor. Regional cooperation frameworks have been established. Specifically, the ASEAN-Vietnam-China corridor can create development opportunities for Ha Long. These efforts include:

Cooperation framework between Vietnam and China ("Two Corridors, One Economic Belt") in which the two corridors are Kunming - Lao Cai - Hanoi - Hai Phong - Quang Ninh and Nanning - Lang Son - Ha Noi. Noi - Hai Phong - Quang Ninh. The "Economic Belt of the Gulf of Tonkin" includes 10 coastal provinces of Vietnam from Quang Tri to Quang Ninh and Chinese territories including Beihai, Quinzhou, Fangchengang of Guangxi, Zhanjiang of Guangdong and Hainan Island. Economic cooperation framework "Nanning - Singapore Economic Corridor".

The China - ASEAN economic integration model stretches over 5,000 km from Nanning in China to Hanoi, Vien Chan (Laos), Phnom Penh (Cambodia), Bangkok (Thailand), Kuala Lumpur (Malaysia) and Singapore. It is envisioned that the cities in the corridor will be connected by rail, highway, waterway and air, forming a comprehensive development area with enhanced trade, investment and tourism [6]. In which transportation by car and ship has been exploited for tourism for a long time and brings outstanding efficiency. In recent years, the transport of tourists by helicopter and train has been welcomed by many tourists. Recently, the train departing from Gia Lam (Hanoi) to Ha Long (Quang Ninh) has been put into operation, initially tourists are very interested. This is a high-quality passenger train operated by Dongrim Railway Transport Co., Ltd. (Korea) with a total investment of over 1 million USD. This has opened up new opportunities for tourism in Quang Ninh to transport, attract tourists from Hanoi to Ha Long and vice versa.

On the information system, electricity and water

Currently, the electricity and water system in Ha Long is good and invested in repairing and upgrading. Stable power system, safe transmission line. The water supply system in the city as well as in the Ha Long Bay area is quite good with the assurance of clean water supply, safe sanitation, and reasonable water treatment and drainage. Good information network to ensure good information needs of tourists. Besides, other infrastructure such as toll stations, coastal medical emergency stations, and banks are also quite developed... to best serve tourists.

Facilities of the property

Only in the past 10 years, a series of hotels, guest houses, motels of all economic sectors, agencies, organizations and individuals have been born. Occupying a large number of small hotels, these small accommodation establishments cater to the needs of tourists especially during high season. However, the increase in mid- and large-sized hotels inevitably leads to excess capacity during the low season. Some hotels are rated as high-class hotels such as Ha Long I, II, III and Ha Long, with occupancy rates above 80%. Besides, some other big hotels such as: Ha Long Hotel, Bach Dang Hotel, Cong Doan Hotel, Vuon Dao Hotel are also hotels with similar occupancy. In recent years, the total number of hotels and rooms of international standard is increasing. Ha Long has 857 accommodation establishments with 12,300 rooms. There are 77 standard hotels from 1 to 5 stars with more than 5,000 rooms [7]. The number of accommodation establishments has increased rapidly, especially 1 to 5 star hotels, mainly located in Bai Chay and some in Hon Gai on Le Thanh Tong street. This is one of the advantages of tourism development of the city in general and the Ha Long Bay area in particular to meet the needs of tourists.

Food establishments

Dining facilities in Ha Long city are diverse. Most hotels, guest houses serve food, in addition there are restaurants, eateries and bars of all economic sectors serving tourists and locals throughout the day. Catering services from famous restaurants, sea specialties, European and Asian restaurants, high-class eateries located mainly in Bai Chay area and large hotels are very developed. European and Asian restaurants are relatively large in scale, mainly in 3-5 star hotel standards, meeting international quality standards. Medium and large specialty seafood restaurants on Bai Chay and the main streets of Ha Long city such as Le Thanh Tong, Tran Hung Dao are important culinary addresses. Especially interesting is the chain of floating restaurants, the rafts, where visitors can both admire and enjoy the seafood flavor of Ha Long Bay. In addition, food service in Ha Long is also growing by many restaurants, drinks and refreshments serving day and night. Especially "snail supermarket", attracting visitors in the evening.

Recreational and sports facilities

Currently, in Ha Long city as well as in the Bay area, there are many entertainment facilities and sports facilities built to serve the needs of tourists as well as of local people.

Most are located in Bai Chay area with many well-invested facilities including bars, discos, casinos, parks (Sun World Ha Long Parks / royal lotus park) located on the beach, Tuan Chau tourist area, Night market, sports area such as water engine, paragliding...

Travel agent

Ha Long Bay has long been known as one of the attractive tourist destinations with vibrant tourist activities. Contributing a large part to promoting Ha Long Bay tourism domestically and internationally are tour operators and travel agents that are currently operating very effectively. Currently, there are about 30 tour operators located in Ha Long, including many major travel agencies.

Resources

Ha Long is endowed with natural resources. These range from non-growable minerals such as coal, limestone and clay, to other resources such as land, sea and coast, freshwater and forests, and coastal properties (shipbuilding, trade, etc.). international and logistics).

Topographic

Quang Ninh is a mountainous coastal province with more than 80% of the mountainous land area. The terrain is relatively complex with mountainous areas, midlands and coastal plains, coastal areas and islands. The sea and islands of Quang Ninh province, especially the Ha Long Bay area are unique terrain with 1969 large limestone islands, Karst terrain worn by thousands of appearances and in the center of the cave is interesting, occupying more than two-thirds of the island. The islands stretching along the coast for more than 250 km are divided into several layers. There are many large islands such as Cai Bau, Ban Sen. And two districts are Van Don and Co To. The seabed is not flat, the average depth is 20m. There are deep creeks and coral reefs. The topography of Ha Long Bay area is Karst terrain which is abrasive water. It is a complete evolution of Karst over 20 million years due to the simultaneous integration of factors such as very thick limestone, hot and humid climate, and too slow growth. Ha Long Bay has many forms of Karst Phong Tung, Phong Linh styles.

- Karst Phong Tung: consists of a cluster of limestone often with adjacent pyramids with a height of 100m, the highest peak is about 200m.

- Phong Linh terrain: Characterized by dividing peaks forming towers with steep walls. Most towers are from 50-100m. The ratio between height and width is about 6m.

The limestone field is a large basin that grows in relatively flat karst areas. Limestone quarries are formed by different methods such as: loss of underground river valleys, underground caves; Due to erosion, the limestone topography is higher than the surrounding area. Ha Long Karst School is often flooded.

- Underground Karst landscape: Diverse cave system in Ha Long Bay, divided into 3 main groups: First, ancient cave relics, typical of Sung Sot cave, Tam Cung cave, Caste castle, Thien cave Palace, Dau Go cave, Thien Long cave. The second group is a typical Karst cave, which is Trinh Nu, Bo Nau, Tien Ong, Hang Trong... The third group is a functional frog system, typical of three caves in Ba Ham lake and Ba Hang cave. Karst in

Ha Long Bay has global significance and is the foundation for geomorphology. The geological environment is also the foundation for other values of Ha Long Bay such as biodiversity, archaeological culture and others. This is one of the potential tourism resources of Ha Long Bay.

Ecosystem

Ha Long Bay is considered a diverse ecosystem with ecosystems such as mangrove ecosystems, coral reef ecosystems, tropical forest ecosystems and ecosystems. Besides the green vegetation covering the mountain peaks, cliffs and caves on the island are many rare animals. In fact, the islands here have a wide variety of plants, including rare, endemic and beautiful species. Along with the diversity and abundance of species with many shapes and sizes, adapting to the living environment. The total number of plant species present on Ha Long Island has not been determined. However, this diverse flora can be identified to include: mangroves; sand shore; vegetation on the mountain slopes; vegetal cliffs; tree on the top of the mountain; cave and rock crevasse plant.

Besides, Ha Long Bay has many animals including about 1,000 species of marine fish, including 730 species; 140 species of zooplankton; nearly 500 benthic species; 326 species of zooplankton; 130 species of bivalve molluscs; more than 230 species of coral and some rare primates and many endemic plant species. Currently, the ecosystem in Ha Long Bay is quite intact, the vegetation has almost no signs of burning or cutting.

Research results show that Ha Long Bay has many tropical ecosystems such as mangrove ecosystems, coral reef ecosystems, sea grass ecosystems, tropical forest ecosystems and especially... specific. With very stable climate conditions, extremely complex topography, the coasts of many large estuaries are extremely favorable natural conditions for ecological development.

Coral ecosystem

In the waters of Ha Long Bay, coral is scattered in many places but concentrated in large numbers in the east and south of the continent. Ha Long Bay has about 163 coral species, belonging to 44 genera and 12 families, usually concentrated at a depth of 5-10m. The average reef layer is 30%, but there are 70-80% of the area, such as Cong Do, Union, etc. Ha Long Bay coral reef is a beautiful sight, coral forming corals, corals, lacquered corals... with many colors of white, blue, red, red... Simultaneous corals This is where many fish species such as 107 species, seaweed, algae, zooplankton, phytoplankton...

Mangrove Ecosystems

This is an attractive landscape of the intertidal zone of Ha Long Bay. This ecosystem is mainly located in Tuan Chau, Cua Luc, Ba Che and scattered along the coast. Besides, there are many kinds of plants such as: black tiger, parrot, fish sauce, crab... There are countless species of plants and animals such as migratory birds, semi-migratory birds (37 species), benthic animals with 81 species. species; 90 species of fish belonging to 55 families. Only benthic animals in mangrove forests account for 61.2%

of the total species in the intertidal zone with many species of high economic value such as oysters, clams, shrimp, crustaceans.

Tropical forest ecosystem

This ecosystem is rich in species such as cloves, incense, candles, scallops, scallops... mainly on the islands. It is also home to a number of rare wildlife species such as deer, weasel, squirrel, especially white gibbon and red monkey and many others.

Ecosystem

In addition to these basic ecosystems, Ha Long Bay also has a small ecosystem of pine trees growing in the East Sea. This is the habitat and development of many species of plants and animals such as sea grass, algae, fish, shrimp ... Besides going abroad is the habitat of shrimp, fish, squid, abalone, and seafood with the annual output is up to thousands of tons.

With such a rich ecosystem, Ha Long Bay was decided by the Prime Minister on Decision No. 5/2001 dated June 1, 2001 [12] to establish Bai Tu Long National Park in order to preserve the biodiversity value of Ha Long Bay area.

Population and people

There are a large number of people living in the world heritage site of Ha Long Bay, mainly in the fishing villages of Cua Van, Vong Va, Cau Tau and Ba Hang. boats, rafts and live on fishing, aquaculture. This is the home of 21 ethnic groups, each with its own cultural characteristics, customs and habits. This is also the main factor that creates the culture of Ha Long region and is an abundant human resource in tourism exploitation.

Historical and cultural sites and fine arts

Ha Long Bay has a particularly important position for commercial, cultural and military exchanges. Bach Dang River, Van Don is the place to mark the glorious military victory of the Tran Dynasty in the war against the Mongols (III) in 1288. Ha Long is also considered a center of cultural exchange between Vietnam and other countries. other countries such as China, Japan, Siam, Southeast Asia under the Ly - Tran - Le feudalism. This evidence is that Van Don port was established under King Ly Anh Tong (1149). Many artifacts found here include millions of pieces of porcelain originating from Vietnam, China, and Japan up to 0.60m thick. Most of them are pieces dating from the Ly to Le dynasties. Ancient house ruins are also found along the coast. These are old houses lined with cobblestones in the bay. Around the house there are many bronze jars in the Chinese dynasties from Tang to Thanh and Vietnam since the Ly Dynasty to the Nguyen Dynasty. There are also many other ports and commercial ports discovered such as Cong Dong, Cong Yen, Ngoc Vung, Quan Lan, Cai Bau... Accompanying evidence is the mark of a flourishing religious architecture. Buildings were built and embellished to meet the spiritual needs of merchants as well as locals, including temples and Catholic churches [13]

Ha Long culture has existed for thousands of years, and has long been known as a typical culture of prehistoric people living along the coast and islands. Along with the existence and development of traditional cultural values, Ha Long Bay has been built over time with valuable historical and architectural relics such as Van Don commercial port under

King Ly Anh. Tong (12th century), is a place of trade, exchange and commerce. in goods, cultural exchange... lasted from the Ly to Tran dynasties. There are also many other historical sites such as Quan Lan on Quan Lan island in Vam Thu archipelago (Cam Pha town), Cua Ong temple. Notable in the Ha Long Bay area is the historic Bach Dang Beach, marking three major battles on the Bach Dang River under the command of Ngo Quyen (983) Le Hoan (1981), Tran Hung Dao (1988).

Ha Long Bay is known as one of the cradles of ancient Vietnamese people, which has existed for more than 4,000 years, Ha Long Bay has become a huge archaeological geological treasure with thousands of archaeological discoveries. So far, about 40 archaeological sites about Ha Long culture have been established on the islands and on the coast of Ha Long Bay. Archaeological evidence shows that Ha Long Bay has undergone great geological formation of soil, geological structure. Ha Long Bay has experienced three successive cultures: Soi Nhu culture, Cai Beo culture, and Ha Long culture.

Ha Long Bay is a land that has existed a rich culture, rich in tradition. Buddhist festivals, local festivals and tourist festivals are held every year. The highlight of the festivals in Ha Long Bay is the reenactment of the activities of the fishermen on the Bay, the Fisherman's Village, the Boat Club...

Sea and Coast, Marine Fisheries, the marine area of Ha Long Bay is home to many species of sea snakes and other Ha Long seafood including 950 species of fish, 500 types of molluscs and 400 species of crustaceans. This includes many seafood species of high economic value such as mackerel, grouper, shrimp, squid, pearls, abalone and oysters. Coral reefs in the bay are also rich with 117 species belonging to 40 families and 12 groups. The waters off Ha Long Bay are one of the four main fishing grounds in Vietnam. In addition to aquatic resources in the sea, Ha Long also has more than 50 km of coastline. This is a resource that has been exploited for port development such as Cai Lan deep-water port, coal port, tourist port and some other auxiliary ports allowing the shipbuilding industry in Ha Long to develop.

3.2. Business opportunities

In the master plan for tourism development of Ha Long Bay to 2030, Quang Ninh Provincial People's Committee has set a target of welcoming 10.8 million visitors by 2020. Ha Long Bay not only brings beautiful and romantic landscape value. but also make visitors not boring, monotonous. Therefore, the development of tourism in Ha Long Bay must depend on the needs, preferences and affordability of different tourist market channels. Ha Long Bay needs to enrich the types of sea tourism, island tourism, sport tourism, adventure tourism, cultural festivals, craft village tourism, archeology, cruise ships... For many years, tourism activities in Ha Long Bay were only popular as a form of mass tourism, which means that visitors to Ha Long Bay are basically just sightseeing, swimming, visiting fishing villages... Currently Some types of tourism attract many domestic and foreign tourists to explore Ha Long Bay:

Sightseeing tour [14] is a popular type of tourism in Ha Long Bay. Participants in this type of tourism have the opportunity to enjoy the scenery, visit caves and entertainment, swim at islands in the bay such as Ti Top beach...

Canoeing (Kayaking)

This is a kind of romantic travel. A large boat will take visitors and small boats to the wide sea so that you can explore your own adventures and discover new things on the Bay.

Cultural tourism

This is a type of tourism for tourists to enjoy culture, have more time to visit, learn or research archaeological sites, material culture and immaterial objects in Ha Long Bay.

Ha Long Bay Ecotourism

World natural heritage Ha Long Bay is full of tropical natural conditions, diverse terrain, rich ecosystems and special cultural values. These are great potentials for ecotourism development. This is a type of environmental tourism in unspoiled natural spots to enjoy nature, thereby encouraging environmental protection in that area. Currently, ecotourism is just a spontaneous activity, as tourists organize themselves in wilderness areas or in places with national parks. Ha Long Bay has put into operation a number of eco-tours at a number of attractions such as: Me Cung cave (history of cave formation, limestone deposits), islands - Cong Do lake, Ba Ham Mountain lake. Bai Tho - Long Tien Pagoda - Tran Quoc Nghia Temple or Ngoc Vung, Quan Lan (history, culture). However, the exploitation of ecotourism in these places is still limited, not fully realized. Nowadays, ecotourism has especially become a popular form of tourism, especially to nature reserves and indigenous cultural values. The development of ecotourism in Ha Long Bay is the most appropriate way to help minimize current gaps and change the way we operate, towards sustainable tourism.

Community tourism

In Vietnam today, the model of community-based tourism is not new. Ha Long Bay with potential strengths in the landscape; outstanding geomorphological values, biodiversity values, historical and cultural values... are favorable conditions for the development of community tourism. In addition to its outstanding global values, the natural heritage of Ha Long Bay is one of the cradles of the ancient Vietnamese. This is a culture with its own characteristics. Currently, the value of this culture continues to be maintained and developed along with the existence of fishing communities living on the bay in fishing villages such as Ba Hang, Hoa Cuong, Bo Nau, Cua Van, Vung Vieng... Most of them still live by fishing nets and still retain many customs and characteristics of the sea inhabitants. Therefore, the development of the model of community-based tourism in Ha Long Bay not only introduces visitors to cultural values, but also serves as a means to educate about the preservation and promotion of traditional culture.

3.3. The problems in tourism management in Ha Long Bay, the study has proposed the following solutions

- Status of discharge into the Bay. In the immediate future, it is necessary to make a plan to quickly move polluting enterprises out of Ha Long Bay area. Invest in renovating

and building waste treatment facilities to ensure proper treatment of waste before discharging into the Bay. Early research and promulgation of specific environmental policies, regulations on penalties and compensation for cases of environmental resource depletion at sea, coastal areas, caves and islands. Strictly manage the environmental protection of ships in the Gulf, as well as foreign ships according to special policies and regulations on environmental protection associated with material responsibility. Apply sanctions for violations of environmental protection [15].

- Research and establish a system of marine and island nature conservation zones in an appropriate and appropriate manner to protect and develop specific ecosystems and ecosystems of sea, coast and islands. The first is to build and preserve Bai Tu Long National Park with strict regulations on environmental protection. Diversify products, develop unique and attractive forms of tourism. For each tourism business, product diversification is one of the most important solutions to attract tourists and create its own brand identity. Recently, Ha Long Bay has implemented a number of forms of tourism such as sightseeing, boat tourism, eco-tourism in Ha Long Bay, tourist areas, etc. However, tourism products are still not lacking in products. particular tourism with high competitiveness in the region and internationally. Therefore, the mission for businesses is to invest in research, construction and deployment to serve new, more attractive and richer forms of tourism such as adventure tourism, mountaineering tourism, diving tourism...

- Improve service quality

Ensure all forms of tourism, cultural activities, sports and entertainment. In addition, in order to continue to upgrade technical infrastructure, amusement parks, means of transport, standard hotel systems, businesses need to upgrade and increase the number of restaurants, the tourism quality ensures to meet the needs of visitors. In addition, businesses are especially interested in improving the morale and attitude of their employees, sending staff directly to the delegation to have ideas to help tourists more and more. more professional.

- Promote tourism promotion

Each business has a different business strategy, a different program to promote and promote tourism, but the main purpose is to attract tourists and guide them to use their services. To promote effectively, businesses need to build a rich promotion program with many attractive programs, advertise on many media such as newspapers, internet, radio, television...

4. Discussion and Conclusion

The strength of tourism development in Ha Long Bay is the beauty of the natural landscape and outstanding global value. Besides the advantages, the exploitation of tourism resources in Ha Long Bay also has certain limitations. In order to further promote the value of Ha Long Bay, worthy of the title it has been awarded, first of all, good management and conservation must be done. A close interaction can be seen between the conservation and promotion of cultural heritage and the preservation and promotion of heritage with the development of tourism. This relationship needs to be fully evaluated and considered in order to build an orientation to effectively exploit heritage values for tourism development and

develop appropriate policies for tourism. In addition, a long-term vision strategy is required; prioritize high-quality eco-tourism products associated with conservation activities. It is important that community-based, business-based participation activities, mobilizing many resources and common interests, must be carried out in accordance with the guiding principles of the state and the people. In order to have an active participation and role of businesses and communities in the exploitation of heritage for management and conservation, stronger and more uniform regulatory mechanisms are needed to link and bind the exploitation of services and travel of organizations and individuals in Ha Long Bay with the conservation of heritage.

Halong Bay tourism needs budget support for financial support from domestic and foreign human resource training projects and provincial funding to promote human resource training. Ha Long Bay Management Board is the agency that directly manages the Bay, manages tourism activities and conserves resources in Ha Long Bay. Long unified direct management of a focal point. In order to exploit this tourism potential, the Ha Long Bay Management Board has and needs to issue, amend and supplement a number of solutions on mechanisms, policies and cooperation in investment and development of tourism specific to Ha Long Bay. Long.

Tourism enterprise is an important economic activity institution contributing to the development of tourism in the locality. For tourism businesses to exploit natural resources in Ha Long Bay, it is always necessary to have proposals and solutions for effective exploitation in accordance with the law on enterprises and tourism business.

In order to improve tourism quality and attract tourists to Quang Ninh, Quang Ninh province needs to identify four main tasks set out for the management, conservation and promotion of the value of Ha Long Bay. That is positioning the development of Ha Long Bay in the importance of national and world tourism development; building tourism brand and investment target so that Ha Long Bay becomes a top destination; effective exploitation associated with environmental protection and embellishment of Ha Long Bay; raising awareness about nature protection and environmental protection for local people.

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PROMOTING THE ROLE OF THE VIETNAM FARMERS IN NEW-STYLE RURAL BUILDINGS IN VIETNAM

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Abstract

Currently, Vietnam is accelerating the industrialization and modernization of rural areas, especially the policy of building new-style rural areas. Successful new-style rural construction requires the mobilization of all social resources. The farmer plays the role of the subject of this process. Promoting the role of farmers in building new-style rural is an important task, a decisive factor for the success of this process, and a responsibility of the whole political system. The article focuses on analyzing the role of farmers in building a new-style rural, the problems posed in promoting this role today and proposing solutions to promote the role of farmers in building a new-style rural in the future.

Keywords: *Farmers; New-style rural construction; Role*

1. Introduction

To carry out the policy of industrialization and modernization of the country requires us to develop the economic structure comprehensively from the agriculture industry to services. At the same time, it is also necessary to develop a balance and harmony between urban and rural areas. Vietnam is an agricultural country, so in the development orientation of the Party and State, we always focus on agricultural development. However, the development of agriculture and rural areas has not been commensurate with the attention and investment of the Party and State. In response to this request, on August 5, 2008, the Central Committee of the Communist Party of Vietnam issued Resolution No. 26-NQ/TW on agriculture, farmers, and rural areas. To concretize this Resolution, the Government has developed a national target program on new-style rural construction. The Government developed and implemented this master program on a rural scale nationwide on socio-economic development, politics, and national security. In the new-style rural construction program, people are both the subject and the object. Therefore, promoting the role of farmers is a decisive factor for the success of this policy.

The research objective of the article is to clarify the roles of farmers in building new-style rural areas in Vietnam, the problems raised in the process of promoting the roles of farmers, and propose solutions to develop them. Promote the role of farmers in building new-style rural in the coming time.

2. Method

The article uses the method of secondary document analysis. We analyze the Party's resolutions research works on the role of farmers in building new-style rural. In addition, the article also uses some data from reports of state agency's reports of the Provincial Governance and Public Administration Performance Index (Papi).

3. Result

3.1. *The roles of farmers in the process of building new-style rural in Vietnam*

Approaching the role of farmers in new-style rural construction today has many different conceptions. The general notion that farmers have the role of subjects in the process of building new-style rural has been affirmed by the Communist Party of Vietnam: "*In the close relationship between agriculture, farmers and In rural areas, farmers are the subjects of the development process*" (Central Committee of the Communist Party of Vietnam, 2008). This is a cross-cutting approach when it comes to the role of farmers in new-style rural construction, "*As the subject of the new-style rural construction process as well as the agricultural and rural development process, farmers and rural residents have a significant role*" (Nguyen Trong Binh, 2020). Within the framework of the article, we clarify the subjective roles of farmers in building new-style rural from the perspective of their participation in building new-style rural. The subject's role of farmers is shown in the following aspects:

Firstly, being a participant in planning and implementing new-style rural

The first role of farmers is to participate in the planning and implementation of the specific content of the new-style rural development program. Farmers can participate in implementing all contents of new-style rural construction from planning, socio-economic infrastructure, implementing socio-economic development programs to building a new-style rural development system. Political system and maintain social order and security. Together with the State, they will be active actors in implementing new-style rural construction content. With the participation of farmers, it will help policies and programs to build new-style rural areas get closer to farmers and receive their consent. Only when this role is promoted can the rural construction policy achieve the set goals. Promoting this role also demonstrates the spirit of "taking farmers to serve farmers". This role of participation is demonstrated through two primary contents: "people discuss" and "people do". "People discuss" is expressed through the participation of farmers in contributing ideas on new-style rural planning, infrastructure system planning, health education development planning, contributing to building a political system. "People do" is expressed through the fact that farmers will directly participate in organizing and implementing new-style rural construction content. They will work with the Government to implement the contents of the new-style rural, such as the implementation of master plans and plans in new-style rural construction in general and each specific content in particular.

Secondly, being a participant in contributing resources to new-style rural construction.

Farmers not only participate in the implementation of programs and plans when the State deploys them, but they also contribute great resources to this process. Promoting the contribution

of farmers is a manifestation of the idea of “*taking the resources of farmers to unleash the potential of farmers*”. Farmers can contribute many different resources to the new-style rural construction program. They can contribute through the workday. At the same time, they can also contribute finance, land, machinery, equipment, etc., to the Government. The farmers’ resources are extensive; the problem for the Government is how to release these resources. If this role is guaranteed, it will contribute to diversifying resources for policy implementation. This also shows the current thinking of promoting the socialization of the Party and State. In fact, in building a new-style rural area in the past time, it is shown that in the early stages, state resources are the primary source, but over time, the State begins to mobilize more social resources. The State only lays the foundation and premise for the first stage of new-style rural construction; then, farmers must be the real subject of this process. This, on the one hand, is due to the “limited” resources of the State, but on the other hand, from the policy of promoting the autonomy and sense of responsibility of farmers for this process. Farmers are the actors and beneficiaries in new-style rural construction, so they are responsible for participating in this process.

Thirdly, being a participant in monitoring and evaluating new-style rural construction content implementation.

Besides “people discussing”, “people are doing”, the role of farmers is also expressed through “people checking”. Farmers will be the subjects participating in supervising the implementation of new-style rural construction programs and projects. Implementing new-style rural construction can be difficult to avoid errors, inadequacies, and even negative ones. Therefore, the participation of farmers in supervision is an essential basis for the implementation of new-style rural construction to ensure compliance with the guidelines of the Party, policies, and laws of the State and following the needs and aspirations of the State. Farmers’ expectations. Promoting the role of farmers in supervision will contribute to building their trust in the Party and State. In addition, the people are also an important subject to evaluate the effectiveness and efficiency of the new-style rural construction policy. The effectiveness of the new-style rural policy must be shown through the development of agriculture and rural areas, the socio-economic development of farmers, and the satisfaction of farmers. Therefore, to accurately evaluate the results of this policy implementation requires the participation of farmers. This is also a modern policy assessment method used in rural assessment today - Participatory Rural Appraisal (PRA).

3.2. Some problems arise in the process of promoting the role of farmers in new-style rural construction

As subjects, farmers play an essential role in building new-style rural. The practice of building new-style rural areas in the localities in recent years has shown that the role of farmers is gradually being promoted. Their participation in new-style rural construction is an essential factor determining the success of this policy. However, in the process of promoting the role of farmers, there are still many issues that need to be resolved, such as:

Firstly, the problems posed to the State in promoting the role of farmers.

Currently, in building a new-style rural, the authorities in some places are not aware of the importance of farmers. Some cadres and civil servants still consider farmers as the

object of implementing the policy of new-style rural construction but are not aware of the role of farmers. *“A part of cadres, party members, civil servants, and public employees has not been exemplary, has not respected the people’s opinions and recommendations, and has promptly dealt with legitimate rights and interests. The people’s right to mastery is sometimes violated; still manifest formal democracy, separating democracy from the rule of law”* (Communist Party of Vietnam, 2021, p. 89). This incomplete and inaccurate awareness has led to not paying attention to promoting the role of farmers.

In the process of building a new-style rural, some places have had good models to promote the role of farmers, such as the model of “Farmers’ Club” in Dong Thap, the model of “model new-style rural hamlet, model garden”,... However, in many places, the authorities have not yet built scientific models and solutions to promote the role of farmers. The failure to develop many suitable and attractive solutions has not brought into play the fundamental role of farmers, *“not fully promoting the autonomy and self-management rights of people in each hamlet, hamlet, and hamlet in the process of building new-style rural”* (Nguyen Trong Binh, 2020). In some places, the Government has not created favorable conditions for farmers to participate in the new-style rural construction process. However, it mainly focuses on several stages and activities, *“The participation of the people from the Proposing essential works for life, production, etc., the management and administration are still very weak, in many places people can hardly participate but can only mobilize when they need to contribute, so many works are not urgent needs of the people, so after construction, they are not effectively put into use and quickly degraded”* (Ho Anh Dao, 2018).

In many places today, the publicity and transparency of information so that people can participate in state management activities in general and participation in new-style rural construction, in particular, are still minimal.

Table 1. Level of publicity and transparency in decision-making in local government

Provinces and municipalities under the command of the central government	2018	2019	2020
Ha Noi	5.09	5.06	5.24
Ho Chi Minh city	5.23	4.45	5.38
Ha Giang	5.35	4.35	5.44
Lai Chau	5.23	4.97	5.03
Quang Ngai	4.82	4.30	4.92
Binh Thuan	4.64	4.34	5.07
Dak Nong	5.53	4.92	4.95
Gia Lai	5.20	4.85	5.07
Tay Ninh	4.79	4.52	5.06
Tra Vinh	4.65	4.06	4.70

Source: CECODES, VFF-CRT, RTA & UNDP, 2019, 2020, 2021.

From Table 1, it can be seen that the level of publicity and transparency of information of local authorities is shallow (the average score of localities ranges from 4-5.5/10 points). The specific contents of publicity and transparency such as access to information, publicizing the list of poor households, publicizing budget revenues and expenditures at commune/ward level, publicizing land use plans, and compensation price brackets are all shallow. The fact that the commune-level Government has not focused on publicity and transparency of information will cause many difficulties for people when participating in building a new-style rural - participating in building a new-style rural.

Secondly, the problems faced by farmers in performing their roles.

Many farmers are still not fully and accurately aware of their role in building new-style rural, *“The perception of the subject role of the peasantry and the peasantry is not profound and comprehensive. This is a big obstacle for thinking and action, in promoting farmers' ownership in building new-style rural”* (Ho Ngoc Hy, 2021). They also do not fully understand their rights in the process of new-style rural construction, *“The IPSARD survey in 2019 showed that only 68.1% of households said that they have the right to participate in planning, local new-style rural plans, and projects; only 55% of households said that they have the right to participate in the selection of works and projects; 66.9% of households said that they have the right to supervise the implementation of new-style rural projects”* (According to Anh Cao, 2020).

In some places, farmers still have the idea that rural construction is the responsibility of the Government. When the Government and socio-political organizations launch movements and programs, farmers will participate. Meanwhile, the active participation of farmers is not high. There are even places where the Government creates conditions, but farmers are still afraid to participate. In addition, the necessary conditions to promote farmers' roles are not guaranteed. *“Farmers still operate spontaneously, with limited legal knowledge and qualifications, so the content of participation is not diverse, and the level of participation is low. People, especially those in backward areas, far from urban centers, lack communication facilities. They have difficulty expressing their opinions and aspirations and are afraid to contact state agencies”* (Do Van Quan, Nguyen Tien Doan, 2016). The reality is the process of building a new-style rural in the coming time shows that not all farmers have all the necessary conditions to participate in new-style rural construction, *“the majority of farmers in our country are still the poorest class in society, and the gap between rich and poor is increasing. A part of farming households has no savings,... More than 90% of the country's poor households live in rural, remote, and isolated areas, lacking opportunities to develop production and business, lack of knowledge of commodity production and markets”* (Luong Quoc Doan, 2021).

Table 2. Structure of people’s contributed capital in total mobilized capital in new-style rural construction

Period	Total mobilized capital (Billions dong)	Specific sources of funds	Amount (Billions dong)	Ratio (%)
2011-2015	851.380	State budget	266.785	31,3
		Credit	434.950	51,1
		Enterprise	42.198	5,0
		Community	107.447	12,62
2016-2019	1.567.091	State budget	403.333	27,7
		Credit	958.859	61,2
		Enterprise	76.411	4,9
		Community	128.488	6,2

Source: Central Steering Committee for National Target Programs for the period 2016-2020, 2020

According to Table 2, people’s participation in contributing resources for new-style rural construction is minimal. Especially in the 2016-2019 period, the proportion of people’s mobilized capital increased compared to the 2011-2015 period, but the proportion of people’s contribution to the total capital structure decreased (from 12.62% to 6.2%). This also partly reflects the difficulties in resources of the people.

4. Discussion and Conclusion

4.1. Discussion

In order to promote the role of farmers in new-style rural construction in the coming time, we recommend the following solutions:

Firstly, raising awareness of officials, civil servants and farmers about the role of farmers in building new-style rural.

Cognition is a determining factor in an individual’s behavior. Only when they have the correct perception can they make the right choices and take the initiative to do the work. If officials and civil servants have the right and sufficient awareness, they will actively attract and create conditions for farmers to participate. If farmers have complete and accurate awareness, they will actively participate in building new-style rural. Objects to raise awareness here include cadres, civil servants, and farmers. The content of propaganda to raise awareness for cadres and civil servants is the benefit of people’s participation in this process, the responsibility of cadres and civil servants in taking the initiative and creating conditions for people to participate. Governments at all levels need to propagate to cadres and civil servants to see the role and importance of farmers in building new-style rural, avoiding the thought of “lack of trust” with farmers.

Meanwhile, the content of propaganda for farmers is the benefits that building a new-style rural brings to farmers - the content farmers enjoy, the need to participate in the construction of a new-style rural area, the responsibility of the farmers. Each person's responsibility for new-style rural construction. When participating in new-style rural construction, farmers are most interested in the benefits they receive, so the Government needs to guide and explain the direct and indirect benefits, the immediate and long term if they participate. In order to raise awareness, it is necessary to promote propaganda and dissemination to cadres and civil servants as well as to farmers. Harmoniously combine the Party's people's movements, the Government's people's movements, and the mass mobilizations.

Secondly, promote publicity and transparency of information for farmers.

In order for “people to discuss”, “people to do”, and “people to check”, we must first make sure that “people know”. This requires commune-level authorities to strengthen the transparency of information for farmers. Farmers can only truly and effectively participate when fully informed and fully understood about programs and policies. Therefore, the commune authorities need to provide them with information promptly. This publicity and transparency can be done by posting it at the headquarters of the People's Committee, the headquarters of the hamlets and hamlets. Besides, actively publicizing directly to farmers through meetings, dialogues, or receiving citizens. Besides, with the development of the industrial revolution 4.0, it is necessary to promote the application of information technology in public transparency for farmers. This should be done through the Portal, using social networks like Facebook, Zalo, etc., to inform farmers. The Government must ensure that information is disclosed quickly and accurately.

Thirdly, select participation forms and models suitable to the characteristics and conditions of each subject.

For farmers to promote their actual role, the Government needs to have measures to attract them to participate in association with the characteristics of each locality and object. The Government needs to analyze the socio-economic conditions, psychological characteristics, and ability to participate in each farmer to have attractive measures suitable to their ability and conditions. For experienced and qualified farmers, focus on attracting them to contribute ideas for programs and plans to build new-style rural areas. Mobilize those with economic conditions to participate in financial contributions, land donation, and equipment support. The farmers who do not have economic conditions are encouraged to contribute their efforts to participate in the implementation of new-style rural construction programs. The Government needs to exploit the resources associated with the conditions of each farmer in order for the mobilization and attraction to be effective.

If promoting the role of farmers is limited to slogans, the formal movement will not be effective. To promote the fundamental role of farmers, the Party, Government, and socio-political organizations need to build scientific and specific models and solutions. The practice has proven that only through specific models can the mobilization of people be effective. The models are both a mechanism to ensure the participation of farmers, on the other hand, create spillovers and promote the initiative of farmers. Therefore, in the coming time, it is necessary

to perfect and replicate existing models such as the “4 houses” linkage model (Farmer - Entrepreneur - Scientist - State) the model “One commune, one product”, “Products”, the “Farmer’s Club” model, etc. At the same time, many new models should be built, especially those that need to be associated with each specific object, such as the “Women and construction model new-style rural”, model “Veterans with new-style rural”, model “Youth union with new-style rural”,...

Fourthly, improve proactiveness and ensure conditions for farmers to play their role.

To promote the role of farmers, the key point still lies with farmers. The roles only really come into play when farmers have the conditions and ability to participate. Therefore, in the coming time, the Government needs to improve the accessibility and participation of farmers. The Government needs to step up propaganda, dissemination, and publicity of information so that farmers have sufficient understanding to participate. The Government must make them know the policies, laws, programs, and plans and entirely and thoroughly understand these contents. Raising people’s knowledge is an essential condition for farmers to participate effectively.

On the other hand, it is necessary to have policies to take care of the complex life of farmers so that they can participate. In addition, the Government needs to promote the self-discipline and initiative of the people in building a new-style rural. Each farmer himself must also actively participate in new-style rural construction, considering this both a right and a responsibility for himself, the Government, and society.

4.2. Conclusion

The article’s research results have shown that farmers have an essential role in implementing the new-style rural construction program in Vietnam. Farmers participate in all steps and activities in the new-style rural construction program. However, promoting the role of farmers in this process is not easy. Practice shows that ensuring farmers’ roles in new-style rural construction faces many difficulties from the people themselves and state agencies. Promoting the role of farmers requires the Government to develop solutions and scientific models. At the same time, each farmer must actively participate in this process. Finding a “common voice” is a fundamental factor in promoting the fundamental role of farmers, thereby successfully realizing the objectives of the new-style rural construction policy.

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THE DEVELOPMENT OF SUSTAINABLE TOURSIM BUSINESS AT DONG THAP'S SA DEC CULTURAL TOURISM VILLAGE

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Abstract

Sa Dec city is the center of economy, finance, education and culture, and tourism in the south of Dong Thap province. In 2020, the People's Committee of Dong Thap province built and put into operation the project "Sa Dec Culture and Tourism Village" in Dong Thap province. The project is divided into 2 phases: from 2020 - 2025 and 2026 - 2030, with the aims to exploit the development potential of Sa Dec Flower Village to serve tourism, contribute to socio-economic development, and improve the lives of local people. The article describes an overview of theoretical research on sustainable tourism business and enters into the study of sustainable tourism business at Sa Dec Cultural and Tourism Village. From there, solutions for sustainable tourism business development are suggested.

Keywords: *Tourism, sustainable business, Culture tourism village, Sa Dec.*

1. Introduction

Deeply renovating and implementing sustainable development of the tourism industry is of great significance to accelerating economic development, creating jobs for local people, helping to adjust the economic structure strategy, promoting exchanges and cooperation at home and abroad. Sustainable tourism development is a close combination of environment, society, and economy, without harming the existing natural environment of the locality.

Dong Thap province has been exploiting the potential of developing the model of Sa Dec Culture and Tourism Village in the direction of sustainable tourism business. The tourism industry is characterized by broad linkages, which can play an essential role in promoting the development of related industries. Therefore, researching sustainable tourism business in Sa Dec Cultural and Tourism Village is one of the effective measures to contribute to fostering socio-economic development and improving the lives of Sa Dec people in general and Dong Thap province.

2. Method

The research employed paper-research for collecting, analyzing data; and then some suggestions were concluded.

3. Results

3.1. The concept of sustainable development, sustainable tourism business and operating principles

3.1.1. Sustainable development and sustainable tourism business

“Sustainable development” was first defined in the 1980s in Brundtland’s report. The tourism industry also inherits the concept of sustainable development, but so far, there is no unified concept of this definition; it continues to be widely discussed and researched. In particular, the growing concern for the environment, resources, and social justice in the 1980s gave rise to the concept of sustainable development, which is defined as development that meets the present needs without including the ability of future generations to meet their own needs, by the “Brundtland Report.”

Based on this report, the United Nations World Tourism Organization (UNWTO) has defined sustainable tourism as “development that meets the needs of tourists and existing host regions while protecting and enhance opportunities for the future.” It is expected to lead to the management of all resources so that economic, social, and aesthetic needs can be met while maintaining cultural integrity, essential ecological processes, biodiversity, and life support systems. In other words, sustainable tourism should be defined through a participatory approach, involving industry, tourists, and the host community or region to determine sustainability values and indicators.

According to Landrum and Edwards, a sustainable business enterprise means “operating for the benefit of all present and future stakeholders in a way that ensures the health and long-term viability of the business and its economic, social and environmental systems.” Businesses that focus solely on reducing their environmental impact are referred to as “green businesses.” Sustainable tourism business will focus on all three aspects of sustainability, often referred to as “three key points”. They are closely related to each other, and their interdependence needs to be understood. However, implementing environmental initiatives can be the first step towards sustainability following Kernel’s four-step model for sustainability in tourism businesses.

The first steps are mainly concerned with the development of environmental cleanup procedures and environmental management practices. The next and final steps challenge organizations to go further and include social and ethical aspects and integration in the community. Similarly, Dunphy, Griffiths, and Benn’s sustainability stage model identify different steps organizations can take to achieve sustainability. The final stage is called the “Sustainability Group”. The sustainability ideology is adopted with a fundamental commitment to enabling the planet’s ecological capacity and contributing to social practices and human satisfaction.

3.1.2. Principles of sustainable tourism business development

For a long time, people have always considered tourism development an economic activity and only focused on pursuing its economic benefits, but relatively overlooked the impact of tourism on the environment. Tourism resources and tourism environment quality are the foundation for the existence and development of tourism; the severe damage caused by tourism to the environment, especially the natural environment, hinders the sustainable

development of tourism and entails related negatives. To achieve sustainable tourism business development, it must ensure three primary contents: Sustainable environment, sustainable society, and sustainable economy. It is necessary to identify the principles of sustainable tourism development, taking as a guideline for further activities, helping tourism develop sustainably in the future. Here are ten basic principles:

- Principle 1: Exploiting and using resources is sustainable; the conservation and sustainable use of natural, cultural, and social resources are essential. These will make the tourism business grow in the long run.

- Principle 2: Reduce over-consumption of resources and reduce waste are reducing over-consumption of resources such as water and energy and reducing waste into the environment. These will avoid recovery costs and contribute to the quality of tourism services.

- Principle 3: Maintaining diversity includes natural, social, and cultural ones. Maintaining and enhancing the diversity of nature, culture, and society is essential for long-term sustainable tourism development and the tourism business's survival support.

- Principle 4: Tourism development must be in the overall socio-economic development planning, integrating tourism development into the national and local socio-economic development strategic planning framework. In other words, conducting an environmental impact assessment will increase the long-term viability of the tourism industry.

- Principle 5: It is related to the local community. The participation of the local community in tourism activities will not only benefit the local community and the environment but also improve the quality of tourism service.

- Principle 6: Tourism development must support local economic development. A tourism industry that supports local economic activities and takes into account environmental value and cost. Data is essential to help solve outstanding problems and benefit attractions, the tourism industry, and customers.

- Principle 7: Collecting the opinions of the public and relevant stakeholders is essential. Exchanges and discussions between the tourism industry and the local community, different organizations, and related agencies are necessary to resolve potential conflicts of interest.

- Principle 8: human resource training focuses on human resource training, including integrating sustainable tourism development into work practice and recruiting local workers in all areas will increase tourism products.

- Principle 9: Responsible tourism marketing, providing tourists with adequate and responsible information promotes visitors' respect for the natural environment, culture, and society in the destination and will increase visitor satisfaction.

- Principle 10: research is the final principle. Continuing to research and monitor tourism activities through effective use and analysis of data is essential.

3.2. Sustainable tourism business development in Sa Dec cultural and tourism village

3.2.1. General overview of Sa Dec Culture and Tourism Village

Sa Dec is one of three cities in Dong Thap province, Vietnam. With Cao Lanh city and Hong Ngu city, it forms three economic centers of Dong Thap province. Sa Dec city is the center of economy, finance, education and culture, and tourism in the south of Dong Thap province. The ancient land of Sa Dec has the Khmer name of Phsar Dek; there are two

ways to understand it. The first is that Phsar Dek is the name of a goddess; the second one is from Phsar Dek, meaning Iron Market. Historically, this is the oldest city in Dong Thap province, with an age of over 300 years at the same time as Saigon.

For Sa Dec's smokeless industry to develop more deeply and sustainably in the coming periods, implementing more in-depth plans is essential. Implementing the project "Sa Dec Culture and Tourism Village" (one of 10 tourist villages selected for pilot nationwide) between 2019 and 2025 and the orientation in 2030 is one of the critical planning projects essential to be promoted by Dong Thap province in Sa Dec city. With an orientation to 2025 and a vision to 2030, the Sa Dec Cultural Tourism Village project is built with its distinctive local imprint on an area of about 510 hectares, the core area of Tan Quy Dong ward, which will spread to neighboring regions.

Sa Dec Culture and Tourism Village will be built to promote cultural values and traditional crafts. It helps to create valuable tourism resources to serve the needs of artistic research and sightseeing tours of tourists, bring economic benefits and protect natural resources, improve the living environment in the flower village area, and improve the community's quality of life. It also creates opportunities for cultural exchanges between localities at home and abroad.

The four core elements to build Sa Dec cultural and tourism village are the state, local people, investors, and scientists. Accordingly, the culture and tourism village will be planned into specific areas such as The cultural village operator's area; local OCOP product display area; the sample house of flower varieties; culinary experience area of folk dishes from flour and fish sauce; traditional festival area; resort bungalow; spa area, beauty care services from flowers; hydroponic flower garden; processing area for flower oil; parking lot...

In terms of organizational structure, there will be a tourism village management board including Management board, supervisory board, secretary board, operation board, finance board, and marketing board, and at the same time develop a set of rules for private treatment in the cultural village.

The project's primary purpose is to create highlights, promote traditional values of the locality and craft villages, create tours to stimulate Dong Thap tourism development. These activities improve income and living standards for people, increase the value of agricultural products from tourism, develop cultural values and local craft villages in locals with environmental protection, and improve the quality of community life. The total cost of this project is estimated at nearly 600 billion VND.

3.2.2. The benefits of sustainable tourism business development at Sa Dec Culture and Tourism Village

Achieving sustainable development of the tourism industry is a great driver to promote the transformation of development modes and promote the development of the economy. In addition, the usual benefits are raising income - living standard for people, increasing the value of agricultural products from tourism, developing local cultural values and craft villages associated with environmental protection, and improving the quality of community life, etc. Sustainable tourism business at Sa Dec Cultural Tourism Village also brings the following distinct benefits:

Reduce investment costs

The most significant benefit of sustainable tourism business activities at Sa Dec Cultural Tourism Village is reducing input costs for businesses. Cost reduction is the main driving force behind the introduction of the environmental initiative. Specifically, rising water, energy, and waste treatment prices have led many tourism businesses at Sa Dec Culture and Tourism Village to look for alternatives. Operational measures are recycling systems, use of recycled materials, installation of water-saving appliances, low-energy light bulbs, energy conservation measures such as solar insulation. These initiatives focus exclusively on the environmental aspect of sustainable tourism businesses at Sa Dec Culture Tourism Village.

It can be seen that, compared with other industries, the sustainable tourism business in Sa Dec Cultural and Tourism Village has the advantage of consuming fewer resources and low environmental costs. Accelerating the development of the tourism industry can transform the traditional model based on resource consumption. It aims to promote economic growth to a new model of low energy consumption and high productivity, achieving a harmonious unity between natural, cultural resources and the sustainable development of the ecological environment. Strongly developing sustainable tourism at Sa Dec Cultural and Tourism Village can lead and promote the rapid growth of related service industries and trade in services, transforming the business model-Commercial exports using a lot of energy and polluting local areas.

Develop positive public relations

Sustainable tourism business in Sa Dec Cultural Tourism Village can also benefit investors, establishments, tourism businesses in terms of positive public relations and improve the image of homestays and hotels with shareholders and local communities. These benefits can differentiate a sustainable tourism business from its competitors and be a source of competitive advantage and new tourism market opportunities.

Get member satisfaction and high internal consensus

Through human resource management of sustainable tourism business, many members at Sa Dec Culture and Tourism Village are well rewarded, valued, and proud of their work, making a self-image more positive. Service quality and productivity are also likely to improve through more sustainable tourism and business practices. Moving towards sustainable tourism development requires a positive change in the tourism business culture at Sa Dec Culture and Tourism Village, which will lead to positive change and high consensus in the tourism industry. Building cultural beliefs, thoughts, and behaviors consistent with the concept and values of sustainable tourism business activities at Sa Dec Cultural Tourism Village.

Satisfying visitor needs is the most controversial benefit of sustainable tourism businesses. Environmental and social concerns are increasingly influencing tourist behavior. However, until now, it is still contentious if this "green" consumerism has reached the tourism industry, including business at Sa Dec Culture and Tourism Village. Again, the difficulties in defining sustainable tourism and business practices force visitors to choose based on personal judgment and limited knowledge. Sustainable tourism products are often

not readily available and specified. Therefore, more meaningful information and disclosure of the impact of products is needed. Increasing awareness towards social issues, in general, will eventually lead to an increase in demand for sustainable tourism and tourism products.

3.2.3. Difficulties to develop a sustainable tourism business in Sa Dec Culture and Tourism Village

Tourism businesses at Sa Dec Cultural Tourism Village may be limited in carrying out sustainable tourism business activities by external factors beyond their control, such as government policies or stakeholders' attitudes. But the internal obstacles in tourism businesses at Sa Dec Cultural Tourism Village may be the costs, the complexity of information, and the support of sustainable tourism business development.

Cost constraints

All tourism businesses at Sa Dec Cultural Tourism Village are concerned with the cost of implementing sustainable tourism business activities at Sa Dec Cultural Tourism Village. Many tourism businesses and households are worried about the shift to the cost of sustainable business practices and acknowledge that alternative or first-generation energy-saving technologies are costly and relatively inefficient. Today the development technologies and buildings designed to LEED standards are cost-neutral and less expensive than conventional methods. However, once the initial steps have been taken, the rise of environmental issues requires new investments that may not be financially profitable for the tourism business at the Culture Tourism Village in Sa Dec

The complexity of legal documents and documents on sustainable tourism development

Another issue is related to the definition of sustainability and practices' sustainable tourism business at Sa Dec. The lack of precision in the definition makes this problem confusing and challenging to translate into meaningful action and measures. It lacks an accepted model of sustainable tourism in practice and expertise on issues relevant to Sa Dec tourism culture-building action. The awareness level of some homestay owners and businesses also influences the adoption and implementation of documents on sustainable tourism development of Sa Dec Cultural and Tourism Village.

Information and support

To overcome the difficulties that Sa Dec Cultural Tourism Village businesses may face, such as the complexities of sustainable tourism business, information and support from the public sector are required. The role of those responsible for the development and management of infrastructure for sustainable tourism development Sa Dec Cultural and Tourism Village must be considered. It is related to the importance of involving all stakeholders in participatory approaches to develop a sustainable tourism business at Sa Dec Cultural Tourism Village.

4. Discussion and Conclusion

For Sa Dec Culture and Tourism Village to develop into a sustainable tourism business model, it is necessary to implement the following solutions.

Firstly, all Sa Dec Cultural and Tourism Village tourism businesses are concerned about the costs of carrying out sustainable tourism business activities here. Support costs should be through many channels to serve the development of tourism models with the

activities of Sa Dec Culture Tourism Village, such as flower festivals and anniversaries of ornamental flower and craft villages every year. Businesses need to develop diversified tourism products and innovate their structure to profit from the tourism business. With the increasing standard of living, people's demand for travel is also increasing. The current tourism products in Sa Dec are still relatively single. It is necessary to strengthen the development of a variety of tourism products To meet the needs of the masses of the people.

The development of tourism products should derive from market demand and attract many tourists to visit and travel through the development and construction of Sa Dec's tourism resources. In this regard, it is necessary to grasp people's inherent needs for tourism, develop resort tourism products, build public entertainment facilities, and create a positive entertainment culture here.

Secondly, because of the complexity of legal documents and documents on sustainable tourism business development, it is necessary to build software to manage, guide, promote, and make a brand identity of Culture and Tourism Village in SadeC, etc. in parallel with the implementation of tourism management innovation and a profound shift to the market mechanism. The renewal of the tourism management mechanism is based on a modern enterprise management system, upgrading the tourism industry's structure, standardizing the order of the tourism market, renewing the talent training program to create a good environment suitable for the positive development of the tourism industry.

Third, since tourism businesses often face difficulties in updating public sector information, support from the public sector and stakeholders is needed in sustainable tourism business development methods at Culture and Tourism Village of SadeC.

Fourth, the solutions are boldly innovating methods, constantly upgrading the structure of the local tourism industry, promoting the Sa Dec culture tourism industry to develop sustainably. For example, it is necessary to follow the view of the depth of reform and opening up of the tourism industry and implement the sustainable development of the tourism industry while enhancing planning efficiency. Planning tourism is based on the principles of high standards and high requirements. They must be professional, creative, and specific. Invest in implementing synchronous works and items are spatial planning, the landscape of culture and tourism village, promoting business and production of ornamental flowers, preserving traditional cultural values, and promote tourism activities in the flower village.

Fifthly, exploiting traditional cultural values creates valuable tourism resources to serve the needs of tourists for research, artistic exploration, and sightseeing, bringing economic benefits and protection of natural resources, etc. In the construction and development of scenic beauty, the sustainable development of the ecological environment and its possible impacts on the lives of residents at Sa Dec Culture and Tourism Village must be fully considered. Developing eco-tourism resources reasonably and scientifically is the first principle of protection. Besides, it is necessary to promote tourism integration with other industries at Sa Dec Culture and Tourism Village.

Sixth, it is recommended that the Government continue to balance the budget to support the province in implementing the program to build Sa Dec culture and tourism

village towards sustainable development. These are using tourism industry policy as a guarantee, relying on science and technology as support, and striving to build a suitable business and development model for tourism here. Enterprises must take responsibility for their profits, bear their risks, develop themselves, reform development models, establish a modern enterprise system, and improve economies of scale and service quality through social funding and government support while enhancing market competitiveness.

Seventhly, due to the specific nature of the industry, the employees in tourism in general and Sa Dec cultural tourism village, in particular, occupy a crucial position. The quality of tourism business services at Sa Dec Culture and Tourism Village partly depends on the capacity of tourism business staff. Therefore, it is necessary to create favorable conditions for fostering employees' capacity and recruiting and retaining experienced and passionate employees. The short-term training courses should regularly be open to improving the quality of human resources for sustainable tourism business at Sa Dec Culture and Tourism Village. The activities include establishing a training system for tourism practitioners, engaging local communities, strengthening tourism management, and educating environmental protection on sustainable regional tourism development. Installing a complementary system of planning and guidance for the sustainable development of Sa Dec Culture Tourism Village is necessary.

Eighth, building a security system for the local tourism industry is to enhance tourism safety. It is necessary to improve the service capacity of tourism management such as tourism consulting, information services, and safety rescue system To establish a safety system for Sa Dec Culture and Tourism Village. , It aims to be aware of the responsibility for the lives and property of so many tourists. Besides, it is also necessary to establish and perfect the travel insurance system, improve liability insurance of travel agents, travel accident insurance, and other travel insurance, improve the efficiency of travel insurance requirements, improve the ability to prevent and deal with risks.

Finally, it is necessary to continue improving the mechanism to settle tourism complaints, listen to and handle complaints of tourists in a timely and severe manner, and effectively protect tourists' legitimate rights and interests.

Sustainable tourism business in Sa Dec Culture and Tourism Village requires operators and tourists to take specific responsibilities, raise environmental awareness and love for nature, minimize interference and the impact of tourism activities on the local ecosystem. At the same time, through the development of tourism activities at Sa Dec Cultural and Tourism Village, it is necessary to create job opportunities for local people and actively attract them to participate in the protection of cultural and natural heritage. It aims to achieve a balance between tourism economic benefits, environmental and social benefits. This goal fully draws on successful international experience and has strategic foresight and long-term guiding significance.

In conclusion, sustainable tourism business at Sa Dec Cultural Tourism Village – following the basic principles, besides the benefits, there are still many difficulties implementing activities. Promoting the benefits and gradually overcoming the difficulties require the efforts of the government and tourism businesses and the participation of all local

people to restore and develop these cultural values and traditional professions. The activities lead to promoting the exploitation of local cultural values, creating valuable tourism resources for research, artistic exploration, sightseeing, bringing economic benefits, preserving the environment, protecting natural resources - this helps to improve the living environment in rural areas and improve the quality of life. By analyzing the current situation and shortcomings of sustainable tourism development, the solutions are given, hoping to contribute to promoting the development of tourism at Sa Dec culture tourism village in particular and tourism in Dong Thap in general.

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ENHANCING THE UNDERSTANDING OF CIRCULAR ECONOMY-ORIENTED AGRICULTURAL PRACTICE IN VIETNAM

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Abstract

The definition of Circular Economy (CE) has evolved over time. It includes intervention options for reducing energy consumption, improving the efficiency of production, introducing recycling and reuse for materials management, including new business models geared at waste prevention. Circular economy is currently a popular concept promoted by several national governments and by many businesses around the world. However, the scientific and research content of the CE concept is superficial and unorganized. CE seems to be a collection of vague and separate ideas from several fields and semi scientific concepts. The aim of that paper is to show how CE can apply to Agricultural Practice in Vietnam. We first reviewed the literature with the Current Concept of Circular Economy, then we will present the characteristics of Agricultural Circular Economy in Vietnam with the Driving Force for Agricultural Circular Economy Development in Vietnam, then point out the Definition and Features of Vietnam's Agricultural Circular Economy. After that, three cases studies on Agricultural Circular Economy will be presented, the three case studies are the three typical models that can be successfully in practice. These case studies also give three suggestions when applying the circular economy model in the agricultural sector.

Keywords: *Agricultural Circular Economy, Circular economy, Vietnam's Agricultural Circular Economy*

1. Introduction

Since the middle of the 20th century, the rapid population growth, the pressure of economic growth, the urbanization, industrialization, the demand for fuels and energy have increased the exploitation of natural resources, causing environmental pollution and climate change. According to UN estimates, by 2030, if the development continues with a linear economic model (based on the process of exploitation, production, consumption and final disposal into the environment), the demand for resources will be 3 times higher than today, beyond the supply of the Earth, the amount of waste will exceed the load capacity limit of the environment. That fact leads to an urgent need to find a more efficient and sustainable economic model in terms of resource use, pollution reduction, environmental degradation, and response to global climate change.

In agriculture, for the past 5 years, Vietnam has always been an import surplus country for fertilizers and pesticides, with billions of dollars in spending. The World Bank (World

Bank, 2016) estimated that air pollution alone caused Vietnam to lose 5.18% of its GDP in 2013. Water pollution is forecast to cost Vietnam up to 3.5 % of GDP (World Bank, 2019). That is not to mention land pollution and land degradation which are seriously affecting agricultural production, a traditional profession of most Vietnamese people over the years, along with climate change has seriously affected the economic development of Vietnam.

Facing the above issues, many countries are now making progress towards a circular economy (CE), Vietnam cannot be out of that trend. Circular economy is the opposite concept to Linear Economy, which is considered as a suitable way of development in the context of realizing the goals of sustainable development (SDGs) and responding with climate change. An integrated circular economy and support for the implementation of 10 out of 17 common goals of sustainable development, including SDG2, SDG6, SDG7, SDG8, SDG 9, SDG 12, SDG 13, SDG 14, SDG 15 and SDG 17. In particular, there are targets directly related to the agricultural sector, such as SDG2-Eradication of hunger; SDG12-Responsible Production and Consumption and SDG15-Sustainable Land Use.

The current and traditional linear extract-produce-use-dump material and energy flow model of the modern economic system is unsustainable (Frosch & Gallopoulos, 1989). Circular economy provides the economic system with an alternative flow model, one that is cyclical. The idea of materials cycles has been around since the dawn of industrialization. The idea has also been practiced accompanied by the argument that it reduces negative environmental impacts and stimulates new business opportunities already during the birth of the industrialization (Desrochers, 2004). But the linear throughput flow model has dominated the overall development causing serious environmental harm. Unlike traditional recycling the practical policy and business orientated circular economy approach emphasizes product, component and material reuse, remanufacturing, refurbishment, repair, cascading and upgrading as well as solar, wind, biomass and waste-derived energy utilization throughout the product value chain and cradle-to-cradle life cycle (EMAF, 2013).

This paper has two research objectives. First, we will construct the concept of CE from the perspective of World commission on environment and development (WCED) sustainable development and sustainability science including the three dimensions of economic, environmental and social sustainability. Second, we will analyze the Circular Economy-Oriented Agricultural Practice in Vietnam. In the analysis, we will identify the different sides of Vietnam agriculture circular economy including driving force for agriculture circular economy development, the definition and features of Vietnam's agricultural circular economy, operation of Vietnam's agricultural circular economy and two case studies that can be the model for Vietnam.

2. Background: On the Current Concept of Circular Economy

2.1. The main challenge

The concept of circular economy is considered from the perspective of the concept of and scientific research on sustainable development. In particular, sustainability science (Kates, et al., 2001) and the three-dimensional concept of sustainable development are used as the main philosophy of the approach adopted in our discussion. Sustainable development

(WCED, 1987) was originally defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. There exists a common consensus on this broad qualitative definition.

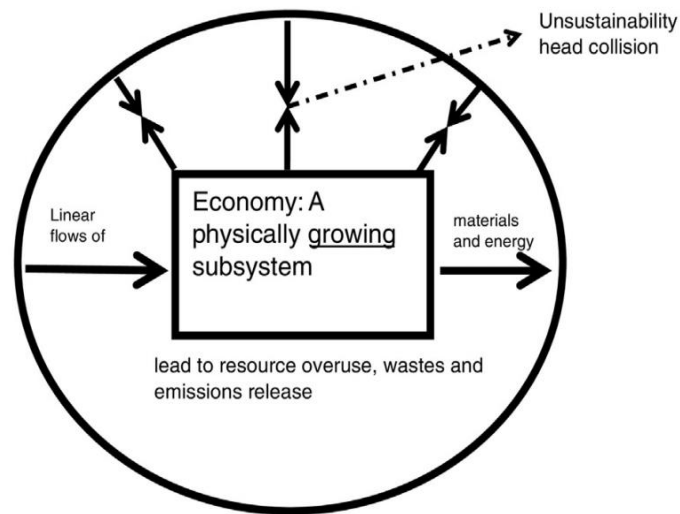


Figure 1. Nature - A shrinking parent system

In Fig. 1, the main challenge of sustainable development is depicted from the perspective of physical flows of materials and energy. The key issue in global sustainable development is the linear (one way) throughput flow of materials and energy between nature and human economy. The throughput flow is “running down” the system in which it operates, from which it sources and to which it releases its wastes and emissions. Brown (Brown, 2006) shows that the global ecosystem is becoming smaller. The global natural ecosystem is shrinking in size and volume. The shrinking is clear if measured simply in quantitative terms, but very apparent also in the sense of the qualitative potential of the earth's ecosystems to provide life-sustaining functions. Measured by the land area that can support human habitation, the earth is shrinking, and at an accelerating pace. Deserts are expanding, the sea level is rising, the population is growing, per capita consumption is increasing, the volume of livestock and cattle is growing and biodiversity is depleting at ever faster rates. The shrinking is best illustrated by advancing deserts and rising sea levels that work inwards in Fig. 1 toward the economic system, which in, turn is expanding outwards. This process is leading to a head-collision.

A simple and logical answer to the problem of the linear flow model is its reverse; a cyclical flow of materials and energy. Although, by definition, energy cannot be recycled, only cascaded for extended use on lower temperature and pressure levels, one can speak about materials and energy cycling for the purpose of simplification.

2.2. The Currently Proposed Circular Economy Solution

The answer to the question of unsustainable global linear flow economy would seem to come from the physical flow concept in which the flows are reverse; the concept of circular economy. In this paper, the CE concept is considered in scientific terms. The CE vision is here constructed from the viewpoint of the WCED definition of sustainable

development and from the perspective of planetary boundaries on environmental sustainability (Robèrt , Broman, & Basile, 2013).

The current practitioner and business world formulated CE concept is given in Fig. 2. The CE message is that the inner circles of Fig. 2, product reuse, remanufacturing and refurbishment, demand less resources and energy and are more economic as well than conventional recycling of materials as low-grade raw materials. The time the value in the resources spends/lives within the inner circles should be maximized. Materials should first be recovered for reuse, refurbishment and repair, then for remanufacturing and only later for raw material utilization, which has been the main focus in traditional recycling. According to CE, combustion for energy should be the second to last option while landfill disposal is the last option. In this way, the product value chain and life cycle retain the highest possible value and quality as long as possible and is also as energy efficient as it can be.

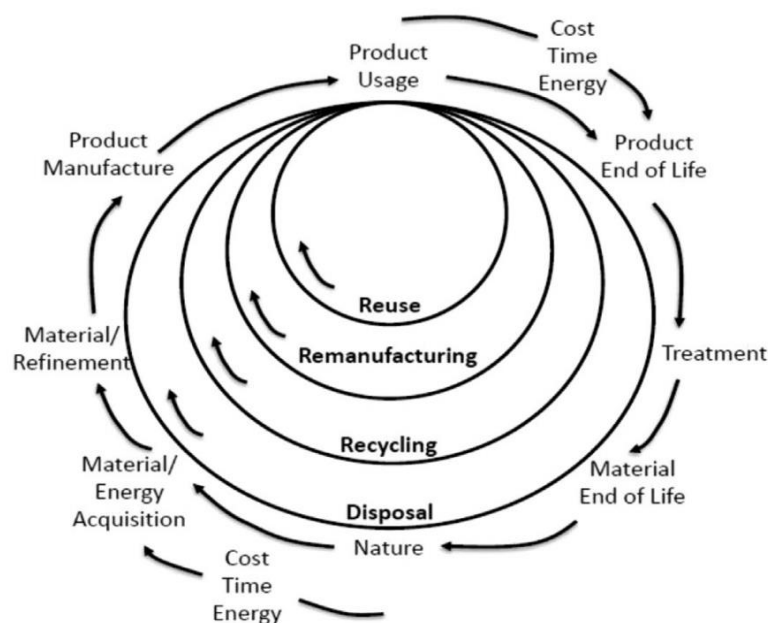


Figure 2. The current concept of circular economy (Mihelcic, et al., 2003)

The CE message is that the inner circles demand less resources and energy and are more economic as well. The time the value in the resources spends within the inner circles should be maximized.

Once a raw material is extracted, refined and produced with the usual costs, it makes economic and business sense to use the value produced as long as possible, i.e., keep the product function/service and use-value in economic circulation as long as possible. This often results in environmental gains as well when compared with traditional linear extract-produce-use-dump material and energy flow model of the modern global economic system. The currently popularized CE concept extends conventional waste and by-product utilization and recycling by emphasizing the utilization of the value embedded in materials in as high value applications as possible (Asif, Lieder, & Rashid, 2016). It adds to traditional recycling, which usually recycles materials as raw materials, i.e., in applications where much of the economic value of the product has already been lost.

3. The characteristics of Agricultural Circular Economy in Vietnam

3.1. Driving Force for Agricultural Circular Economy Development in Vietnam

Vietnam has remained a predominantly agricultural country since the Vietnamese civilization was born 4000 years ago. Since 2000, Vietnamese farmers have already had the pristine idea of the circular economy. They have fermented feces, garbage, crop stalks, green manure and biogas slurry etc. and reused them in agricultural production. Farmers' livestock and poultry, fish, mulberry, marsh gas, vegetable plots, farmland, fish ponds, wood and villages have constituted the prime ecosystem featuring circular economy development. "Mulberry fish pond complex" and "rice-duck farming" have been summarized as the pristine models of the circular economy development of Vietnam's agriculture. Even in the 1980s, Vietnam's circular agricultural production still went on in line with the traditional natural and ecological laws.

Vietnam has witnessed constant high-speed economic growth since the reform (Doi Moi in 1986) and opening-up drive was initiated. Benefiting from industrial achievements, the agriculture has also seen long-term stable growth. Nonetheless, its sustainability is currently facing the increasingly challenging constraints of resources and environment. The arable land per capita is decreasing in recent years and the land is primarily composed of mountainous regions and sloping fields. Nevertheless, 100 million Vietnamese people need to be fed. The grain security and the need to provide agricultural products for industrial production have imposed huge pressure on Vietnam's agriculture, for which top priorities shall be given to increasing yields per unit land area and guaranteeing the supply of agricultural products. Vietnam's technological advances and preferential policies for agriculture have significantly heightened the agricultural production efficiency and left much room for improvement. However, with the rising demands for agricultural products of large amounts and superior quality, Vietnam confronted with its fundamental realities of a big population and little land has to apply a large number of fertilizers and pesticides etc. made from petroleum products in agricultural production. The petroleum-based agriculture has triggered overuse of fertilizers and pesticides and rapidly increased discharge of agricultural waste, throwing Vietnam into the huge pressure from the deteriorating ecological environment and human life caused by the increasingly severe non-point source pollution and the accumulation of agricultural wastes. The petroleum-based agriculture, featuring capital-intensive, heavily-polluting and low-benefit extensive operation, has taken a terrible toll on Vietnam.

The Vietnamese government has recognized that Vietnam's agriculture has to transform its mode of development, and promote circular economy development in an effort to enhance agricultural production efficiency and address environmental problems in rural areas from the source by reducing resource consumption as well as reusing and recycling resources. As circular economy-oriented practice in Vietnam's industry has played an exemplary role, the concept of circular economy has been gradually introduced into Vietnam's agriculture and integrated into the whole process of agricultural production. Vietnam has established the recycling mechanism of "agricultural resources agricultural

products—agricultural wastes—reutilization or reproduction—return to agriculture” and developed a series of technologies and various models for circular economy development of agriculture. All these measures have contributed to the sustainable agricultural development, the supply of high-quality and safe agricultural products and the resource ecology balance.

Vietnam’s agricultural system is unique in many ways. American agriculture is based on highly commercialized family farms featuring large areas, capital intensiveness, mass production, mechanization, and intensive and specialized operation. Due to its large population with relatively little arable land, Japan’s agriculture has attached special importance to boosting its arable land utilization efficiency and is therefore highly intensive, facility and mechanization dependent, and eco-friendly. In order to overcome the constraints of small area of arable land per household, related groups like agricultural associations have been organized for mass production. In Vietnam, the circumstances of land, water and opt thermal vary greatly in different regions, and the per capita availability of arable land is quite low. The household responsibility system featuring “collective ownership, and decentralized operation” has been applied in Vietnam’s rural areas. For this reason, Vietnam’s agricultural production features decentralized household operation, intensive farming and stark regional differences. In recent years, the agricultural production has begun to present the features of enhanced specialization of agriculture and rural economy, accelerated land transfer, mass production, facility dependence, intensiveness and standardization. The uniqueness and development of Vietnam’s agriculture has given rise to its diverse modes of circular economy development.

3.2. Definition and Features of Vietnam’s Agricultural Circular Economy

Agricultural circular economy is meant to apply the principles of circular economy in agricultural production, reduce resource input, waste generation and discharge in agricultural production and during product life cycles and finally materialize both agricultural development and ecological friendliness (Qi, et al., 2016).

Agricultural circular economy also follows the “3R” principle of the ordinary circular economy, namely, “reducing”, “reusing” and “recycling”. “Reducing” refers to minimizing the amount of materials involved in production and consumption to save resources and reduce pollutant discharge. “Reusing” means enhancing the utilization efficiency of products and services and reducing the pollution caused by disposable products. “Recycling” indicates transforming spent goods into renewable resources. The “3R” principle can help fulfil the goals of “less exploitation, efficient utilization, low emission, and reutilization”, make the most of the materials and energy in production and consumption, improve the quality and performance of economic operation, reach a balance between economic development and resources and environmental protection, and conform to the goal of sustainable development.

Meanwhile, Agricultural circular economy is distinctive from ordinary circular economy in the following ways (Qi, 2010):

1. The food chain in agricultural production. The organisms involved in the circulation rely on each other as a food source, and the circulation is completed in the form

of food chain. All players involved in the circulations complement one another and form a symbiotic relationship.

2. Green production in the agriculture. Agricultural production attaches more values to product safety. In order to develop green agriculture, the amounts of applied fertilizers and pesticides must be under control.

3. Clean consumption of agricultural products. After being used to the greatest, agricultural products and byproducts return to fields in the form of biomass.

4. The function of soil and water purification. Everything depends on soil and water for growth. Soil and water boost the functions of percolation and purification. Additionally, soil can decompose biomass and purify the organisms through the natural cycle of water and soil.

5. Covering a broad range. It includes not only the internal agricultural material recycling but also the waste recycling after agriculture products processing.

3.3. Operation of Vietnam's Agricultural Circular Economy

The recycling of agricultural resources, products and waste composes the core of the agricultural circular economy and chiefly includes three levels of circulation. The circulation at the first level refers to the material recycling in the production of agricultural products, reducing the inputs of resources and materials and waste generation, facilitating cleaner production, and minimizing the amounts of discharged pollutants. Let's take crop farming as an example. Crop stalks can be used to produce feed, base material, energy and fertilizer etc, enabling the nitrogen, phosphorus, and potassium as well as the heat in them to be efficiently recycled. In the breeding sector, animal wastes have been utilized, in a comprehensive way, to produce natural gas and organic fertilizers to reduce pollutant discharge and increase the utilization efficiency of the materials and energy in them.

The circulation at the second level refers to the coexistence of crop farming, forestry, husbandry and fishery for mutual benefits as well as the exchange of materials and energy for minimized waste discharge. Let's take the multistory planting-breeding of the mulberry fish pond complex as an example. Fish can eat the pests on the lotus plants, and crabs can eat waterweed, saving the lotus from pest and disease damage. Feces of silk worms can feed fish and crabs whose feces can nourish lotus plants and mulberry and accelerate their growth. Mulberry can absorb CO₂ and release oxygen, while lotus plants can absorb the organic matters, nitrogen, phosphorus, and potassium in water, purifying the water and creating a nice environment for fish and crabs.

The circulation at the third level refers to the composite circular economy covering both agriculture and industry. Conforming to the "3R" principle, it effectively integrates the agriculture (including farming, forestry, animal husbandry and fishery) featuring mass operation, facility dependence, standardization, intensiveness and brand marketing, the industry of agricultural product processing, the industry of agricultural waste recycling and the sector of solar power utilization together in order to form the mode of circular economy or the multi-industrial composite recycling industry in certain regions or industrial parks

through technical and institutional innovations, following the flows of material and energy (as shown in Fig.3). Against such a backdrop, agriculture has been able to provide not only food and other daily necessities to human beings, but also many important raw materials and biomass energy for industrial production. The significance of the composite industrial and agricultural circular economy has become increasingly noticeable (Wang & Qi, 2013).

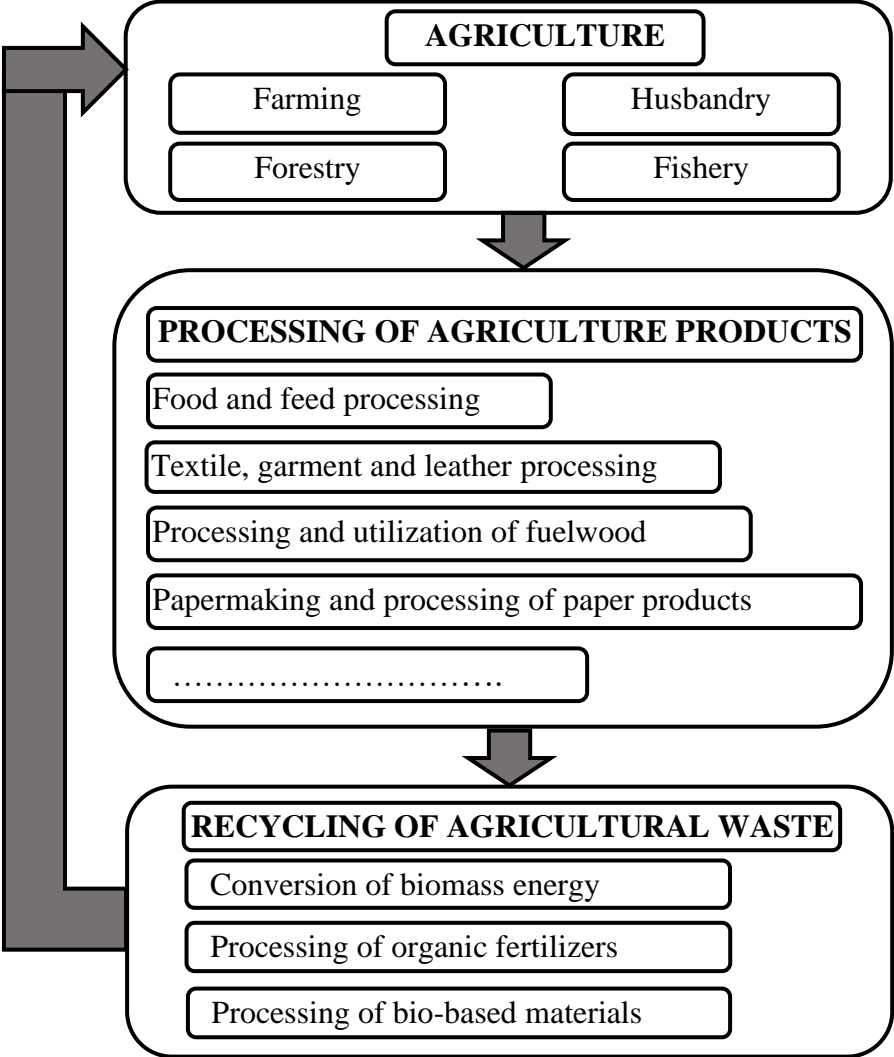


Figure 3. Schematic diagram of the model of the composite industrial and agricultural circular economy

3.4. Vietnam’s Policies and Measures to Promote the of Agricultural Circular Economy Development

The issues of sustainable management and development of the agricultural sector in the face of the pressures of resource depletion, increased waste and climate change are challenges for Vietnam. The circular economy is considered to be an appropriate approach for the development of zero-emission agriculture with economic and environmental efficiency in agriculture. Aware of this trend, the Communist Party of Vietnam and the State also have guidelines and policies to implement circular economy in general and circular economy in agriculture in particular.

Although the term "circular economy" has not been officially used, since 1998, Directive 36/CT-TW dated June 25, 1998 of the Politburo on strengthening environmental protection during the in the period of industrialization and modernization of the country, it is clear that it is necessary to "promulgate tax and credit policies to support the application of clean technologies" and "apply clean technologies with low waste, consume less raw materials and energy". This was followed by Resolution No. 41-NQ/TW dated November 15, 2004 of the Politburo stating "encourage the recycling and use of recycled products" and "step by step applying measures to force manufacturers and importers must recall and handle used products. Directives 29/CT-TW in 2009, Strategy for Socio-Economic Development 2011-2020, and Resolution 24/NQ-TW dated June 3, 2013 on proactively responding to climate change, strengthening resource management and environmental protection also continued to emphasize and detail the above tasks.

Regarding State policies and laws, Vietnam Sustainable Development Strategy 2011-2020; Environmental Protection Strategy to 2020, Vision to 2030; Green Growth Strategy; Decree 38/2015/ND-CP; Decision 16/2015/QĐ-TTg and especially the National Strategy on Integrated Solid Waste Management in 2018 are typical policies, demonstrating the policy shifts in the direction of Vietnam's circular economy and related to the development of circular economy in agriculture.

In fact, Vietnamese farmers already have some manifestations of circular economy in the agricultural sector. The Garden-Pond-Stable^{*****} (acronym in Vietnamese: VAC) model and the variant Garden-Pond-Stable-Biogas (acronym in Vietnamese: VACB), Garden-Pond-Stable-Forest (acronym in Vietnamese: VACR) - a model combining VAC with forestry activities in the mountainous provinces and Gardens - Ponds - Lakes (acronym in Vietnamese: VAH) - a model of farm on sand in the central provinces has not only helped reduce emissions but also brought good income to people. In particular, Garden-Pond-Stable-Biogas model is a solution to help overcome the unreasonableness in waste management, rationally using agricultural by-products and increasing soil fertility. In addition, this model safely treats animal waste, generates renewable energy, creates a source of fuel for daily life, reduces environmental pollution, and contributes to reducing emissions and the greenhouse effect that causes climate change. In the context that agriculture with products produced through the farm is becoming popular, the application of extended models of VAC, following the principles of circular economy will be the right direction for the sustainable development of agriculture and rural areas.

Recently, there have continued to appear a number of circular economic models in agriculture, that is the model of processing aquatic by-products (shrimp shells, shrimp heads, etc.) to create Chitosan, Shrimp Soluble Extract – (SSE), etc. with the potential revenue of 4-5 billion USD per year; organic straws made from grass and rice replace plastic straws. These examples need to be summarized and considered and supported for development and replication.

***** *The Garden-Pond-Stable (VAC) is an integrated agricultural production model including gardens (cultivation production), ponds (aquaculture), stables (raising livestock and poultry). This is an agro-ecological economic model appearing in many rural communities in Vietnam. The components in the system are closely related to each other, creating products to serve human needs and income sources for producers.*

4.1.1. Typical Case: Integration of Farming and Husbandry - “Rice-Duck Farming”

The model of “rice-duck farming” has integrated animals, plants and feed together to tap the resources in rice paddies. In terms of ecological mutualism, rice and duck make a perfect match. This mode has made full use of these natural resources of the rice paddies, light, heat, water, soil and gas, not only achieving cheering rice and duck harvests at low costs but also facilitating the virtuous circle of the ecosystem of the rice paddies. With this model, ducks are raised when double or single cropping rice is planted in double or single seasons. Three-week-old ducklings, about 150 g, are introduced in a rice paddy about 20–30 days after the seedlings have been planted. The number of ducklings can be 15–20 per 667 m². Feeds have to be released into the fields rationally and carefully. The ducks are left in the field for 60–80 days and nights. Once the rice plants form ears of grain, they have to be taken away for sale. All the processes shall be arranged in a proper order of time.

The “rice-duck farming” upgrades Vietnam’s traditional agriculture to the matching degree of the habitat featuring intergeneration, mutual promotion and inter-restriction of the organisms. Realizing planting and breeding both in the field, it has broken through the traditional method of duck feeding. Fulfilling ecological mutualism, it has also opened up a new way to integrate rice cropping with animal breeding amidst the thundering changes of the agricultural management system

4.2. Models of the Composite Industrial and Agricultural Circular Economy

The models of the composite industrial and agricultural circular economy include several sub-models.

- i. The circular economic model led by breeding and intensive processing of its products. The breeding industry provides raw materials to the sectors of food processing, fine hair processing, leather processing and the bio-industry, thus creating corresponding industrial chains.
- ii. The circular economic model featuring the integration of farming and breeding and the water-efficient combination of agriculture and industry. With agricultural product processing (liquor making and food) and breeding as the leading industries and based on the agriculture featuring mass operation, facility dependence, brand marketing, ecological friendliness, and recycling, the farming, feed industry, food industry, breeding industry, agricultural product processing industry and bioenergy (like biogas) industries, effective organic fertilizer industry, water conservation technologies, and the industries of comprehensive utilization of agricultural wastes and wastes from agricultural product processing are integrated efficiently. As such, multiple goals can be fulfilled: economic growth, job creation, environmental protection, carbon cycling promotion, agricultural upgrading and yield enhancement, higher incomes of farmers, energy revolutions in rural areas, provisions of high-quality and safe food, efficient application of water sources, resource conservation and recycling, intensive utilization of land resources, efficient carbon elements circulation, ecological environment protection, and climate change treatment.

- iii. The composite industrial and agricultural circular economic model led by the industry. This model integrates the agricultural production system and forms an industrial chain for agricultural product processing with farming as the material provider as well as a highly effective composite circular economic complex featuring the closed cycle of material flows between agriculture and industry. Such efforts can also give impetus to the ecological friendliness of regional economies. For example, corns, potatoes, sweet potatoes are used to produce bioethanol, enabling the economic model based on bio-energy recycling to take shape.
- iv. The circular economic model with forestry development as the core and the forest industry as the main thread. This model can facilitate forestry development, while the wastes from forest product processing are utilized comprehensively to develop the industrial chains of artificial forest products, food, and biomass energy to fulfill sustainable production without generating wastes.

4.2.1. Typical Case: Producing Wine in sustainable method

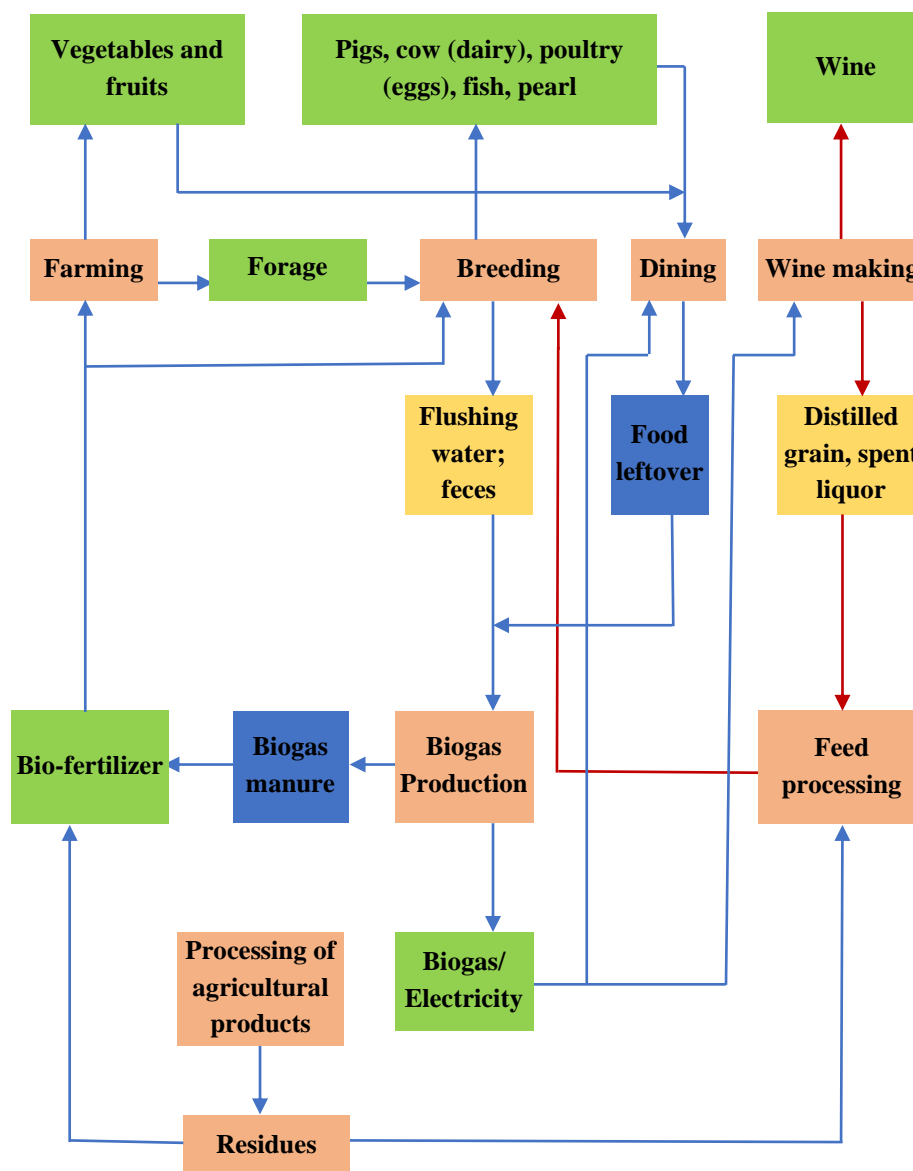


Figure 4. The technology pathway for producing wine sustainably

From the very first, the idea of circular economy development was initiated to resolve the environmental pollution caused by the distilled grain and plant and animal residues generated in liquor-making and during the production of wine as well as the sewage from factory cleaning.

- During the first stage, the company set up a biotech-based cattle feed production line with distilled grain, residues of the materials for wine production, and spent liquor from wine making as the major raw materials.

- During the second stage, the company utilized its self-produced feeds for water buffalo and cow farming, while wastes from wine making were used to produce various kinds of feeds for fish, chicken, duck, goose and pig farming.

- During the third stage, in order to resolve the pollution caused by the feces from breeding and sewage, biogas has been developed to provide clean energy.

- During the fourth stage, in order to dispose the biogas manure from biogas production, biotechnologies have been applied to process them into efficient liquid bio-fertilizer.

- During the fifth stage, the efficient liquid bio-fertilizers have been used for farming to produce organic agricultural products.

- During the sixth stage, in order to resolve the environmental pollution in neighboring areas, wastes from agricultural product processing will be processed into bio-fertilizers or bio-feeds for water buffalo and cow farming. The efficient liquid bio-fertilizer made with the biogas manure can be sold to the downstream industries (farming and husbandry).

Thousands of households in the neighboring areas have benefited from it, which has helped increase yields, improve quality, cut back on expenditures on pesticides and fertilizers, and vigorously fueling the farming and husbandry development around.

With the above-mentioned six stages of development, The Typical Case of producing Wine has made full use of the wastes generated in the production of one product, and processed them into raw materials for the production of other products, which has not only resolved the problem of resource supply but also has ensured the full utilization of resources and dissolved the environment-polluting materials. As the wastes have been disposed, the industrial chains spread vertically and horizontally, developing the company from a wine brewer into a composite circular industrial park integrating farming, animal (pig, chicken, duck, fish, swan, pearl, etc.) raising, feed production, biogas, fertilizer production, agricultural product processing, tourism and commercial trade together. The enterprise has thus fulfilled leap-frog development.

5. Discussion and Conclusion

The concept of circular economy is currently promoted by several national governments and by several business organizations around the world. The concept has been created mainly by practitioners, the business community and policy-makers. Implementing a circular economy is a trend in the world, happening in many sectors of the economy, and the agricultural sector is no exception. CE seems to be a promising concept, because it has been able to attract the business community to sustainable development work. It makes common sense, that if you extract a resource from nature and work hard for it to become a

product or a service that has an economic value, you use this value many times, not only once. This makes perfect business sense. It is also simple and logical to argue that once one uses the value embedded in resources many times, not only once as is the common practice in the linear material flow pattern of the global economy, one reduces the input and the waste and emission output of the economic activity.

In sum, this article makes the following contributions:

- The paper provides the first comprehensive attempt to make sense of the actual concept of the circular economy in terms of scientific research. We have shown the potential of CE in light of all the three dimensions of sustainable development, economic, environmental and social.

- Based on the above, the paper has demonstrated that the characteristics of CE in agriculture development in Vietnam. In addition, the paper has analyzed two case studies on Agricultural CE Development. That case studies have presented two issues that need to be taken into account when applying the circular economy model in the agricultural sector in Vietnam.

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LEVELS OF SATISFACTION OF PEOPLE IN THE NORTHERN COASTAL REGION WITH THE CURRENT AQUACULTURE AND SUSTAINABLE AQUACULTURE

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Abstract

The survey was conducted on 200 coastal farmers in Nam Dinh and Quang Ninh employing questionnaires and in-depth interviews as survey methods. Results show that the sampled farmers are relatively satisfied with their family's aquaculture practice, in which, people are most satisfied with the process and method of aquaculture; meanwhile, they are not satisfied with the way the state supports aquaculture practice. Aquaculture farmers with low levels of education have a higher level of satisfaction with the aquaculture processes and methods than highly educated ones. The current scale and conditions of aquaculture ponds/rafts, which are small-households in nature, as well as inadequate and limited water resources, breed sources and the discharge process of ponds/rafts, show challenges in aquaculture development these days. Nonetheless, many people remain quite satisfied and confident with their current aquaculture conditions. This is one of the factors preventing people from developing aquaculture in a modern and sustainable direction.

Keywords: *Farmers; levels of satisfaction; Aquaculture.*

1. Introduction

Aquaculture is a production practice based on the combination of available natural resources (sea surface, river water, ponds, lakes, low-lying fields, dead-end rivers, lagoons, climate, etc.) and aquatic animals (mainly fish, shrimp and other animals) with the direct contribution of humans. This practice in Vietnam includes rearing and growing freshwater, brackish water and saltwater aquatic products in some major forms: Intensive, semi-intensive, extensive and semi-extensive farming methods; Aquaculture in rafts on sea, river, lagoon and coastal waters surface; Krill farming; Aquaculture ponds, lakes, lagoons; Aquaculture in low-lying fields, rice fields.

The Northern coastal region includes 4 provinces and 1 city in the North of Vietnam, namely Quang Ninh, Hai Phong, Thai Binh, Nam Dinh and Ninh Binh. It is an area with rich and diverse coastal resources, allowing the development of numerous important economic sections such as transport - ports, tourism - services, industry, agriculture, forestry and fishery, etc. Northern coastal region has a large sea area with a coastline stretching from Mong Cai (Quang Ninh) to Kim Son (Ninh Binh). The coast has wide tidal flats and rich in alluvium, which provides favorable conditions for aquaculture development. Aquaculture livelihood is the typical type of livelihood in the Northern coastal region. Seizing natural

advantages, the aquaculture practice in the coastal areas has experienced constantly developing. In the 2016-2020 period, the total aquaculture production reach 3,113,4848 thousand tons. In which, 2020 achieve the largest output of 719,4128 thousand tons. Over the years, aquaculture has created sustainable livelihoods and has made a great contribution to the structure of the agricultural sector. Therefore, many localities in the region consider aquaculture as a priority industry in the province's socio-economic development.

Levels of farmers' job satisfaction in agricultural production in general and aquaculture in particular reflects their awareness, satisfaction in production conditions, process, and methods, as well as the challenges, the problems they are facing, the difficulties in production that bother them. When they are satisfied, excited, confident, and achieve their outcomes, they will truly commit to the profession, focusing on investment and production development to bring high economic efficiency.

In this article, people's satisfaction with aquaculture practice is studied at the level of satisfaction with aquaculture activities of households in general and that of the process and method of aquaculture in particular.

2. Method

The research sample includes 200 farmers in two localities of Quang Ninh and Nam Dinh. In each province, two communes were selected to participate in the study (communes were selected at the suggestion of the authorities based on the selection criteria of the researchers).

The main research methods used are questionnaire survey and in-depth interview. The questionnaire on the satisfaction of farmers with aquaculture practice as well as the process, methods and conditions of aquaculture consists of numerous questions, in which the question regarding farmers' level of satisfaction towards aquaculture activities employed a scale with 11 items. There are 9 items about the satisfaction of coastal citizens with the aquaculture process, methods and conditions includes. Each item has 3 answer options as follows: not satisfied (1 point); quite satisfied (2 points) and satisfied (3 points). The average score of the scale is calculated by the average score of the items. In quantitative data analysis, to measure the satisfaction of coastal farmers with aquaculture practice, we agreed that the higher the average score, the higher the farmer's satisfaction level. Reliability analysis results show that the scale has the Cronbach's alpha value is 0.70.

Survey data were processed using SPSS statistical software.

3. Results

3.1. Levels of satisfaction of people in the Northern coastal region with aquaculture practice

The general assessment about aquaculture activities of people in the Northern coastal region reveals that they are quite satisfied with the process, techniques, productivity, scale, consumption capability, household's income from aquaculture, the implementation of safety standards, planning, organization and management, and the state support for aquaculture farmers (mean = 2.31).

In matters related to aquaculture activities, people are most satisfied with the aquaculture process and methods (mean = 2.50). The current scale of aquaculture and implementation of safety standards in aquaculture are less satisfying to the people (mean = 2.40 and 2.39). The state support for aquaculture farmers has the lowest level of satisfaction (mean = 1.93).

Table 3.1. Levels of satisfaction of the families/local people in the Northern coastal region with aquaculture practices

Aquaculture practice	Levels of satisfaction (%)			Mean	Standard deviation
	Not satisfied	Quite satisfied	Satisfied		
1. Process	5.0	39.7	55.3	2.50	0.59
2. Methods	6.5	37.2	56.3	2.50	0.62
3. Productivity	17.5	45.5	37.0	2.20	0.71
4. Scale	8.5	43.2	48.2	2.40	0.64
5. Consumption	18.0	43.5	38.5	2.21	0.73
6. Income	17.3	48.7	34.0	2.17	0.70
7. The implementation of safety standards	9.2	42.1	48.7	2.39	0.65
8. Planning, organization and management	8.6	47.5	43.9	2.35	0.63
9. Products quality	9.6	48.5	41.9	2.32	0.64
10. State supports for aquaculture farmers	31.8	43.4	24.7	1.93	0.75
Average score				2.30	0.51

Source: Results of the survey

Over the past time, commercial banks and credit institutions in the surveyed areas have had numerous solutions prioritize credit support for households investing in developing economic models in general and aquaculture product in particular. Thanks to the preferential loans, many high-tech aquaculture models have proved their significant role in developing the marine economy and helped many households escape from hunger and poverty. However, the biggest difficulty for people in accessing bank loans in the aquaculture sector is the short-term contract due to the commune's management policy on land for flats and land for bidding. Therefore, it is not eligible for people to mortgage, the risk is high, not to mention other unavailable collaterals, consequently, the bank does not have enough legal grounds to lend customers loans for aquaculture production. It is necessary to raise the loan limit and loan period for aquaculture households, reduce lending interest rates so that households can borrow capital to invest in production, improve production efficiency and income. Specifically, there should be a policy to support loans for aquaculture households in the context of the Covid-19 pandemic as the production and consumption face noticeable

hardship when the selling price of agricultural products plummets, just equal to the price of agricultural products, cumbering aquaculture households.

The surveys showed that in 2020 and 2021, the Covid-19 pandemic has negatively impacted many fields, including the aquaculture sector of people in Nam Dinh and Quang Ninh. In Quang Ninh, for many years, the output of clams and oysters has been mainly exported to foreign markets, with little domestic consumption. However, from the beginning of 2020 until now, due to the influence of the Covid-19 pandemic, foreign partners have stopped importing oysters and clams, while these products are consumed in relatively small quantities locally. Declining tourist arrivals also results in relatively poor consumption. Fishermen in Van Don only harvest in moderation due to low prices and reduced purchase volume. Mr. Nguyen Van T. (50 years old), who is farming oysters and clams on Bai Tu Long Bay (Ban Sen commune, Van Don district, Quang Ninh province) said: “This year Van Don rains less than usual so the oysters are thinner and the price is also lower.” In addition, since it is only consumed domestically, the harvest is very slow. Not to mention, as the oysters have reached the age of harvest, if left for a long time, they will gradually die and may cause disease.”

To help aquaculture farmers deal with these difficulties, from the beginning of the year until now, the People's Committee of Van Don district has reported to the People's Committee of the province and relevant departments and branches to propose solutions to consume mollusk products of the province. Many farming households and small traders actively sell their products on social networks, associate and set up sales at a number of establishments inside and outside the province, initially consuming a significant number of products. The district continues to push commercial promotion to consume products through a system of agents in foreign provinces, selling through social networking channels; encourage and facilitate the formation of product processing or freezing facilities. According to an officer of the Department of Agriculture and Rural Development in Van Don district, although a specific unit price has been established, and transportation fee support has been established, the actual cost currently purchased by businesses and small traders is only about 3/5 of the expected price is built by the district, so many farming households do not want to harvest. On the other hand, although there supports from businesses, the consumption volume since the beginning of the year has also decreased significantly compared to 2019, causing many difficulties for farming households.

In Nam Dinh, due to the impact of the Covid-19 pandemic, the price of fresh seafood consumed in the domestic market dropped sharply, causing many difficulties for people. According to statistics of the Department of Agriculture and Rural Development of Nam Dinh province, in 2019, seafood export enterprises have exported about 3,000 tons of cobia to China through border trade and 40,000 tons of caught fish, 200 tons of acetes; exported to Europe, Japan, Korea about 6,000 tons of clams. However, from the beginning of 2020 until now, most seafood products of export enterprises have to be stored. In the domestic market, the social distancing policy makes seafood processing enterprises faced difficult in

terms of raw materials, leading to high production costs and reduced output due to decreased domestic demand. In addition, China's border trade policy does not allow seafood products to be imported through this way, but using official quota, along with the EC's yellow card, causing seafood exporters to Europe to bear more fees and waste more time as the products are held for inspection.

As a big name in the field of seafood processing with Ninh Co fish sauce product, which has had a long-standing brand name in the domestic market, in the first 4 months of 2020 due to the influence of the COVID-19 pandemic, Nam Dinh Seafood Processing, JSC processing only sold 30,000 liters of fish sauce and 3 tons of shrimp paste; which means 30% reduction in total product consumption compared to the same period last year; affecting the productivity and working progress of 38 regular workers, and greatly affecting the working days of 150 seasonal workers.*****.

To support seafood businesses to overcome difficulties, sectors and localities in the province have focused on creating conditions for businesses to promote domestic consumption. Most notably, the competent authorities have coordinated to support seafood businesses through the Provincial Association of Fresh Agricultural Products to establish the Center to introduce fresh seafood products in Nam Dinh city to strengthen the promotion and sale of seafood products in the domestic market. Furthermore, they continued to support seafood enterprises to maintain exports to the Chinese market. By this, seafood enterprises are encouraged to improve product quality, obtain product unit codes, quarantine and gradually change the form of export from border trade to official quota, avoiding economic risks.

In summary, the people in the sample are quite satisfied with their family's aquaculture practice. In which, they are most satisfied with the aquaculture process and method and the least satisfied with the state's support for aquaculture activities.

3.2. The levels of satisfaction of people with the current aquaculture process, methods and conditions

The survey results show that, in general, the aquaculture farmers in the sample are quite satisfied with the aquaculture process, methods and conditions of their families/local people (mean = 2.42). The item with the highest satisfaction of the people was the implementation of regulations on harvesting of cultured subjects (mean = 2.53 and only 4.1% of the respondents were not satisfied). The second is to implement regulations on food management in aquaculture (mean = 2.52). The third is to implement regulations on aquaculture sites, areas and conditions of aquaculture ponds, lagoons and rafts (mean = 2.47).

*****<http://baonamdinh.vn/channel/5085/202005/ho-tro-doanh-nghiep-thuy-san-vuot-kho-2537477/>

Table 3.2. The levels of satisfaction of people with the current aquaculture process, methods and conditions

Aquaculture process, methods and conditions of the family	Levels of satisfaction (%)			Mean	Standard deviation
	Not satisfied	Quite satisfied	Satisfied		
1. Implement regulations on aquaculture sites, areas and conditions of aquaculture ponds, lagoons and rafts	3.7	45.8	50.5	2.47	0.57
2. Implement regulations on water sources in aquaculture	9.7	47.2	43.1	2.33	0.65
3. Implement proper breeds management and stocking techniques	8.2	44.1	47.7	2.39	0.64
4. Implement food management for farmed subjects with correct technique	3.2	41.2	55.6	2.52	0.56
5. Comply with regulations on harvesting cultured objects	4.1	38.5	57.4	2.53	0.58
6. Implement management of cultured objects health management and the use of antibiotics for cultured objects	15.1	41.1	43.8	2.29	0.71
7. Assess the level and risk of pollution of the pond	23.1	37.9	39.0	2.16	0.77
8. Implement the process of cleaning and discharging waste of the pond	21.2	35.4	43.4	2.22	0.77
9. Implement technical management of farming	15.4	30.3	54.4	2.39	0.74
Average score				2.36	0.51

Source: Results of the survey

The item with the lowest level of satisfaction is the assessment of the level and risk of pollution of the pond (average = 2.16) and less than ¼ of the respondents rated it as unsatisfied (23.1 %).

When asked more about the reasons why they being dissatisfied with the sanitary and safe conditions of their family's ponds, rafts and lagoons, most of the respondents said that they have not handled waste in aquaculture practice well (94.7%); not actively control the water source (89.5%), due to the small area of the pond, they cannot treat it regularly (80.3%), and implement the aquaculture practice according to folk experience thus pollute the water (75%).

In fact, at present, in Nam Dinh and Quang Ninh, there are people spontaneously and widely developing aquaculture without planning, not complying with environmental commitments, farming in high density, leading to the risk of pollution. One of the causes of this problem is the inadequacies in the management of aquaculture land with water surface (Quang Ninh, Nam Dinh) and in planning management and conversion of inefficient rice-growing areas to aquaculture. In particular:

Main districts being invested are Giao Thuy, Hai Hau, Nghia Hung, Xuan Truong, Truc Ninh and Vu Ban. In addition, the areas where rice, sedge and salt production were inefficient before, people converted to aquaculture with the support in form of investment in building technical infrastructure for production of the province. The province currently has 44 conversion projects, of which 32 projects have achieved economic efficiency of many times higher level than before the conversion. The farming method in the project areas is shifted towards forming intensive and semi-intensive farming areas. However, realizing the profit gained from whiteleg shrimp farming, many households converted the area outside the planning to farming whiteleg shrimp in their own will. This situation broke the approved shrimp farming plan and caused difficulties in management. Due to spontaneous and unplanned development, many farming facilities do not meet the conditions of technical infrastructure such as storage ponds, settling ponds, water supply and drainage systems. The electrical system serving the farming areas is not yet complete. Shrimp ponds are interspersed with salt and vegetable fields, so it is difficult to apply technical measures, especially to handle problems arising from water quality and diseases. The irrigation system for shrimp farming must be used in conjunction with the irrigation system for salt production and vegetable growing, so there is no separate irrigation and drainage system. Many farming households lack knowledge of science and technology and experience; therefore, complicated diseases on white leg shrimp arise, causing significant economic and environmental impacts.

In Quang Ninh province, at present, in some localities, people on their own choice bring brackish water shrimp to farm in fresh water without planning; many shrimp farming facilities and households voluntarily drill wells to get underground water used for farming, raising the salinity of farming ponds; untreated wastewater from farming ponds is discharged directly into the environment, affecting the ecosystem, causing salinization of the farming area, soil environment pollution, groundwater pollution and in the long run will affect the rice-growing area and agricultural land, potentially causing land subsidence.

Thus, the people in the surveyed area are quite satisfied with the current aquaculture conditions in the locality. The issue that people are most satisfied with is the implementation of regulations on harvesting and feed management in aquaculture and the least satisfied is the condition for assessing the level and risk of pollution of the pond and the implementation conditions of the process of cleaning and discharging waste of the pond.

Comparison by level of education: People with low education have a higher level of satisfaction with the implementation of regulations on aquaculture sites, regulations on management of breeding stock than higher educated people. It is possible that people with high education have a deeper level of understanding and access to information and techniques of aquaculture than people with low education, so they understand the current process and methods of aquaculture of their households better; therefore their satisfaction level is not high.

Table 3.3. Levels of satisfaction of coastal people with the process, current methods and conditions of aquaculture (compared by level of education)

<i>Level of satisfaction with the family's aquaculture conditions</i>	<i>Levels of education</i>					P
	Elementary School	Middle School	High School	Technical school	College, University	
1. Implement regulations on places of aquaculture	2.82	2.40	2.40	2.47	2.50	P<0.01
2. Implement the decision on the management of breeding stock	2.75	2.19	2.31	2.25	2.25	P<0.01

It can be seen that people in the surveyed area are quite satisfied with the current process, method and conditions of their family's aquaculture. The item that people are most satisfied with is the implementation of regulations on harvesting and feed management in aquaculture. People are only relatively satisfied with the condition of the water source and the breeding animals. Aquaculture farmers with low education have a higher level of satisfaction with the place of aquaculture and breeding stock management than those with high education.

4. Discussion and Conclusion

The survey results show that the sampled farmers are quite satisfied with their family's aquaculture activities, in which, the people are most satisfied with the process and method of aquaculture; people are only relatively satisfied with the ability to consumption and income from aquaculture. People are not satisfied with the way the State supports aquaculture activities. In the process and method of aquaculture, people's families are not satisfied with the condition of water sources and breeds as well as the assessment of pollution levels and risks of aquaculture ponds, lagoons and rafts of the household. Aquaculture farmers with low education and long-term aquaculture experience have a higher level of satisfaction with the process and method of aquaculture than those who have high education and are new to aquaculture. With the scale and conditions of the current aquaculture ponds/lagoons/rafts, which are still small-family in nature, as well as the inadequate conditions in the ponds/samples/rafts, there are limitations in terms of water sources and breeds, the discharge process of ponds showing challenges posed in aquaculture development today, but many people in Nam Dinh and Quang Ninh are still quite satisfied and confident with their current conditions of aquaculture production. This has partly prevented people from developing aquaculture in a modern and sustainable direction.

In the coming time, in order to develop aquaculture in a modern and sustainable direction, ensuring the harmony between economic, social and environmental development, hunger eradication and poverty reduction, it is necessary to implement synchronous solutions: Completing legal policies on state management in the field of aquaculture, strengthen the role of state management in aquaculture and environmental protection of the authorities at all levels and sectors in the implementation of the Law on Environmental Protection for aquaculture and seafood processing facilities, increase investment in infrastructure, scientific and technical progress for aquaculture, strengthen propaganda to raise people's awareness of environmental protection, strengthen propaganda and education of the Law on Environmental Protection and methods of environmental protection, because they are the ones who have been, are and will directly affect the environment, affecting their own farming practice. Besides, in order to create favorable conditions for aquaculture households to develop and reduce current difficulties, the State's support is very necessary.

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THE ROLE OF PUBLIC ENGAGEMENT IN DEVELOPING THE CIRCULAR ECONOMY IN VIETNAM

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Abstract

The traditional model of linear economy based on the extraction of raw materials and discharging the products at the end of their life which damages the environment is being replaced by the circular economy (CE). The circular economy system has been called “the economy systems of the future” because it not only aims at environmental protection but also towards economic growth due to new job opportunities, employments, groups of industries are created. For those reasons, this circular economy model is a suitable model for Vietnam, especially when Vietnam is pursuing a fast and sustainable economic growth goals. Evidently, in order to apply and develop this CE system in the world, the public sector must have initial engagement to secure and create the basis for efficient circular system. So that, this article will systematize the theoretical bases on the development of the circular economy and the role of the public sector, thereby analyzing the current situation and offering solutions and a roadmap to improve the conditions for it to be applied in Vietnam including legal, institutional, and resource requirements.

Keywords: *Circular economy, Public engagement, Public sector*

1. Introduction

The Circular Economy (CE) system is replacing the traditional linear system based on the extraction of raw materials, production and consumption systems that create the end-of-life products which are discharged and impact negatively to the environment. The circular economy is not only aiming at the sole goal of protecting the environment from negative impacts, but this model also aims at economic growth, improving people's living standards, through creating jobs, new industries contributing to the economic development. The circular economy system aims to change the concept end-of-life of materials by bringing all materials, chemical and biological waste at all stages of production back into other production processes. It is estimated that each year the circular economy creates benefits of more than 600 billion euros and more than 550 million jobs for the European region and helps reduce greenhouse gas emissions (Ministry of Industry and Trade, 2021). The circular economy not only represents the role of an economic sector geared towards material recycling, but also plays a huge role in changing production, market, culture, and way of life of people in every sector of the society. The application, creation and construction of a

circular economy system is a process that requires deeply study and reasonable models suitable for each country in the world.

Vietnam - a developing country in the world, with an economic system that is showing signs of positive development and has a lot of potential for the development of a circular economy. In the Socio-Economic Development Strategy for the period to 2030, with a vision to 2045, the issue of turning the circular economy into a development system model in Vietnam's economy is officially set forth to fit the fast and sustainable developing goals. However, in order to develop a circular economy model, it is necessary to involve subjects in the whole economy, but the current research system on the circular economy, especially the role of the State (public sector) in circular economy model has not been systematically addressed. Due to those reasons, this article synthesizes the theoretical system of the circular economy and the role of the State (public sector) to find the intersection between the two theoretical issues, thereby finding the theoretical basis for the State's interventions in fulfil specific conditions to apply and develop the circular economy.

2. Theoretical Framework

Circular economy

Circular economy is an open concept with many definitions and concepts that are not yet agreed upon by international research organizations and policy makers. According to Kirchherr (2017) there are more than 114 different concepts of circular economy. One of the concepts widely used by the European Commission in its guiding documents is that *"A circular economy is a system that is restorative and renewable through the central planning and design of motion. It replaces the concept of the end-of-life of materials with the concept of recovery, moving towards the use of renewable energy, without the use of harmful chemicals that harm reuse. and work towards minimizing waste through the design of materials, products, engineering systems and business models within that system* (Ellen MacArthur Foundation, 2012). The authors Abreu & Ceglia define a circular economy as *"a renewable system of production and consumption that maintains resource extraction and emission rates in line with environmental limits through closing the material cycle, reducing the size of the system and preserving the value of resources for as long as possible in a system based on circular economy design and education; and at the same time capable of being implemented at any scale"* (Abreu & Ceglia, 2018). France's National Strategy for Ecosystem Transition to Sustainable Development for the period 2015-2020 has shown that a circular economy model with low carbon emissions and low use of natural resources can be defined as a system of production, exchange, consumption design and organization that minimizes resource extraction (fossil fuels, raw fuels, water, soil, environment) and emissions.

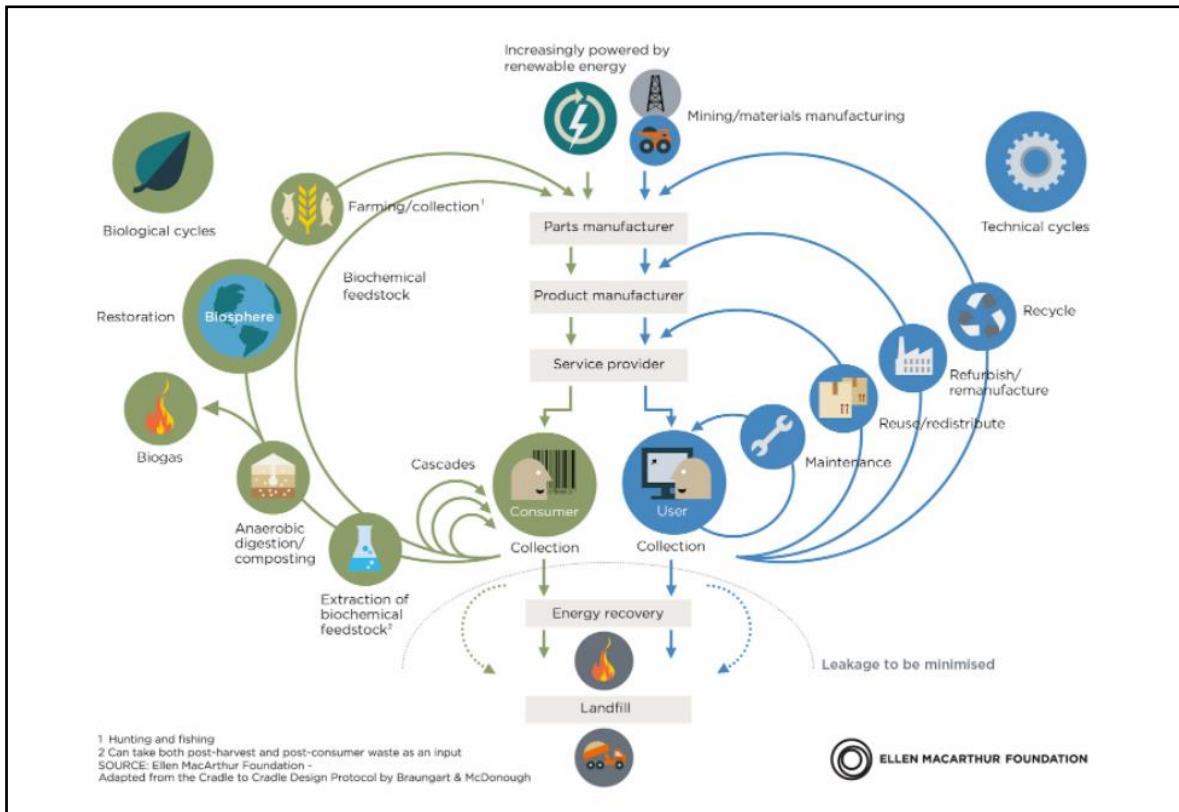


Figure 1. Circular Economy definitions

Source: Ellen MacArthur Foundation (2012)

The operation of the circular economy depends on the level of technology, which harmoniously links the technical process and the biological life cycle. Circular economy is developed from the cradle-to-cradle system of Braungart and McDonough (2002), circular economy is formed from two aspects that are biological cycle and technical cycle. These two aspects are measured and run across all circular economy activities. In the technical cycle, materials are reused, recycled, and regenerated at many stages throughout the product life cycle for the longest use of the raw materials and maximum benefits. In the biological cycle, non-hazardous ingredients are sorted and returned to the natural environment, restoring inherent resources, such as emissions from manufacturing. This means that to realize and apply the circular economy, for every production process it is necessary to be circular in both biological and technical aspects.

Based on the above analysis, the circular economy can be understood as an economic system and model where economic subjects interact with each other and operate based on economic principles and minimizing the impact on the environment through the treatment of waste materials, limiting the exploitation of primary materials, turning the waste into inputs of other materials. Therefore, the nature of the circular economy is reflected in three aspects: (i) Minimization of waste, the result of a by-product of one process being reused in another cycle; (ii) High resilience, thanks to a diverse system with many connections and flexibility to adapt to unexpected external influences; (iii) Conservation of energy, which means all the energy generated in the production process is conserved and stored, only transformed into another form. To be able to find out the conditions for the development of

a circular economy, first of all, it is necessary to base on the content of the circular economy. The circular economy operates on the basic principles of the market economy. According to Michael Watts (1998), a market economy is an economic model in which buyers and sellers interact according to the laws of supply and demand, value to determine the price and quantity of goods and services in the market. Therefore, there needs to be a circular economic model in which sellers and buyers interact according to the law of supply and demand under the influence of institutions created by the public sector. Therefore, the first necessary condition to be able to apply and develop a circular economy is the appearance of an economic model in which subjects who interact according to the law of supply and demand of the market. Therefore, it is possible to identify the actors participating in the circular economy model: the State (public sector); private sector; citizen.

A circular economy is an economy that aims to minimize its impact on the environment, create jobs and increase economic growth in the long term, but to be able to transition to a circular economy requires resources. Instead of using current disposal methods, businesses now will have to invest more resources to carry out design changes, product reproduction, recycling, major changes in production and post-consumption processes, and at the same time, circulating processing in the biological stage also requires more modern technologies. For consumers, changing from multiple disposal behaviours to sorting and returning to the production facility also poses certain requirements.

Requirements of developing a circular economy

Circular economy can be understood as an economic system and model where economic subjects inside interacting with each other and operating based on economic principles and minimizing impact on the environment through the treatment of waste materials, limiting the exploitation of primary materials, turning the waste into inputs of other materials. To find out the requirements for the development of a circular economy, it is necessary to look into the definitions of the circular economy. The circular economy operates on the basic principles of the market economy. According to Michael Watts (1998), a market economy is an economic model in which buyers and sellers interact according to the laws of supply and demand, value to determine the price and quantity of goods and services in the market. Therefore, a circular economic model is required in which sellers and buyers interact according to the law of supply and demand under the influence of institutions created by the public sector. Therefore, the first necessary condition to be able to apply and develop a circular economy is the emergence of an economic model in which the participants interact with each other according to the rules of supply and demand of the market. By that reason, it is possible to identify the participants involved in the circular economy model: the State (public sector); the Private sector; the citizen.

A circular economy is an economy that aims to minimize environmental impact, create jobs and economic growth in the long term, but to be able to transition to a circular economy requires several types of resources. Instead of using current disposal methods, businesses will now have to invest more resources to carry out design changes, product reproduction, recycling, having major changes in production and post-consumption processes. According

to Aglaia Fischer and Stefano Pascucci (2017), the main challenge faced by businesses participating in the transition to a circular economy is to arrange cooperation and relational business, while being constrained by an institutional system that conforms to the principles of linear economics. This shows the necessary of having interventions from the public sector in regulations, legal corridors, and policy making from the beginning of the transition to interfere in production and consumption behaviour of businesses and their clients. Japan, one of the countries earning many achievements in the circular economy has had to go through 3 stages of development of this economic sector. From the very beginning, Japan has built a very strict legal system that clearly defines who is responsible and handling standards from general to detailed, greatly contributing to the success. circular economy development with 9 sets of laws divided into 3 areas: Basic Law, Comprehensive Law and Special Zone Law (Xiujun Ji, Yongqing Zhang, Luying Hao, 2012).

Table 1. Legal basis system of circular economy in Japan

Classification of law	Names	Year
Fundamental law	Environmental Law	1993
	Promoting the formation of a recycling society Law	2000
Comprehensive law	Waste disposal law	1970
	Resource efficient law	1991
Special Law	The law of separate collection and recycling of container and packaging	1995
	Special household machine cycle law	1998
	Building construct recycling Law	2000
	Polychlorinated biphenyl wastes properly handle special measures law	2001
	Vehicle recycling law	2002

Source: Xiujun Ji, Yongqing Zhang, Luying Hao (2012)

The European Commission (2020) issued the Circular Economy Action Plan on 11 March 2020 to achieve the goal of being carbon neutral by 2050, emphasizing the implications of the circular economy including 3 areas: supply from economic actors; consumer needs and behavior; waste management. In the supply from economic actors, there are 4 pillars: Mining/production and sustainable supply chain; Eco-design (in products and manufacturing processes); Industrial symbiosis; Economic function. In consumer demand and behavior depends on 2 pillars: Responsibility of consumption; and Product Life Cycle Extension. In terms of waste management, emphasis should be placed on the recycling of organic materials and products.

Through the above analysis, we can clearly see that the necessary conditions for the application and development of the circular economy model are: (i) An economic model with participation and interaction of the participants in the model; (ii) The law system, regulations and policies create the basis for the implementation and development of the circular economy; (iii) Resources mobilized for the application and develop circular economy.

The Role of Public Engagement in Developing the Circular Economy

The basis for the State or the public sector intervention in the economy is one of the critical issues that had been studied over the past few decades. Most studies confirm that competition in a perfect market economy will bring the economy to a high level of efficiency, stimulating innovation, but markets can not always bring effects that society desires. One of the bases for such intervention is the Pareto efficiency theory, where the author states: “An allocation of resources is called Pareto efficient if there is no way to reallocate resources to make at least one person better without hurting anyone else. The Fundamental Theorem of Welfare Economics also states: “As long as the economy is perfectly competitive, that is, producers and consumers accept prices, so long under conditions the economy will inevitably move towards a Pareto efficient allocation of resources. However, in reality, there are always distortions and failures that cannot be solved by the supply and demand systems themselves. A second reason for public sector intervention in the Pareto efficient economy stems from the fact that individuals may not act in their best interests. Many studies have shown that individuals may not be fully aware of the benefits or harms of consuming any good or service even with sufficient information. This will cause the public sector to compel or take measures to affect the types of goods/services that individuals do not voluntarily consume, which are promotional goods (Vu Cuong, Pham Van Van, 2013).

A circular economy is an economic system and model where there are economic participants interact with each other and operate based on economic principles and minimize the impact on the environment through waste treatment, limiting the exploitation of primary materials, turn the waste into the input of other production processes. The nature of the circular economy depends heavily on resources such as finance, technology, and human resources due to the transformation of materials in two technical cycles including recycling, reuse, and recycling. The biological cycle and generation include processes that treat waste chemicals back into inputs for other processes. The application and development of the circular economy requires huge initial investment resources and a long investment process, potentially affecting the costs and profits of many businesses and individuals in the short term. This can be a burden to some enterprises, making them not excited to access and start the circular economy voluntarily despite the benefits that the circular economy brings such as job creation, economic growth. or reduce the impact on the environment. Therefore, the public sector needs to intervene in this system to apply and develop the circular economy.

So where should these interventions be aimed in this circular economy system? OECD (2005) shows that the public sector establishes SOEs (State-Owned Enterprises) to participate in investment and management to become a tool to serve certain goals of the State, which basically includes political and economic goals. These SOEs serve as tools to ensure employment; develop industries that require large investments that cannot be met by the private sector; control the decline of low value-added heavy industries (shipbuilding, mining, coal); support the private sector to bear great risks (such as natural disasters in agricultural production). SOEs are also expected to shoulder the mission of promoting economic development; ensuring the goal of equality and social stability through investment in

infrastructure and creating new jobs; generate revenue, budget sources for social allowances, etc. There was a period in history when many countries invested in a series of SOEs in many different industries and fields, from heavy industry, infrastructure, to agriculture, telecommunications, and technology. ... In developing and less developed countries, according to UNIDO (2003) in the early stages of independence, especially in the 1950s and 1960s, SOEs played an important role in building infrastructure; production and supply of essential goods and services; job creation, hunger eradication and poverty alleviation; promote development and ensure national economic security; generate revenue. Analysis of the EU Commission (2016) has highlighted some important roles of SOEs in the EU. The formation and development of SOEs in EU countries stems from historical, political, and socio-economic objectives. SOEs are also established to make long-term and risky national strategic investments that the private sector does not want to do. Governments have operated SOEs in sectors that are key to the economy, thereby exploiting SOE externals to benefit other industries or pursuing social goals such as social justice. and ensure inclusive development.

As for the world practice, in the UK, the Government plays an active role in establishing green financial markets. Commitment to implementing a green financial system is included in the overall development strategy of the economy as well as the Government is directly involved in the process of mobilizing green capital, through: (i) building a framework the policy of developing a green financial system that is simple, stable and easy to apply, and regularly reviews, evaluates and adjusts in a timely manner; (ii) directly invest capital in the green economic sector to promote implementation in practice through the development of a direct funding mechanism for green investment projects, and the implementation of government guarantees for green infrastructure projects as well as sponsoring environmental protection funds; (iii) establish a green investment bank to support investment in green infrastructure projects that cannot be financed by the market. In China, KVC has also set specific targets to reduce carbon emissions, mobilizing financial resources mainly from public finance. In addition, China also benefits from a special market funded by the state budget to reward businesses that carry out technical renovation towards energy saving; financial support for consumers when choosing to use energy-saving products; establishment of a dedicated fund for the treatment of polluting waste).

3. Method

The main research method used is on-desk study method.

Step 1: This study review of research related to circular economy, circular economy development, circular economy development models and issues related to the role of the public sector including the system theoretical basis and theoretical slices between the circular economy system and the role of the public sector as a basis for public sector intervention. Experiences of countries around the world are also synthesized to build a circular economy development model. Here, the study uses the method of meta-analysis, analyzes the collected data, and synthesizes the theoretical system to find common ground between the role of the public sector and the circular economy system. The study also uses a comparative method between countries' actual experience in developing a circular economy system, including countries and regions, such as:

the theoretical basis of the European Union; Netherlands; Germany; France. In the Asia region, the countries taken as case studies include China, Japan. From the experience is analyzed and synthesized, the study makes comparisons to find the relationships between the circular economy development models.

Step 2: After reviewing the studies related to the topic, this study designs an analytical framework to find the connection between the components and the content of the topic. Research conducted in-depth interviews with the number of 10 experts in the field to contribute to building a theoretical system.

Step 3: Based on the theoretical analysis framework provided, the study evaluates the role of the public sector in the current situation of circular economy development in Vietnam, evaluates the completion of conditions. From there, the study gives implications for the process of building conditions in Vietnam by the public sector.

4. Results

After analyzing world experience and combining ideas from expert interviews, it seems to have a common point that the circular economy model in most developed countries in the world is implemented from the top down. The circular economy hardly originates voluntarily from the business sector, despite the business sector's role as central to the circular economy system. Enterprises play both role of a source of production and a consumer of products of the circular economy because the transition to a new production process will increase operating costs and requires large resources. The public sector must take first steps to participate in creating the environment for the circular economy at different levels depending on the specific conditions of each country. In Europe, 16 policy interventions across the period from 2011 to 2020 have been systematically launched from the document guiding the economic transformation to achieve specific goals. In Japan, the first circular economy system is regulated by law with 3 stages, the public sector is the first part of the economy to participate in providing recycling services and then gradually transfers it to the private sector. Thereby, it can be seen that in order to be able to apply and develop the circular economy, first of all, the public sector needs to build an economic institution with participating actors including: the public sector; enterprise; consumers. And the public sector must participate initially as a creator, perfecting the conditions for the remaining participants to join in. The conditions to apply and develop the circular economy model is legal conditions; institutional conditions; resource conditions.

4.1. The role of the public sector in perfecting conditions on the legal and institutional basis

The above analysis has shown that the private sector will not voluntarily participate in the circular economy due to the cost-increase so that a tight sufficient regulatory framework is needed. These legal bases are classified by countries according to the size of the economic system as enterprises (micro), industrial zones (intermediaries) and social communities (macro) according to the affection of the economic components of the classification system. Countries around the world prescribe laws, policies and regulations that guide the stages of material conversion and regeneration in each material industry group. Specifically, the regulatory bases that must cater for phase-by-stage reproduction in all three of the product's loop-based phases are: (1) Design and manufacture; (2) Use and

consumption; (3) Discard the product. At the same time, recycle the product at stage (3) and return it as raw material for the product at stage (1). And these stages at each different hierarchy must have guidelines, regulations and adjustments to fit the micro, intermediate and macro system. Vietnam also has foundations in building a circular economy, but policies and legal regulations are still not comprehensive in giving specific guidelines.

Table 2. Legal basis system of circular economy in Vietnam

Year	Project	Content
1993	Law on Environmental Protection 1993	Basic concepts related to environmental protection have appeared as the basis for application in environmental management activities.
1998	Law on Water Resources 1998	Regulations on prevention and control of environmental pollution, environmental incidents, water quality protection
1998	Directive No. 36/1998/CT-TW	Strengthening environmental protection in the period of industrialization and modernization of the country in order to affirm political determination and determine the policy of environmental protection.
1998	Directive No. 36/1998/CT-TW	On strengthening environmental protection in the period of industrialization and modernization of the country in order to affirm political determination and determine the policy of environmental protection
2004	Resolution 41-NQ/TW	Directing the work of environmental protection in the period of accelerating industrialization and modernization of the country.
2012	Action plan of the Government for the period 2011-2016	socio-economic development associated with environmental protection and improvement, proactively responding to climate change; defining environmental goals by 2020 is that newly established business establishments must apply clean technology or equip equipment to reduce pollution, treat waste, and develop a green economy.
2012	Resolution No. 06/NQ-CP	The Government's action program for the 2011-2016 term with 10 urgent tasks to perform, including task 8: Protecting and improving the environment
2020	Environmental Protection Law 2020	The concept of circular economy has been officially included in the Law

Source: Research team

4.2. The role of the public sector in perfecting the resources conditions

Investment funds

Since the participation in the circular economy development model includes two main sectors, the State and the private sector, the investment capital source will be the State Budget and non-State budget sources. Firstly, it must be emphasized that the private sector will not voluntarily participate in investment in the circular economy system because this

will increase their own costs, so the State must take initial action on investing in the transition to a circular economy. For capital from the State budget, the public sector can participate directly in the supply chain, and the state budget will have an investment role in infrastructure and services, directly participating in the reproduction of products at discharging stage, converting waste into inputs for other production activities. In addition, the public sector can participate indirectly in the supply chain, the state budget will now invest in constructive policies for the transition such as renewable incentive programs, tax reduction for businesses which produce environmentally friendly products, collect environmental taxes on products that are harmful to the environment, or participate in investment and initial support to help businesses have capital to transform their production lines. production to circulation.

Technology resources

Technology is one of the key elements in the transition and development of the circular economy. In which, the recycling of materials to help convert waste back into input materials requires many modern refining technologies with infrastructure invested with large capital. Resources for technology can come from many different sources such as importing technology from abroad or developing the technology itself. For the self-development of technology, many countries around the world such as Germany, Japan, China, and the Netherlands have advocated education and investment in the R&D system since the beginning of the implementation of the policies. For technological resources from import, there can be three types: “direct import of remanufacturing technology lines; hire the third-party international enterprises to handle waste; technology chain transfer from FDI”. In which, the type of direct import of technology, although highly sustainable, requires high-quality human resources and large capital.

Human Resources

In order to meet the development needs of the circular economy requiring modern technology, countries such as Japan, Germany, Netherlands, and China have advocated the development of a large-scale education system in order to train highly qualified human resources and change the public's perception of the circular economy. At the beginning of policy implementation, high-quality human resources may also be called in from countries with a developed technology industry to transfer knowledge and technology, however, this is not the case. This is a short-term measure because it requires large costs. High-quality human resources can also be brought from the education and training process in the country through the policies and guidelines of the Government.

4.3. The role of the public sector in operation

The transition to a circular economy will not take place naturally because this process requires a large amount of investment capital and costs, which negatively affect profits, so businesses will not actively invest in material circulation technology systems, therefore, the Government must be the first participant in the development process.

The role of the Government is to issue guidelines and policies to encourage the development of the circular economy with specific guidelines and a full implementation roadmap, in addition, the Government has the role of investment as a driving force for the

economy. At the same time, complete the conditions to create the basis for the circular economy to operate, such as completing the legal basis system, using the government budget to invest in development policies, infrastructure systems, and technology systems to support the circularity of the economy. At the same time, disseminate knowledge about the circular economy through training, education, and research to acquire high-quality human resources. In the period after the circular economy becomes popular, the Government must play the role of managing and supervising the circular activities of the economy and attracting the private sector to participate in the investment, operation, and material circulation services. The role of the private sector is to invest as well as take part in completing conditions from the Government, it is necessary to actively invest and operate the circular economy.

In order to implement the circular economic development model, it is necessary to decentralize the economic system according to the scale of the economic system such as micro, intermediate, and macro, each decentralized system needs to have specific regulations and guidelines.

5. Conclusion

The circular economy is becoming a potential economic model that promises to replace the traditional linear economy which negatively impacts the environment by exploitation of limited resources, the process of discharging waste into the environment to serve the production and consumption activities. The world linear economic system seems to be coming to an end as countries around the world are strongly promoting this circular economy (Ghisellini et al., 2016). In Vietnam, a developing country, in order to achieve the goals of rapid and sustainable development, the circular economy has been identified as an economic model that needs to be applied and developed in accordance with the Socio-Economic National Development Strategy to the year 2030, with vision to the year 2045. However, up to this point, circular economy is still a new concept with research and implementation activities in the early stages. In order for this economy to operate smoothly and develop strongly, the role of the public sector has been shown to play a very important position in this circular economic system. The study has systematized the theoretical basis, asserting that the circular economy can be understood as an economic system and model where internal economic participants interact with each other and operate on the basis of economic principles and minimizing the impact on the environment through the treatment of waste materials, limiting the exploitation of primary materials, turning the waste into input materials. To apply and develop this economic model, it is necessary to complete the following conditions: (i) An economic model with the participation and interaction of the subjects in the model; (ii) The system of laws, regulations and policies creates the basis for the implementation and development of the circular economy; (iii) Resources to apply and develop circular economy. In which, the role of the public sector must be involved first, building an economic institutional system, a legal basis, building and attracting resources including technology, finance, infrastructure resources and human resources in both direct and indirect ways. It can be said that the leading role of the public sector is especially important in building and developing this circular economy.

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ENVIRONMENTAL PROTECTION ISSUES IN VIETNAM'S CURRENT INTERNATIONAL ECONOMIC INTEGRATION PROCESS

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Abstract

Since Vietnam became an official member of the World Trade Organization (WTO) (2007) until now, Vietnam has implemented guidelines and policies on strengthening international integration, especially economic integration. This helped Vietnam achieve great achievements in many aspects: politics, economy, society, culture, security - defense.... In addition to the process of international economic integration and in other fields, including international integration in the field of natural resources and environment, recently, it is also being promoted to meet the actual requirements and trends. The article focuses on presenting the current status of guidelines and policies of the Party and the State of Vietnam in regulations on environmental protection, a number of commitments related to the environment of Vietnam in the WTO and free trade agreements (FTAs), and raised the advantages and disadvantages for Vietnam related to environmental commitments in the process of international economic integration to make some recommendations to improve the effectiveness of environmental protection in the process of the international economic integration of Vietnam.

Keywords: *Environmental protection, international economic integration, Vietnam.*

1. Introduction

According to the United Nations Environment and Development Commission, sustainable development is development that meets the needs of the present without compromising the satisfaction of the needs of future generations. To realize sustainable development, environmental protection will necessarily be an integral part of the development process and cannot be considered in isolation from that process.

Recognizing the importance of environmental protection, the Party and State of Vietnam always uphold environmental protection for the purpose of special sustainable development in the current process of renovation and international integration. Vietnam always emphasizes the view that the environment is a condition, foundation, and prerequisite for sustainable socio-economic development, so economic development must be in harmony with nature, respecting natural laws do not trade the environment for economic growth. Environmental protection is the responsibility of the whole political system and society as a whole, in which local authorities, businesses, communities, and people play an important

role. The orientation of the Vietnamese Party and State on environmental protection is to prioritize proactively preventing and controlling pollution, focusing on solving key and urgent environmental issues; overcoming pollution, and degradation, improving environmental quality, combined with nature conservation and biodiversity, contributing to climate change response.

Currently, the trend of international integration has brought many benefits, opportunities and potentials to many countries, but it also creates significant challenges for developing countries such as Vietnam. The new generation of free trade agreements (FTAs) which Vietnam has signed go in the direction of liberalization, facilitation, non-discrimination, etc. FTAs have many increasingly diverse of scopes, sizes and levels; besides there are obligations and the level of legal binding which are increasing; diversified and rich in content and fields, continuing to form many international frameworks or "playgrounds" with many new "rules of the game" at various scales of geography, region, area and global; requirements, requirements of increased responsibility when participating, accompanied by increased investment and financial contribution; has more and more connection with the economy, has influence and contributes a lot in the process of international economic integration and the economic development of the country; Mechanism to evaluate and monitor the implementation of obligations are increasingly strict, along with sanctions for non-compliance and implementation of committed obligations. The article focuses on presenting the current situation of guidelines and policies of the Party and State of Vietnam regarding regulations on environmental protection, and some contents of commitments related to the environment of Vietnam in WTO and FTA agreements. Then highlight the advantages and disadvantages for Vietnam related to environmental commitments in the process of international economic integration to make some recommendations to improve the effectiveness of environmental protection in the process of international economic integration of Vietnam.

2. Method

The topic is based on the Communist Party of Vietnam's viewpoints and guidelines, as well as the State of Vietnam's policies and laws on environmental protection. The author uses interdisciplinary methods from the social sciences and humanities. The author uses mainly historical methods to describe the guidelines, policies, and laws of the Party and the State on environmental protection and Vietnam's environmental commitments in the new generation of free trade agreements. Using a combination of methods: history, logic, combining history with logic, comparison, analysis, and forecast, this paper highlights advantages and disadvantages in the process of Vietnam continuing to fulfill its environmental commitments in the process of international economic integration and makes recommendations to improve the effectiveness of environmental protection in the process of international economic integration. These methods are used flexibly and appropriately in order to analyze, comment, and evaluate on protecting environmental issues in the current process of Vietnam's international economic integration

3. Results

3.1. Vietnam's international commitments on the environment and the guidelines and policies of the Vietnamese Party and State on environmental protection

In the system of WTO Agreements, there are many provisions directly related to environmental issues. For example, Articles I and III (which stipulate non-discrimination obligations), Article XI (on quantitative restrictive measures) and the provisions on general exceptions in Article XX. Trade and environmental issues are mentioned in the preamble of the Agreement establishing the WTO and in many other WTO agreements. Regarding trade and environmental issues, the GATT "non-discrimination" principle ensures that national environmental protection policies will not be applied discriminatorily between imported products and similar domestically produced products or to discriminate between like products imported from different trading partners. The principle of "non-discrimination" helps prevent the abuse of environmental policies and their use as disguised restraints on international trade.

The environmental content in the Free Trade Agreement (FTA) may not be entirely covered by a chapter or a provision. This content may be in the preamble or the provisions related to the environment. The following section will focus on understanding the environmental contents of the FTA that Vietnam has signed.

Table 1: Contents of commitments related to the environment in Trade Agreements

Agreements	Environmental factors
Vietnam – EU	<ul style="list-style-type: none"> - Hair waste, pet hair waste, waste of skin and parts of skin, tendons, bones, horns, shells, corals, shells of treated and untreated crustaceans, etc. Fish waste, cocoa shell waste, food processing industry waste, animal feed -Waste of chemicals, raw materials, leather shoes, paper, municipal waste. -Fuel, minerals, electric energy. -Chemical fertilizers and chemical treatment. -Chemical treatment of textiles, tanning,... - Climate change, biodiversity, sustainable management of forests and forest products, conservation and sustainable management of marine life and fisheries, application of low-carbon technology and energy efficiency, ecolabel program, mapping, assessment, valuation of ecosystems and ecosystem services, combating international wildlife trade, green growth.
ASEAN - India	<ul style="list-style-type: none"> -Environment, mining, and energy. -Limiting national treatment for environmental investigations. -Environmental services. -Environmental impact assessment service.

Agreements	Environmental factors
	<ul style="list-style-type: none"> - Treatment and disposal of hazardous waste. - Sea transportation of wastes.
ASEAN - Korea	<ul style="list-style-type: none"> - Cooperation in the field of environmental industry. - Mining for fuel and energy. - Natural resources. - Environmental services, environmental impact assessment. - Waste.
ASEAN - China	<ul style="list-style-type: none"> - Apply standards and technical regulations to protect the environment. - Cooperation on the environment and energy - Transporting hazardous waste, toxic solids - Recycling and waste treatment
Vietnam - Chile	<ul style="list-style-type: none"> - Exploiting water, mining minerals, fuel, and energy. Energy cooperation - Waste and scraps
Vietnam - Korea	Origin of natural minerals, seafood caught from the sea, waste, scrap
ASEAN – Australia và New Zealand	Standards, technical processes for environmental protection, environmental cooperation
Vietnam - Japan	Standards, technical processes for environmental protection, environmental cooperation.
Vietnam - Eurasian Economic Union	Regulations and technical standards for environmental protection. Sustainable development.

Source: USAID (2017), *Manual to Guide Businesses on Environmental Regulations and Free Trade Agreements*, p.25-26.

In addition, the new generation FTAs that Vietnam has signed and ratified recently, the CPTPP Agreement (ratified and effective) and the EVFTA Agreement (signed) are two standard regional FTAs. and typical of a high level of commitment, wide coverage with many new fields and contents, unprecedented in traditional FTAs before, such as intellectual property, government procurement, labor, environment school. The environmental content (Environment Chapter) in the CPTPP Agreement or sustainable development (Sustainable development Chapter) in the EVFTA Agreement covers many related fields. There are many similarities between these two Standard Agreements. Comparing the complexity, the level of commitments and constraints on the environment, the CPTPP Agreement is still higher than the EVFTA Agreement. It is necessary to note and pay more attention to the CPTPP Agreement (different from the EVFTA Agreement) which are the contents of the CPTPP's environmental commitments that are subject to the dispute settlement mechanism, which uses sanctions (imposition of trade sanctions or retaliation) for violations of commitments

and obligations [3, p.47]. Both CPTPP and EVFTA Agreements have a separate chapter regulating environmental protection and sustainable development, specifically Chapter 20 on Environment from Article 20.1 to Article 20.23 in the CPTPP and Chapter 13 on Trade and Sustainable development of the EVFTA from Articles 13.1 to Article 13.17, focus on addressing the following five issues: (i) climate change, (ii) ozone layer protection, (iii) environmental impact assessment, (iv) investment in the environment sector and (v) environmental dispute resolution. The requirements on environmental protection are committed by the two agreements to a high degree of binding to promote mutually supportive policies in trade and the environment [3, p.47].

Guidelines and policies of the Party and State on environmental protection in the process of international economic integration.

The Communist Party of Vietnam has many policies on environmental protection in the process of international economic integration, which reflected in the documents of the Party Congress from the Xth to the XIII National Congress. In order to continue to improve the efficiency of the international economic integration process, at the Fourth Executive Committee Meeting of the 12th term, Resolution 06-NQ/TW dated November 5, 2016 was issued by the 12th Central Committee on effectively implementing the process of international economic integration, maintaining socio-political stability in the circumstances that our country participates in many new-generation free trade agreements, in order to present the policy of solving environmental problems well, specifically:

- (i) Strengthening state management, perfecting mechanisms and policies, and synchronously implementing solutions to enhance management and effective use of natural resources, protect the environment, and respond to climate change. Resolutely ensure the requirements on environmental protection in investment projects. Pay attention to the inspection, examination and strictly handle violations of environmental protection. Implement emission regulations and standards according to the line roadmap with international commitments.
- (ii) Strongly implement measures to improve environmental quality and people's living conditions. Strictly control the source of pollution. Limit, proceed to completely prevent environmental pollution in craft villages, river basins, industrial zones, urban areas and coasts. Concentrate on thoroughly dealing with establishments causing serious pollution, especially large-scale foreign direct investment (FDI) projects. Rapidly deploying the emission control roadmap for motor vehicles, especially in big cities.
- (iii) Urgently develop, perfect, and strictly implement regulations on corporate social responsibility towards consumers and the environment. Promoting socialization, environmental sanitation, and protection. Each citizen is a person who implements and monitors the reality of environmental protection in order to promptly prevent, notify, and denounce acts of violation or destruction of the environment.
- (iv) Mining and using minerals is associated with environmental protection. Investigate, evaluate the potential and reserves, perfect the planning, and strengthen the management and supervision, use efficiently and economically the natural resources.

Exploiting and sustainably use of water resources; actively cooperate internationally in protecting, managing, and sustainable use of transnational water resources, especially the Mekong River's water resources. strengthen the protection and development of forests, especially coastal protection forests, watershed forests, special-use forests, nature conservation and biodiversity.

Regarding the specific contents of environmental protection, the Party issued Resolution No. 24-NQ/TW, dated June 3, 2013, of the 11th Party Central Committee "On proactively responding to climate change, strengthening resource management and protecting the environment"; and Resolution No. 36-NQ/TW on the Strategy for Sustainable Development of Vietnam's Marine Economy to 2030 with a vision to 2045. After 5 years of implementing resolution 24-NQ/TW, the Politburo directed the preliminary review and promulgation of Conclusion No. 56-KL/TW dated August 23, 2019 on "Continuing to implement the 11th Central Resolution on the proactively responding to climate change, strengthening resource management and protecting the environment," continuing to affirm that "protecting people's health is the top goal" and "do not trade off the environment for economic growth".

The 13th Congress of the Party (2021) has identified goals and directions to 2030 and a vision to 2045 in the field of the environment. The Party emphasized: "Taking the protection of the living environment and people's health as the top goals; resolutely eliminating projects that cause environmental pollution; ensuring the quality of the living environment; protecting biodiversity and ecosystems; building biodiversity and ecosystems; and building a green, circular economy and environmentally friendly economy" [5, p.117]. At the same time, compared with previous congresses, at the 13th Congress, the Party added a new content of environmental protection to become "the relationship between economic growth and cultural development, making progress, social justice, and protecting the environment" [5, p.119].

Institutionalizing the Party's viewpoints and policies on environmental protection in the process of international economic integration, the 2013 Constitution shows a strongly change when it first recognizes the right to live in a healthy environment. (Article 43); implement sustainable development (Article 50); protect environment; manage and use effectively and sustainably natural resources; nature conservation, biodiversity; proactively prevent and combat natural disasters and proactively respond to climate change (Article 63). Supplementing, developing and modifying the team to meet the actual situation of the Law on Environmental Protection in 1993, 2005, 2014, the Law on Environmental Protection in 2020, which was promulgated, also demonstrated a clear transformation of the Party's views on the Law on Environmental Protection, from the initial general regulation on environmental protection through amendments and replacements, the State has institutionalized the Party's views on proactively controlling environmental pollution; strengthen the role of the State and the community in environmental protection; supplement the principle of ensuring sustainable development, the principle of ensuring the right to live in a healthy environment and proactively responding to climate change.

The issue of exploitation, rational, economical, and efficient use of biological and microbial resources, and protection of the marine and island environment has also been institutionalized in the 2012 Law on the Sea of Vietnam, the law on natural resources and the environment of the sea and islands in 2015. At the same time, the view on sustainable fishing is consistent with international treaties; socialization of public services and decentralization of management are more clear when the State promulgates the 2017 Fisheries Law to replace the 2003 Fisheries Law.

In terms of forest protection and development, there is also a development along with the increasing importance of forestry economy; recognizing forests owned by organizations, individuals, and communities; forest allocation to people; Strict regulation on the conversion of natural forests, forest environmental services, processing and trading of forest products, contributing to the country's economic development has been institutionalized and improved, from the Law on Forest Protection and Development in 2004 to the Law on Forestry in 2017. The perspectives on conservation and sustainable development of biodiversity are institutionalized in the Law on Biodiversity (2008).

In addition, the Government also issued documents directing and strengthening environmental protection such as Decree No. 53/2020/ND-CP of the Government dated May 5, 2020 stipulating environmental protection fees for with wastewater; Directive No. 41/CT-TTg dated December 1, 2020 of the Prime Minister on some urgent solutions to strengthen solid waste management; Directive No. 33/CT-TTg dated August 20, 2020 of the Prime Minister on strengthening the management, reuse, recycling, treatment and reduction of plastic waste; Decree No. 54/2021/ND-CP dated May 21, 2021 on preliminary environmental impact assessment, Decree No. 55/2021/ND-CP dated May 24, 2021 on amendments to the articles of Decree 155/2016/ND-CP stipulating penalties for administrative violations in the field of environmental protection, to create synchronization with new laws passed by the National Assembly related to environmental protection. Decision No. 450/QD-TTg dated April 12, 2022, approving the National Strategy for Environmental Protection to 2030, with a vision to 2050. In particular, the goal of the Strategy is to prevent the trend of increasing pollution and environmental degradation by 2030, to solve urgent environmental problems, gradually improve and restore environmental quality; and to prevent biodiversity loss. improving capacity to proactively respond to climate change; ensuring environmental security, building and developing models of circular economy, green economy, and low carbon, striving to achieve the country's sustainable development goals.

3.2. Advantages and disadvantages in the process of Vietnam's continuing to fulfill its environmental commitments in the process of international economic integration.

The advantages and disadvantages come from the results achieved in the work of environmental protection.

Pollutant source control. Environmental pollution control and reduction activities in industrial parks and industrial clusters have made positive changes. By 2019, the whole country has 250/280 (89%) operating industrial parks with centralized wastewater treatment

systems, 219/250 (87.6%) of the industrial parks have invested in installing automatic and continuous wastewater monitoring equipment; 276/698 (40%) of industrial clusters have reports on environmental impact assessment or environmental protection projects; 115 industrial clusters have centralized wastewater treatment systems, 25/115 (21.7%) of industrial clusters have automatic wastewater monitoring systems. By 2020, out of a total of 435 establishments causing serious environmental pollution according to Decision No. 1788/QĐ-TTg, basically completed thorough pollution treatment measures with 352 facilities (compared to 167 establishments that completed treatment in 2015, increasing from 38.4% to 80.9%) [4, p.137].

The problem of solid waste collection. The rate of daily-life solid waste collection increases year by year (81% in 2010, 82% in 2011, 83% in 2012, 83.5 - 84% in 2013 and 85.5% in 2017). The rate of daily-life solid waste collection in urban areas is about 92%; in rural areas is about 66% and there is a large disparity between localities [10, p.6].

Regarding the supply of clean water on environmental sanitation. With a population of 97.4 million, the percentage of people accessing improved water sources increased from 65% in 2000 to 95% in 2017; the rate of access to basic sanitation services increased from 52% to 84% in the same period [11]. According to data of the Ministry of Natural Resources and Environment, by 2020, the proportion of urban citizen supplied with clean water through a centralized water supply system reached about 90%, rural population with access to hygienic water is estimated at 96.0%.

Monitoring, inspecting, inspecting and handling environmental violations. During the 2016-2020 period, the Ministry of Natural Resources and Environment has established Environmental Monitoring Teams to monitor facilities at risk of serious pollution in the North, Central, and South regions. Established and operated a hotline to receive information and report proposals on environmental pollution from the central to local levels; promulgated the regulation on coordination in handling environmental cases and environmental incidents; developed instructions for processing online monitoring data automatically.

In addition, there are still pressing environmental problems today.

Our country's nature, not only being affected by wars in the past, it now also being destroyed by unconscious activities, irresponsible sloppy attitude, and lack of planning in exploiting and using natural resources. According to statistics before 1945, forest coverage accounted for 43.8%, now only more than 28% (ie below the alarming level of 30%) [12]. According to the Department of Nature Conservation and Biodiversity, the size, quality, and diversity of natural ecosystems continue to decline; the establishment and expansion of the area of nature conservation zones is still slow; and wildlife species continue to decline. The fact that forest fires and deforestation have increased, causing serious damage to forest areas and vegetation cover (primary forest is only about 0.57 million hectares, 1% of coral reefs have a cover of more than 75%, and the number of species recorded in the Vietnam Red Book is increasing with 1,112 species). Peat swamps are also shrinking in area and decreasing in thickness. In 1950, the area of Melaleuca forest in the U Minh area had up to 400,000 ha, now only 10,300 ha (with a thickness of 0.4-1.2 m); seagrass beds also decreased

by 50% in 2012 compared to 1999; the largest lagoon is Tam Giang-Cau Hai (Thua Thien-Hue), which has decreased by 60% [2].

Environmental pollution in industrial parks, industrial clusters and craft villages is at a worrying level. Solid waste is a hot and urgent issue that needs to be prioritized for investment and settlement in Vietnam nowadays, with tens of millions of tons of domestic waste (the volume of solid waste increases by about 10% per year and has tends to continue to increase. According to the report of the Ministry of Natural Resources and Environment in 2019, the whole country generates more than 61,000 tons of domestic solid waste per day, more than 37,000 tons per day in urban areas and more than 24,000 tons per day in urban areas. The rate of solid waste collection in urban areas of localities is from 62–90%. The average rural area of the country is about 45-60%. In which, the country has more than 5,400 craft villages, of which Hanoi in particular has more than 1350 craft villages, but 95% of production activities pollute the environment, more than 50% cause serious pollution [12].

Air pollution, especially dust pollution (PM10 and PM2.5), is becoming an alarming problem in Vietnam, directly affecting health and causing psychological insecurity and anxiety for people. Air pollution in recent years in some localities tends to increase due to the increase of pollutants from economic activities; the air quality in urban areas and densely populated areas (especially in Hanoi and Ho Chi Minh City) has declined seriously. At sometimes of the day and some days of the year, increasing sources of emissions into the air combine with meteorological and climatic factors, the phenomenon of foggy weather. This has made air pollution worse. The concentration of dust in urban areas exceeds many times the allowable norm. Concentrations of CO2 emissions, especially in big cities and industrial zones, exceed the allowable standards by 1.5 to 2.5 times [15].

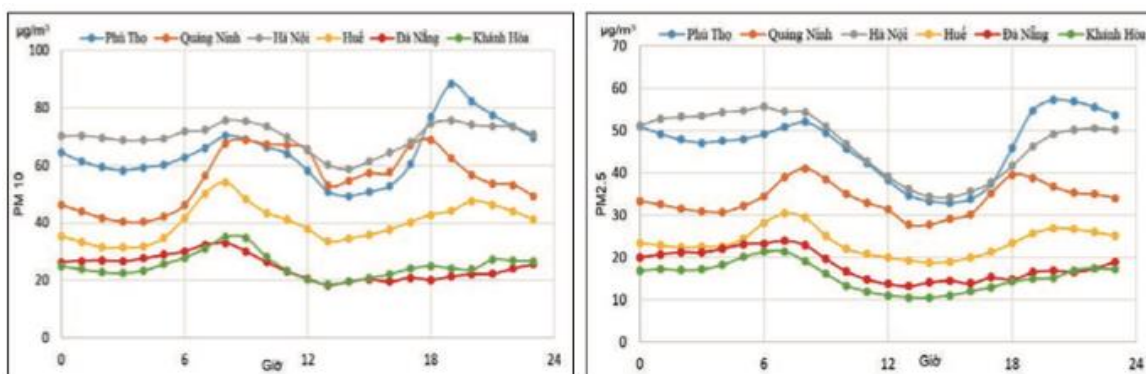


Figure 1. Movement of PM10, PM2.5 values during the day at automatic air monitoring stations

Source: Ministry of Natural Resources and Environment (2021), Report on the current state of the environment for the period 2016 - 2020, Publishing House Dan Tri, p.87.

Advantages and disadvantages stem from financial resources and coordination mechanisms in the process of implementing international obligations and commitments on environmental protection.

Integration in the field of environment occurred early in the country's process of international economic integration, in which some contents, such as conservation and

biodiversity or waste and chemicals, have become deeply integrated over time. The process of environmental integration has basically responded to the world's trend, in line with the process of international economic integration and development of the country, actively contributing to the process of building institutions, systems of policies and laws on environmental protection in Vietnam [9, p.14].

However, there are still some difficulties such as:

The system of policies and laws in general in all sectors is still in the process of being completed; The coordination in the process of developing legal documents to internalize the committed international obligations still remains limited and ineffective, leading to overlap and conflict of content among regulations or gaps in management, affecting enforcement performance.

Financial resources for environmental protection are still modest. Investment expenditure for environmental protection is still low compared to the current situation, only meeting for environmental protection; The source of revenue from the environment has not been used to invest again for environmental protection. Compared with other countries in the region and around the world, the spending on environmental protection in our country is still low. In China and ASEAN countries, the average annual investment in the environment accounts for over 1% of GDP, in developed countries usually accounts for 3-4% of GDP, while this cost in Vietnam is not average. up to 1% of GDP.

The mechanism for coordination and combination between relevant agencies at central and local levels in the implementation of international obligations and commitments is not really effective. The network of officials involved in environmental protection activities is currently still concentrated in the country, mainly in the system of state management agencies, without participation in the organizational system of management and operation of international frameworks. Therefore, Vietnam's influence and initiative in international frameworks related to the environment is still quite modest [9, p.15].

Since joining the WTO, Vietnam has actively and proactively participated in many organizations and signed many trade agreements, especially new-generation free trade agreements (FTAs) such as the CPTPP Agreement, the EVFTA Agreement, the RCEP Agreement, etc. These agreements have many commitments and obligations related to the environment. Meanwhile, the enforcement of environmental laws in our country still has certain limitations because the awareness of a part of people and businesses about environmental protection is not high [7, p.9] This creates pressures in the process of implementing commitments to the new generation of FTAs for Vietnam.

4. Discussion and Conclusion

4.1. Discussion

Some recommendations to improve the efficiency of environmental protection in the process of international economic integration of Vietnam

Firstly, promote institutional improvement; continue to review, systematize, supplement and issue new legal documents in order to perfect the legal system and economic institutions in line with international commitments related to the environment. Increase and

diversify investment capital sources for environmental protection. Prioritize the allocation of development investment capital, loans, and ODA to solve pressing, long-standing environmental problems affecting people's lives and health. At the same time, strengthen international cooperation and promote strategic environmental partnerships. Vietnam must really be a responsible and reliable member and partner at a strategic level in the field of the environment, especially in joint efforts to solve global environmental problems.

Secondly, solve environmental problems well in the process of economic and social development; perfecting and raising the effectiveness of the legal system on natural resources and the environment; continuing to operate in accordance with international regulations on environmental standards and conditions in Vietnam; promoting the socialization of environmental protection; strengthening the propaganda and dissemination of the law on environmental resources.

Thirdly, promote administrative reform and improve the efficiency and effectiveness of the state apparatus, such as: simplifying administrative procedures and processes; reviewing and eliminating administrative procedures that are no longer available; promoting the building of an e-government model; a public administrative service center in order to build an open, transparent, and stable investment environment; promoting decentralization associated with enhanced responsibility and inspection and supervision.

Fourthly, continuously improve the environment for attracting foreign investment, linking investment attraction with monitoring the implementation process, ensuring economic security, socio-economic efficiency - environment. Speeding up the process of restructuring public investment, encouraging public-private cooperation activities. Improve the efficiency of investment capital; strictly manage public debt, including foreign debt.

Fifthly, effectively implement international economic commitments. Develop and implement a strategy to join free trade areas with important economic-trade partners in a master plan with a reasonable roadmap, in line with the interests and capabilities of the country. Actively and proactively participate in the development of common rules and regulations.

Sixthly, promote the process of internalizing international commitments; comply with the implementation roadmap; fully meet the committed content and extent on the basis of ensuring optimal national interests and the interests of organizations and individuals.

4.2. Conclusion

It can be said that Vietnam's international economic integration is deepening with the participation in the signing and implementation of many new-generation FTAs, including commitments related to the environment. The improvement of institutions, policies, laws, and the internalization of the contents of the commitments that Vietnam has signed will promote environmental protection and contribute to the realization of the sustainable development goals set by the Party and State. Vietnam sets forth during the process of international integration. In addition, raising the awareness of environmental protection of the whole society, organizing various forms of propaganda about commitments in the FTA to people and businesses, and enhancing social responsibility are always a regular task to improve the quality of environmental protection in the present and in the future.

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DEVELOPING AGRICULTURAL ECONOMY WITH ADAPTING TO CLIMATE CHANGE IN AN GIANG PROVINCE

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Abstract

An Giang is a province that has strengths in agricultural economic development. It is one of the provinces with the leading rice production in the country, the rate of agricultural development always increases every year. To achieve high results in agriculture, An Giang province has been building new models of agricultural economic growth with many positive changes. In particular, An Giang province always focuses on developing the agricultural economy with adapting to climate change, in order to improve economic efficiency. The content of the article, referring to agricultural economic development with adapting to climate change in An Giang province, is to point out the impacts of climate change on the province's agriculture. From there, it gives suggestions for the agricultural industry of An Giang province to develop higher and higher.

Keywords: development, economy, agriculture, climate change

1. Introduction

From 2011 up to now, climate change has become more and more complicated, challenging many countries in the world and causing great disturbance to the world. According to experts, agriculture is one of the industries heavily affected by climate change because the characteristics of the industries: cultivation, husbandry, forestry, fisheries and irrigation all depend on geographical location and is directly influenced by natural factors. Climate change affects economic development, society and environmental resources in the world in general and Vietnam in particular. Particularly in the Mekong River Delta, which is increasingly suffering from the negative impacts of climate change, and An Giang province is also affected by this change. With favorable natural conditions, An Giang province identifies agriculture as a key economic sector, aiming to build An Giang to become the agricultural center of the Mekong Delta. But the harsh effects of climate change, which directly affect the agricultural economy, require An Giang province to actively find a direction to develop the agricultural economy in the right direction.

2. Method

Several research methods have been applied in this study to clarify issues of agricultural economic development with adapting to climate change in An Giang province.

Firstly, the methods of analysis and synthesis are applied to analyze documents related to research issues.

Secondly, the historical method is applied to describe the research problem according to the process, specifically over the years to clearly see the agricultural economic development of An Giang province.

Finally, the logical methods help to identify appropriate research issues.

3. Results

3.1. Theoretical basis

3.1.1. Climate Change

According to the definition in the United Nations Framework Convention on Climate Change (UNFCCC), climate change is a fundamental change in the climate that is attributed directly or indirectly to human activities that change the composition of the global atmosphere and this change is added to the natural variability of climate observed over comparable time periods (United Nations, 1992).

Climate change is a change in climate and related components including the oceans, land, Earth's surface, and the glacial atmosphere, such as increasing temperatures, melting ice sheets, and rising sea levels. Previously, climate change took place over a long period of time due to the impact of natural conditions. But recently, climate change has occurred due to the impact of human activities released into the environment. greenhouse gas field (Vietnam Opendedvelopment Mekong, 2019). Climate change has directly impacted on socioeconomic development, human health, migration and displacement, food security, and terrestrial and marine ecosystems.

3.1.2. Agricultural economy

Agriculture is a production field with specific characteristics, a production industry associated with plants and animals, governed by biological laws, external conditions (land, weather - climate) and is the industry that produces necessary products for the existence and development of society. So it has long been interested by economists and it is mentioned a lot in economic theories, especially in economic development models of less developed countries that are currently industrializing (Economic People, 2019).

We can understand that: agriculture, in the broad sense, includes forestry and fishery. Agriculture, in the narrow sense, is an industry that produces material wealth in which people must rely on the growth laws of plants and animals to create products such as food, foodstuff, etc. to satisfy their needs.

3.2. Situation of climate change affecting agriculture in An Giang province

The impact of climate change is becoming more and more serious, affecting the living environment, natural disasters, epidemics, directly affecting the production process, agricultural cultivation of people and causing heavy damage in agricultural production such as: hail, drought, flood, alum, salinity, etc.

Currently, agricultural production of our country in general and An Giang province in particular still depends on natural conditions, climate and weather. When the temperature of the weather and climate increase, it will greatly affect agricultural production, especially cultivation. The extreme changes of the climate change abnormally such as increasingly

complicated droughts and thunderstorms, floods in the rainy season, lack of water for production and daily life in the dry season, and salinity penetrates deep into the land, the risk of forest fire... has frequently appeared in recent years, affecting the quality of agricultural production such as affecting growth, crop yield, planting season, increasing the risk spreading pests and diseases to crops, affecting reproduction, growth, productivity, quality, and products of livestock and poultry, increasing the possibility of pathogenicity and transmission of livestock and poultry, causing danger shrinkage of agricultural land.

The general situation of the Mekong Delta provinces is that they are directly and increasingly severely affected by climate change, especially in the heavily affected agricultural economy. The salinization also significantly affects the growth and development of rice plants such as: reduced germination of rice, reduced height and tillering ability, poor root system development, reduced biological nitrogen fixation and nitrogen mineralization in the soil. On average, rice yield can be reduced by 20-25%, even up to 50%. Typically, in 2013, a survey in An Phu is the upstream district and Chau Thanh is the downstream district of An Giang province, showing that the amount of flood water is low, this is one of the factors that reduce aquatic resources, especially the landless poor farmers (Nguyen Van Thieu, Nguyen Thi Ngoc Dung, 2014). Reducing fish and shrimp production, low rice yield because low and late floods will cause delayed crops, lack of water sources for salt washing, leading to acid and saline soils. Climate change impacts on water resources, as changing rainfall patterns can cause severe flooding in the rainy season and drought in the dry season, making it difficult for water supply and water use.

In 2015, in An Giang, and other provinces in the Mekong Delta, the water level in the headwaters of the Mekong River and the inland area of the Long Xuyen Quadrangle was influenced by tides, the highest tide peak appeared in the last days of January, lower than the same period in 2015 from 0.10-0.20m; from the beginning of February to the end of March 2016, the highest tidal peaks were at 0.15-0.25m higher than the same period in the same period (Department of Minerals and Water Resources, 2016).

The lowest ebb tide level in January 2016 at the upstream stations of the Mekong River and downstream areas at Cho Moi, Long Xuyen was 0.10 - 0.20m lower than the same period in 2015, the interior area of the Mekong Delta is at a level of 0.10 - 0.20m lower than that of the same period in 2015. Long Xuyen quadrangle is lower from 0.05-0.10m; from February and March 2016 were all higher than the same period in 2015 from 0.10-0.30m (Department of Minerals and Water Resources, 2016).

In the dry season of 2015-2016, the salinity intrusion was earlier and deeper. Actual data measured in February and the end of March 2016 showed that the salinity in the estuaries of Kien Giang province had entered the province. An Giang in the two districts of Thoai Son and Tri Ton is from 20-30 km, some places are over 30 km with the highest salinity in Phu Lam on the H7-Chu U channel at 1.9g/l (March 23), from March 29 salinity at stations gradually decreases (Department of Minerals and Water Resources, 2016). The weather and hydrological situation in An Giang province during the dry season of 2016 had

complicated changes, with hot weather, drought and saltwater intrusion, especially in April and May 2016. This has had a significant impact on the agricultural cultivation of the people.

In 2017, the province's agricultural production still faced difficulties and challenges: saline intrusion, drought, prolonged rainstorms accompanied by thunderstorms, affecting crop yields in Winter-Spring and Autumn-Summer crops. The floods are big and come earlier than usual, so the production area of Autumn-Winter is much reduced.

In 2018, climate change also affected the early return of floods, also caused heavy damage to agriculture in An Giang province, the loss of nearly 500 hectares of rice outside the dike area in two communes Phu Hoi and Nhon Hoi, district An Phu.

In 2018, in Bac Dai hamlet and the area from Rach Xeo Tre to the border of Phu Hoi commune (An Phu district), due to prolonged storms, flood water rose rapidly, flooding the Summer-Autumn rice crop. The total area inundated by flood water, which cannot be harvested and completely lost is 31.5 ha. In which, the damage of 50% is 15ha; 100% damage is 16.5ha (Thanh Lam, 2018).

In the year 2019 - 2020, in An Giang province, the water level in rivers and canals was low due to the lack of rain in the dry season. Along with that, drought and saltwater intrusion in the dry season of 2019 - 2020 occurred earlier, deeper and more intense than the average of many years. The drought situation also greatly affects the lives and production of people, lack of water for production and daily life in the dry season, in border and mountainous districts. Climate change also affects the growth, development, planting season, the ability to increase crops, lack of water for crops, increase diseases and pests, reduce productivity and output of the crops. In addition, climate change is likely to increase the frequency, intensity, variability and extremes of dangerous weather phenomena such as storms, floods, and droughts, reducing crop yields. and livestock, increasing risks to agricultural production.

3.3. Policy of An Giang province on agricultural development and climate change adaptation

In the face of increasingly harsh climate changes, An Giang province implemented the Party's Resolution, the Resolution of the An Giang Provincial Party Congress for the 2015-2020 term defining: Agriculture is a key economic sector, constructing An Giang became the agricultural center of the Mekong Delta. Accordingly, the An Giang Provincial Party Committee focused on leading and mobilizing many resources for agricultural development in depth, constantly increasing the productivity, quality, efficiency and competitiveness of agricultural products, improving the living standard of the material and spiritual life of farmers,... making the province's agricultural economy the spearhead economy of the province as oriented.

One of the solutions prioritized by the An Giang Provincial Party Committee is to build and consolidate irrigation works, ensure water for production and daily life, in association with the implementation of measures to reduce damage caused by natural disasters, disease.

In 2016, facing new pressures in the context of climate change, food security and international integration, An Giang province's goal is to develop agriculture and rural areas comprehensively and sustainably.

In 2017, An Giang surveyed and identified 28 points of canals, and rivers at risk of landslide, with a length of 2.7km, and at the same time examined areas of saline intrusion and drought.

In 2018, the People's Committee of An Giang province issued Decision No. 44/2018/QD-UBND, regulating the management, exploitation and protection of irrigation works in the province. It is strictly forbidden to act as: Drilling, excavating soil and rock, illegally building within the protected area of irrigation works; illegally encroaching on and using land within the protection area of irrigation works; activities that obstruct the management and repair of works.

The Department of Natural Resources and Environment shall assume the prime responsibility for, and coordinate with the Department of Agriculture and Rural Development in, advising the Provincial People's Committee to guide the formulation of mining plans; granting permits for exploitation and use of water resources and discharge of wastewater into water sources according to regulations; carry out the appraisal and submit to the Provincial People's Committee for approval the plan on calculating charges for granting the right to exploit and use water resources to relevant individuals and organizations.

The province specifically prohibits acts of polluting the water source of irrigation works such as: discharging toxic waste, garbage, dead animal carcasses, bottles, pesticides; wastewater from industrial production facilities or industrial parks, wastewater from production and aquaculture zones, domestic wastewater from residential areas and business zones into irrigation works. The actions encroach on the river surface, obstruct flood drainage, change the flow, leading to local erosion in front and behind the structure.

- To organize the implementation of programs, schemes and projects on climate change response and adaptation, the People's Committee of An Giang province has directed branches and levels to develop and promulgate 10 plans provincial action (including action plans of 08 sectors and fields: water resources, land resources, agriculture and food security, fisheries and biodiversity, geological hazards and natural disaster prevention, construction, transportation, environment; action plan to respond to provincial climate change, communication plan for the period 2011 - 2015).

- Building a model of a water reservoir in arid areas to supply daily-life water to mountainous residents in Tri Ton district; Adaptive water management to climate change in An Giang province; Climate Change Adaptation in the Mekong Delta; Redirecting of flow to limit landslides, protect urban areas in Long Xuyen city to adapt to climate change...

Every year, branches and levels in An Giang province have developed plans and organized training courses for managers of provincial Departments, 11 districts, towns and cities in the province and the residential community; Organize workshops on climate change impacts and adaptation; Approving projects sponsored by international organizations related to climate change, many propaganda classes have been organized on knowledge and solutions to develop climate change adaptation plans for officials and farmers.

An Giang province has actively dredged 146/159 irrigation works with a length of over 233km, reinforced 83km of dikes; repairing and upgrading 195 sluices, irrigation

works... Locally managing and exploiting irrigation works, building projects on exploitation of water reservoirs in Tri Ton and Tinh Bien districts.

From 2015 to 2018, the An Giang Provincial Party Committee led the implementation of 62 provincial projects and topics, 67 grassroots scientific models and solutions. Irrigation works aim to facilitate agricultural restructuring, land accumulation and response to climate change (Nguyen Duy Hien, 2018). The Provincial People's Committee has approved 8 detailed plans for hi-tech agricultural production areas for 08 product groups; The Department of Agriculture and Rural Development has supported the implementation of 40 high-tech agricultural production models towards an efficient and sustainable agriculture associated with adaptation to climate change.

An Giang Provincial Party Committee has transformed from development by area, productivity and output to value and efficiency increase per unit area. Localities take the initiative in structuring agricultural products with comparative advantage in the market, identifying four key products, including: Rice, fish, vegetables, and medicinal plants. In particular, An Giang focuses on developing various types of farm economy, expanding the land tenure, accumulating large fields, prioritizing the conversion of land use purposes as a farm economy according to the model, joint stock company, mobilize people to contribute capital with land, together in production and business. Localities also actively converted inefficient rice growing areas to crops, fruit trees, and livestock. Currently, the province has shifted 9,316ha to grow mangoes and vegetables, nearly 22,000ha (Nguyen Duy Hien, 2018).

An Giang focuses on rapidly developing small and medium-sized enterprises specializing in vegetable production to associate with consumption enterprises. At the same time, training farmers to manage vegetable quality, building safe vegetable material areas and verifying and certifying safe vegetable products. To cope with the situation of drought and saltwater intrusion affecting agricultural development, An Giang province has enlisted the implementation of investment projects on upland irrigation systems, such as electric pumping stations, water reservoirs to store water and water conduit for agricultural production and people's livelihood, such as: O Thum Reservoir, Soai So Lake, O Ta Soc Lake, 3/2 Pumping Station, Chau Lang Pumping Station, Le Tri Pumping Station. The province has also invested in flood storage projects in areas that do not produce Autumn-Winter crops to store water in the flood season for use in the dry season and contribute to ecological regulation. At the same time, dredging large canals connecting main rivers such as Tien and Hau rivers to increase water supply flow into the Long Xuyen Quadrangle inland area. To build systems of regulating sluices, sluices to prevent salinity, and dams to prevent salinity.

3.4. Achievements in agricultural development adapting to climate change in An Giang province

Over the past time, the province's agricultural sector has made many positive changes, promoting agricultural restructuring to adapt to climate change.

In order to develop sustainably in depth with quality, the province plans to specialize in vegetable and color production in the direction of a model of linking consumption and production in the direction of high technology. At the same time, consolidating and

improving the quality of cooperative organizations and cooperative groups; develop a cooperative economic model for each concentrated vegetable production material area.

Continue to change the structure of crops, switch to growing crops and fruit trees in order to increase income per unit area. Localities have also actively converted inefficient rice-growing areas to crops, fruit trees, and livestock with high economic value. To increase from 2,000 to 3,000 ha the area planted with some crops such as tall potatoes, tapioca, lotus, vegetable soybeans, baby corn, peppers, leafy vegetables, etc. (Report 69/BC-SNN&PTNT, 2018).

The province's current rice growing area is about 469,200 hectares, a decrease of nearly 20,000 hectares; the total area of fruit trees increased to 15,800 ha, especially the mango area over 9,300ha.

Rice: the total cultivated area is 634,254 ha (decreased by 7000 ha over the same period), the average yield of the whole year is: 6.24 tons/ha (+ 0.17 tons/ha compared to the average), the output is 3,957 million tons increased by 66,000 tons over the same period) (Report 69/BC- SNN&PTNT, 2018).

Crops: the total turnover is 60.2 thousand hectares (increasing by 2-3 thousand hectares over the same period), the average yield of the whole year is equivalent to the same period.

A number of localities in An Giang province have actively converted to efficient production models, shifting from inefficient rice land to growing crops and fruit trees with more than 3,000 hectares, bringing the total area of food crops to more than 5,200 ha, profit from 57 million to 234 million dong/ha. In places where rice is not effective, the province has deployed people to grow jaggery, increasing their income by more than 300,000 VND/month. In order to adapt agricultural development to climate change, An Giang province has built a "High-tech Seed Center" to provide good seeds and ensure quality for production requirements in the province and Mekong Delta provinces. investment of 10 million euros. (Nguyen Duy Hien, 2018).

In 2017, An Giang province had 45 enterprises signed to link production and consumption chains with farmers through the model of 19 cooperatives and 32 cooperative groups, accumulating nearly 20,600 hectares of production land according to the big field model; built 24 effective production models such as shrimp farming on rice land in Thoai Son, profit of 100 million VND/ha, 5 times higher than rice cultivation; VietGAP vegetable growing model, organic vegetable has nearly 20ha in Long Xuyen city; growing straw mushrooms; commercial catfish farming with an area of 336ha.

An Giang province has up to 84.4% of agricultural production land, so focusing on building and consolidating irrigation works, ensuring water for production and daily life, is associated with implementing measures to reduce damage caused by natural disasters and epidemics: it is an extremely urgent problem. In 2017, the province surveyed and identified 28 canals and rivers at risk of landslides, with a length of 2.7km, and at the same time reviewed saline and dry intrusion areas... On that basis, An Giang province implemented 532/537 irrigation works. Implemented 62 projects, provincial topics, 67 grassroots scientific models and solutions. The works are aimed at facilitating agricultural restructuring, land accumulation and local response to climate change.

4. Discussion and Conclusion

Some recommendations in agricultural economic development to adapt to climate change

The province has achieved in agricultural development adapting to climate change, to improve the results An Giang province needs:

Firstly, it is necessary to identify the main solutions to respond to climate change: in which, continue to update, select and complete solutions to respond to climate change for the agricultural sector, the functional agencies need to identify and promptly announce climate change to people about water level rise, construction elevation, flood risk area, water shortage risk area... publicize it widely so that people can proactively respond and prevent.

- *Second*, reasonably and sustainably maintain land fund for agriculture in regions and localities to ensure food security in the context of climate change.

- *Third*, build more new growth models, adapt to climate change conditions, towards the development of agricultural economy. Change the use of suitable water, fertilizer and animal feed sources.

- *Fourth*, promote the development of green agricultural production. Developing and applying biotechnology, applying advanced production processes towards a modern, adaptive and flexible agriculture in increasingly harsh climate conditions.

- *Fifth*, apply new production model, apply modern technology, link regions. At the same time, solving capital problems, selecting new varieties, planning infrastructure, irrigation, and small-scale production in agricultural development.

- *Sixthly*, areas with frequent droughts, salinization, flooding and degraded land for inefficient rice production need to reduce the area of rice cultivation to switch to aquaculture and other suitable crops with higher economic profits. Building and perfecting the system of control and prevention of plant and animal diseases in the context of climate change.

Conclusion

Climate change impacts all fields, from natural to socio-economic on a global scale, both urgent and long-term. Therefore, in order to adapt to climate change in agricultural economic development, An Giang province has made constant efforts to achieve the goals set out in the province's agricultural economic development.

An Giang maximizes its potentials and advantages, effectively exploiting resources for agricultural development. Actively prevent natural disasters, protect the environment and adapt to climate change. Ensure regulation and creation of water sources for irrigation, drainage, combined irrigation and water supply pumps; flood drainage, flood prevention, storm surge prevention, saltwater prevention, salt suppression, salt washing, alum washing, and fresh water preservation; protect dikes against floods in sub-regions serving production and other irrigation according to the products that have been bid, ordered or delivered according to the plan. The province's agriculture is constantly improving productivity, quality, efficiency, competitiveness, changing the development mindset based on area, productivity, output to thinking about value and economic efficiency achieved in the land unit. From unceasing efforts in developing agricultural economy with adapting to climate change, An Giang province has achieved certain successes, being the leading province in the transformation of crops and livestock, as well as such as research on rice varieties adapted to fields contaminated with alum, salinity have been successfully tested and are being

moderated to expand the area of rice cultivation to adapt to climate change. However, at present, climate change is increasing and has direct impacts on the economy, environment and society. Therefore, the development of agricultural economy to adapt to climate change is an important and urgent factor in the economic and social development of An Giang province in particular and the country in general.

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GREEN ECONOMY DEVELOPMENT - THE ROAD TO SUSTAINABLE DEVELOPMENT IN VIETNAM

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Abstract

The research has clarified the concept of green economy, sustainable development, and the relationship between the two concepts and analyzed the current situation of socio-economic development in Vietnam in recent years based on the criteria of development lasting. From there, study the inevitability, advantages, and challenges of Vietnam's transition to a green economy based on the Party and State's assessment of the green economy and sustainable development. On that basis, propose solutions and tools for green economic development in the process of planning, formulation, and implementation to achieve sustainable development goals in Vietnam

Keywords: *Green economy, sustainable development, green growth*

1. Introduction

In recent years, Vietnam's economy has achieved important achievements, but development is not sustainable. Economic development in Vietnam still relies heavily on the exploitation of natural resources, low labor productivity, production technology, and consumption patterns that use a lot of energy, raw materials, and waste. Many natural resources are exhausted and used wastefully and inefficiently. The natural environment in many places is seriously damaged, polluted, and degraded to an alarming level

Therefore, approaching and building a green economy is an urgent requirement and realizes the path of sustainable development and hunger eradication, and poverty reduction. Recognizing the significance of this opportunity, to develop the country and integrate with the world, the Government has issued important strategic documents: Decision No. 2139/QD-TTG, dated December 5, 2011, approving the National Strategy on Climate Change; Decision No. 432/QD-TTG, dated April 12, 2012, approving the Vietnam Sustainable Development Strategy for the period 2011-2020; Decision No. 1393/QD-TTG, dated September 25, 2012, approving the National Strategy on Green

Growth for the period 2011-2020 and a vision to 2050; Decision No. 339/QĐ-TTĐ, dated February 19, 2013, on approval of the Master Plan on economic restructuring associated with transforming the growth model towards improving quality, efficiency and competitiveness in the period of 2013 -2020

The content of these documents has covered most of the contents, meanings, goals, views, principles, solutions, and ways of implementing green growth, which is the legal basis for promoting green growth in Vietnam. Green growth in Vietnam is an important content of sustainable development, ensuring fast, effective, and sustainable economic development and making an important contribution to the implementation of the National Strategy on Climate Change. Green growth is a method to promote the process of changing growth models, restructuring the economy, maximizing competitive advantages, increase economic efficiency and competitiveness through research and development. applying advanced technology, developing a modern infrastructure system, to effectively use natural resources, respond to climate change, contribute to hunger eradication and poverty reduction, and create a driving force for economic growth and sustainable economy

Stemming from the above statement, to contribute to the study of the green economy, to properly assess the position, conception, and characteristics of the green economy in the sustainable development of the country, thereby proposing some solutions for green development, meeting the renewal and development of the country

2. Method

To serve this article, the author uses the Marxist philosophical methodology, while also using the method of analyzing documents, observation methods, and logistic-logistic methods

3. Results

3.1. Concept of green economy, sustainable development, and relationship

3.1.1. Concept of green economy

The term "green economy" was officially used at the United Nations Summit on Sustainable Development (June 2012) in Rio de Janeiro, Brazil (Rio +20). Previously, the adjective "green" was used quite a lot, associated with many development activities towards sustainable development, such as green production, green consumption, green lifestyle, green products... with the function. The main meaning is "environmentally friendly"

There are different definitions of green economy, of which the definition of the United Nations Environment Program (UNEP, 2011) in the book *Towards a Green Economy - Roadmap for Sustainable Development and Poverty Alleviation* Most cited by scholars in Vietnam: "A green economy enhances people's lives and improves social equity, while significantly reducing environmental risks and deficiencies. ecological deficit. Simply put, a green economy with low emissions, efficient use of resources, and social equity." (UNDP, 2011, p.13)

According to the Organization for Economic Cooperation and Development (OECD), "Green growth is a way to achieve economic growth and development goals while conserving the environment and preventing the loss of biodiversity." learning and

minimizing the unsustainable use of natural resources, green growth is about promoting economic growth and development while ensuring that natural resources continue to provide environmental resources and services essential to our lives. To do this, green growth must be the catalyst for investment and innovation, the basis for sustainable growth, and the creation of new economic opportunities”

The draft Green Growth Strategy for the period 2011-2020 and a vision to 2050 of the Ministry of Planning and Investment stated that "Green growth in Vietnam is a way to promote the process of economic restructuring, towards the efficient use of natural resources, reduction of greenhouse gas emissions through research and application of modern technologies, development of infrastructure systems to improve the efficiency of the economy, response to climate change, contribute to poverty reduction, and create a driving force to promote economic growth sustainably". In Vietnam, the green growth strategy is considered a concrete step in the sustainable development strategy, the main content of sustainable development

Regardless of the approach, all views agree that the green economy consists of three pillars: economic development (economic growth issues, employment); environmental sustainability (reducing carbon energy and natural resource depletion...); social cohesion (ensure the goal of poverty reduction, equality before the opportunities created by the green economy, and a healthy living environment)

3.1.2. Sustainable development

The United Nations agreed on the concept of sustainable development as development that meets the needs of the present, without compromising the ability of future generations to meet the needs future generations: “A development that meets the needs of the present. satisfy the needs of the present generation without compromising the ability of future generations to meet their own needs” (UNDP, 2011, p.107). It is a development that always maintains a balanced and harmonious combination of all three pillars of development in terms of economy, society, and ecology/resources and environment.

In Vietnam, in the documents of the IXth and 10th Party Congresses, and especially in the documents of the 11th Party Congress, the concept of sustainable development is clarified. To direct the implementation of the Socio-Economic Development Strategy 2011-2020, our Party has proposed five development perspectives, of which the first one is: "Fast development is associated with sustainable development, Sustainable development is a requirement throughout the Strategy”

In 2016, summarizing 30 years of Doi Moi in our country, the 12th Congress of the Party had a new development in awareness with the affirmation: "Ensure rapid and sustainable development based on macroeconomic sustainability and continuously improve productivity, quality, efficiency, and competitiveness Harmonious development of breadth and depth, focusing on in-depth development; develop a knowledge economy, green economy. The economy is closely linked with cultural and social development, environmental protection, proactively responding to climate change, ensuring national defense and security, and maintaining peace and stability for national construction."

(Communist Party of Vietnam, 2016, p.270), "Rapid and sustainable development (towards the United Nations' 2030 Sustainable Development Goals); Harmonizing economic growth with cultural development, realizing progress and social justice, environmental protection"(Communist Party of Vietnam, 2016, p.87)

3.1.3. The relationship between green economy and sustainable development

Sustainable development and a green economy are closely related and closely related to climate change response. With the connotation of the concept of green economy, it can be seen that the green economy not only includes economic goals but also extends to include social, environmental, and ecological goals

Therefore, there are comments that, in essence, the green economy is sustainable development or a new way to implement sustainable development in the context of climate change. The great and increasing impact of climate change has made more prominent the requirements for growth, economic and social development, but must ensure the provision of resources for growth, development, and maintenance of the living environment of human

The green approach or greening national development decisions is a prominent feature when talking about green growth, and the green economy. However, green growth and green economy do not replace the concept of sustainable development but are a tool to implement sustainable development in the context of climate change, in which more emphasis is placed on environmental resources

Talking about natural resources in the green economy, natural resources are considered a decisive factor for economic growth, improving value chains, and bringing stability and long-term prosperity. But when talking about the green economy, instead of emphasizing the harmonious combination of the three pillars of sustainable development, namely economy, society, and environment, the economical and intelligent use of natural resources, human-centered, and practical application. Climate change response is central and decisive for development decisions. Thus, the green economy does not replace sustainable development but is a way to express sustainable development, in which more emphasis is placed on the protection of natural resources and in connection with the response to climate change

The theory of the green economy is also based on the theory of sustainable development. The basic difference is that in the green economy to protect natural resources, climate change response is identified in the central position while the theory of sustainable development determines the harmony between environmental protection and economic growth and social progress, 3 pillars create sustainable development

Thus, there is a close relationship between a green economy and sustainable development. The concept of a green economy was born later, associated with climate change. The green economy is a way to implement sustainable development in the context of degraded natural resources and climate change. A green economy not only includes economic goals but more importantly, also extends to social and ecological goals. The green economy is also sustainable development, more specifically, it is a way to express sustainable development in the context of climate change, with much emphasis on

environmental resources. In the green economy, environmental resources are considered a decisive factor for economic growth, improving value chains, and bringing stability and long-term prosperity. Sustainability in environmental resources and response to climate change is considered the focus of the green economy. The concept of "green economy" does not replace the concept of "sustainable development", but it is increasingly recognized as a suitable model as the foundation for sustainable development. In other words, the green economy is an economic strategy to achieve sustainable development goals. Therefore, the approach to sustainable development is also the approach of the green economy with the content of maintaining the natural foundation for human activities and improving the quality of human life on earth.

3.2. Status of sustainable development in Vietnam

Vietnam is one of the countries that has made great efforts and has achieved many achievements in the process of sustainable development. Vietnam has promulgated a national program on sustainable development, established a National Council on Sustainable Development, and enhanced competitiveness.

Economically, maintain sustainable economic growth, gradually implement green growth, develop clean energy, and renewable energy; implement sustainable production and consumption; ensure food security, develop agriculture and rural areas sustainably; sustainable development of regions and localities. In 2020, according to the assessment of international organizations, the scale of Vietnam's economy is in the top 40 largest economies in the world and 4th in ASEAN. GDP per capita in 2020 will reach over 3,500 USD (calculated by purchasing power equivalent to about 10,000 USD). Despite being heavily affected by the Covid-19 pandemic, Vietnam is in the top 10 fastest growing countries in the world (One of the 16 most successful emerging economies in the world). Vietnam is an open economy with the world's high openness of about 200% of GDP (Phung The Dong, Nguyen Thanh Dong, Phan Thi Thu Trang, 2021)

Currently, in terms of foreign affairs, Vietnam has official relations with 189/193 countries; has economic, trade, and investment relations with over 224 countries and territories; Our country has signed 15 FTAs and has 16 strategic partners.

In recent years, Vietnam has been assessed as a country with a stable and favorable macroeconomic, political and social environment. National competitiveness in 2019 ranked 67/141, up 10 places compared to 2018.

Regarding society, focus on promoting poverty reduction sustainably; create decent jobs; The rate of poor households decreased by 2%/year on average, especially in poor districts, it decreased by over 4%/year. Making progress and social justice; well implement social security policies. On human development index and sustainable development: Vietnam's human development index (HDI) entered the group. countries with high human development and ranked 117th out of 189 countries (in the period 1990-2019, Vietnam's HDI value increased by nearly 46%). According to the Report on the Assessment of Progress on the Implementation of Sustainable Development Goals, Vietnam ranks 54th (2019), up 3

places compared to 2018 and the sustainability index ranks 2nd in Southeast Asia. Accomplish multiple Millennium Goals (Tran Nguyen Tuyen, 2021)

About resources and environment: Environmental issues have been given more attention. The protection of natural resources and the environment has come into order. With reasonable policies and drastic solutions, the issue of protecting the living environment, and combating pollution of water and air sources has been agreed upon by all localities, branches, and people of all strata. participation. More attention has been paid to afforestation and forest protection, so the situation of fires and deforestation has decreased

Besides encouraging results in sustainable economic development, Vietnam's economy still has limitations and weaknesses such as The economic growth rate has not reached the set target; economic restructuring associated with growth model innovation is still slow; science, technology, and innovation in several fields have not yet been promoted, the national science and technology level is still far from that of the leading group in the region; implementation of strategic breakthroughs in institutions, human resources and infrastructure are still slow; development gap, the income gap between regions tends to increase, slow to narrow.

3.3. Some solutions for green economic development - The path for sustainable development of Vietnam.

3.3.1. Opinion

Firstly, from an economic perspective, Vietnam's green economy is a way to promote sustainable economic development based on sustainable factors. This process must take place harmoniously and reasonably, suitable to the conditions and circumstances of Vietnam, that is, it must be gradually adjusted in the direction of saving and using resources more efficiently, protecting the environment. ; minimizing negative impacts on employment and employee income to avoid causing social conflicts. For the economy to become more environmentally friendly, it is necessary to reduce the reliance on unsustainable factors and gradually increase sustainable factors for the development

Secondly, from the perspective of environmental management, it is necessary to ensure a balance between the requirements of rapid economic growth with savings and more efficient use of natural resources and environmental protection. Focus on developing and innovating production technology towards environmentally friendly; formulating and implementing a roadmap to limit the use of fossil energy, develop clean energy, and renewable energy, and improve energy use efficiency; strengthen state management of natural resources, environmental protection, waste treatment, and response to climate change

Third, from a social perspective, this is the process of linking economic growth with ensuring progress and social justice. Vietnam is carrying out the process of ensuring economic growth in association with social progress and justice, perfecting the social security and social welfare system... At a higher level, it must be implemented. greening lifestyles and promoting sustainable consumption. Only then can the market be oriented (promoting green consumption) and thereby orienting production activities (green production)

3.3.2. *Some solutions*

To implement a green economic development policy in Vietnam in the context of global climate change, it is necessary to focus on the following key solutions:

Firstly, in view: Must harmoniously combine attracting resources (based on taking internal resources as basic, strategic, and long-term; external resources are important and breakthrough) and transformation. input structure in the direction of gradually reducing the contribution of physical capital, then labor, gradually increasing the role of the factor of aggregate productivity based on rapidly developing high-quality human resources, resulting in the application of scientific and technological advances. At the same time, the allocation of growth resources must follow the signals and principles of the market

Secondly, in terms of awareness, it is necessary to focus on propaganda and education to change the perception of society from the “brown economy” to the “green economy”. Creating a high consensus in society from leaders to people and businesses, thereby changing the concept and perception of a “green economy”. In the professional education system, innovative curricula and lectures toward the “green economy” approach

Third, develop mechanisms and policies to create favorable conditions for growth model innovation, focusing on restructuring industries, giving priority to developing high-tech, low-carbon industries; environmentally friendly technology; saving energy and resources, do not pollute the environment; restore resources and ecosystems. Accelerate the restructuring and equitization of state-owned enterprises in the fields of natural resources, energy, and heavy industry. Focusing on promoting the role of small and medium enterprises and the community in implementing green economic development policies. The active participation of the community will create a solid foundation for the realization of the green economy, therefore, it is necessary to focus on raising the community’s awareness of green economic development

Fourth, on the direction of investment: Focus on economic sectors that can promote Vietnam’s comparative advantages such as ecological agriculture; diversify and develop clean energy sources; develop high-quality recreational, ecological, and resort tourism... Pay attention to research and development of the cultural industry. Investing in the development of highly qualified human resources, building a knowledge economy; developing production technology towards environmentally friendly; focusing on solving environmental consequences directly related to social security (such as polluted water sources, coal dumping sites...); improving management and supervision capacity of state management agencies in the field of environment, increase investment in science and technology development; promote research and cooperation in research into fields of green economic development such as the use of renewable energy, production technology that saves resources and consumes less energy; reorient investment, towards an investment of about 2% of the total annual budget expenditure for ecosystem restoration and environmental protection...

Thus, in the context of global climate change, green economic development is the key to success, a breakthrough solution for Vietnam’s sustainable development, contributing

to the successful implementation of the goals. Objectives: rapid and sustainable growth, ensuring progress, and social justice, constantly improving the quality of life, attaching importance to environmental protection

4. Conclusion

It can be said that green growth is an important content to aim for in the process of renewing the growth model and restructuring the current Vietnamese economy. The development experience of many countries shows that the transition to a green economy creates great potential for sustainable development and poverty reduction. Transforming the growth model towards green growth is an affirmation of the implementation of Vietnam's socio-economic strategy. Transforming the development model of production methods to a green economy is a new approach, in line with the general development trend in the world system. The building of a green economic development model that is suitable to Vietnam's circumstances and development conditions still needs to be further studied.

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SOLUTIONS TO REDUCE IMPACTS OF SALTWATER INTRUSION ON FRUIT FARMERS IN VINH LONG PROVINCE

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Abstract

The study aims to summarize solutions to reduce the negative effects of saltwater intrusion on fruit farmers in Vinh Long province. The study conducted a survey of 250 fruit farmers in Vinh Long province affected by saltwater intrusion in 2020. The study used the method of interviewing farmers and relevant local authorities to assess the reality of the situation. saltwater intrusion in 2020 and investigate solutions that have been and are being implemented. Research results show that solutions to reduce the negative effects of saltwater intrusion are applied and highly appreciated by farmers, including water resource management, tree restoration, water storage, and from the local government. The method is the construction of irrigation works and timely information. Thereby, the topic has proposed solutions to improve the initiative of farmers as well as increase the coordination of local authorities in order to reduce the impact of saltwater intrusion on crop production.

Keywords: *saltwater intrusion, farmers, fruit, Vinh Long*

1. Introduction

Today, climate change is causing serious damage in economics and sustainable development of each country. Climate change is a change in the state of the climate relative to the average and/or a climate variability that persists for an extended period of time, often decades or longer (Ministry of Natural Resources and Environment, 2008). Vietnam is considered as one of countries most heavily affected by climate change. Under the impact of climate change, almost all farming activities of farmers are seriously affected. These are productivity and output losses or increased input costs for agricultural production. Many scientific reports and evidences have shown that Vietnam, especially the Mekong Delta region, is one of the "hot spots" for climate change and sea level rise in the world, causing many problems vulnerability to people's livelihoods (Dasgupta et al., 2009; IPCC, 2007).

As one of the typical factors of climate change, saltwater intrusion has been shrinking the agricultural land area. According to Barlow (2003), saltwater intrusion occurs when

saltwater mixes with fresh water. Saltwater intrusion is a serious problem for many local governments, which has been tried to solve in the context of climate change such as sea level rise, temperature rise, over-exploitation of groundwater to meet water demand for development, these causes are increasing the risk of saltwater intrusion (Darnault & Godinez, 2008). A significant portion of arable land in the Red River Delta and the Mekong Delta is saline because these two deltas are lowlands relative to sea level. Invasion reduces the area of arable land, from which the coefficient of land use can be reduced from 3-4 times/year to 1-1.5 times/year. Saltwater intrusion will be especially severe in the Mekong Delta, if the sea level rises by 1m, about 1.77 million hectares of land will become saline, accounting for 45% of the land area in the Mekong Delta and it is estimated that. In 2020, saltwater intrusion are reported to be one of the factors of climate change that have a great impact on the agricultural sector of Vinh Long province.

Although Vinh Long province has made great efforts in building dikes and forecasting stations, the development of saltwater intrusion has unexpectedly caused a lot of damage to the province's agricultural industry. In particular, saltwater intrusion have appeared in new localities that have not been affected by salt before, for example, mainly in Vung Liem, Mang Thit, Tra On and Long Ho district. According to a report of the Commanding Committee for Natural Disaster Prevention and Control and Search and Rescue of the Department of Agriculture of Vinh Long Province, the total damage caused by climate change in 2020 is VND 395,861.75 million with a total funding of 25,442.503 million dong.

It can be seen that the agricultural sector of Vinh Long province is facing many difficulties due to the increasingly complex situation of saltwater intrusion and has a significant impact on the province's sustainable development goals. However, there has been no in-depth research on agricultural income of farmers under the impact of mangrove forest in Vinh Long province. Besides, in order to promote the solutions applied by farmers to deal with saltwater intrusion, so far there has been no research on its effectiveness. While the solutions proposed and applied by farmers themselves are highly practical and have the potential to become lessons learned in production in the farming community (Thong et al., 2019). Therefore, the research team conducted a study to evaluate the effects of saline intrusion on fruit growing activities of farmers in Vinh Long province, analyze the effectiveness of solutions that have been applied by farmers and local government. Thereby, the topic proposes solutions for farmers and the State in dealing with the effects of saltwater intrusion.

2. Method

2.1. Data collection method

The research team directly interviewed 250 fruit farmers affected by saline intrusion in the districts of Vung Liem, Mang Thit, Long Ho and Tra On. In addition, the topic also interviewed experts who are specialized agricultural officers at district and commune level. In addition, the study also collects data from agricultural summary reports of Vinh Long province in general and of districts in particular.

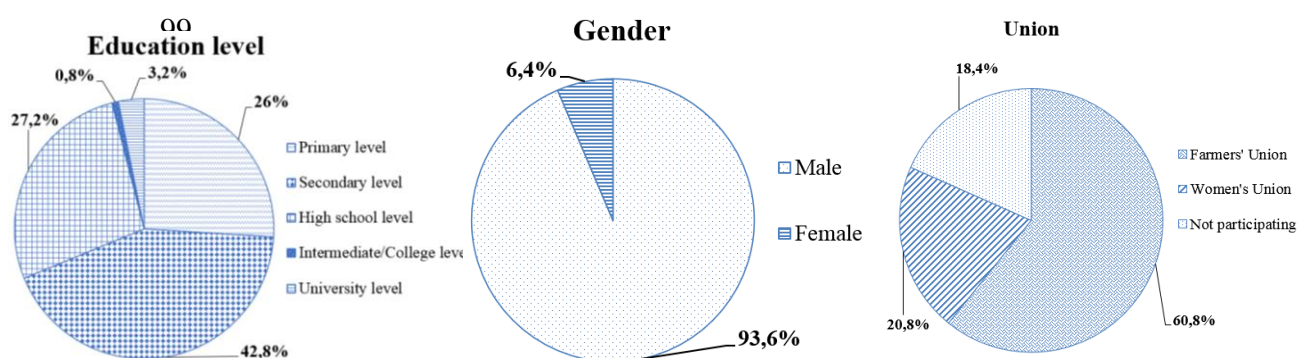
2.2. Methods of data analysis

The primary data, after being collected, will be synthesized, coded, analyzed by descriptive statistics using Microsoft Excel tools and shown through graphs and average values, percentage to evaluate the solutions that farmers apply in reducing the negative effects of saltwater intrusion on agricultural production.

3. Results

3.1. Analysis of demographic characteristics of farmers

According to the survey results, the majority of farmers are male (accounting for 93.6%), the proportion of female farmers is very low. All surveyed farmers heads are Kinh people (100%), the majority of them have an education at secondary level, high school level (27.2%) and primary level (26.0%). The survey also showed that the average number of employees in a farmer was 4.29 members, of which the main number of employees was 2.76 members. The number of farmers participating in unions is quite high, with 152/250 farmers, accounting for 60.8%. In particular, the number of farmers participating in the Farmers' Union (108 farmers, 43.2%), the Women's Union (52 farmers, 20.8%).



Source: Data analysis results, 2021

Figure 1. Demographic characteristics of householders

3.2. Analysis of the effects of saltwater intrusion on agricultural production activities of farmers

3.2.1. Characteristics of agricultural production activities

The study surveyed 250 farmers growing durian and rambutan affected by saltwater intrusion, in which durian (126 farmers, rate 50.4%), and rambutan (124 farmers, rate 49.6%). The average farming area of producing farmers is 6,759.1 m², of which the average cultivated land area for durian is 8,790 m², for rambutan is 4,890 m². Production land is mainly owned by farmers, production farmers renting land to expand production are very few (7/250 surveyed farmers, rate 2.8%). This shows that, production farmers mainly rely on owned land, the expansion of production land area by renting more land is very little. The survey results also show that the source of investment capital for agricultural production of farmers is mainly from the available capital of production farmers (223/250 farmers, rate 87.4%), followed by loans from banks (10.1%) and from relatives and other sources.

3.2.2. Cost and efficiency of production

Through the survey results, for durian farming farmers, the cost of fertilizer is the highest, followed by the cost of land preparation, the cost of plant protection drugs, the cost of water intrusion prevention, and the cost of loan interest and some other costs. Farmers mainly use available family labor, so the cost of hiring labor to harvest is not available. However, due to the influence of rice invasion, it costs farmers an average of 2,672 million VND to buy seedlings to restore production and to replant the dead trees.

The cost of saltwater intrusion prevention includes the cost of buying a salinity meter, rubber latex for ponds, screens, anti-salinity drugs, labor in dredging canals (digging ponds, digging ditches), repairing sluices, besides. Some farmers have actively purchased salt water purifiers. The average cost of prevention and control of saltwater intrusion for durian trees is 3,631.62 million VND, for rambutan trees is 1,147.96 million VND. The cost of preventing saltwater intrusion of durian is higher than that of rambutan because durian farmers have experience in dealing with saltwater intrusion, so they have actively invested in implementing solutions to prevent mangroves.

For farmers cultivating rambutan, production costs also focus on buying fertilizers, seedlings and pesticides. The influence of mangrove forest has caused great damage to rambutan trees, so the producer has to spend quite a lot of money to buy replanted seedlings or other seedlings such as pomelos, oranges, and lemons to reproduce. The cost of buying seedlings is quite high, averaging more than 3,488 million VND. Farmers also spend quite a lot on prevention of the impact of mangroves and the cost of land reclamation due to salinity.

The production efficiency of farmers for durian and rambutan trees also has a big difference. Despite being severely affected by the mangrove forest, durian producing farmers still have income, with the average revenue/household/year of 249,828 thousand VND, the average production cost/household/year of 90,498.17 thousand VND. VND, average income/household/year is 159,329.84 thousand VND. In contrast, rambutan farming farmers are mostly severely affected, with average revenue/household/year of 16,200 thousand VND, while the average production cost/household/year is up to 17,814.41 thousand VND. VND, average income/household/year was negative 1,614.41 thousand VND.

Table 1. Average annual income of durian and rambutan producing farmers

Indicators	Durian trees	Rambutan trees
1. Revenue (thousand VND)	249,828	16,200
2. Cost (thousand VND)	90,498.17	17,814.41
Cost of land preparation	20,512.97	616.33
Cost of seedlings	2,672.22	3,488.78
Fertilizer cost	39,346.67	8,053.06
Drug costs	16,898.8	3,332.65
Labor cost	2051.28	575.51

Indicators	Durian trees	Rambutan trees
Harvest cost	0	6.12
Cost of land rent	2,564.10	0
Interest expenses	2,820.51	0
The cost of preventing and fighting against	3,631.62	1,147.96
Other costs	0	594
3. Income (thousand VND)	159,329.83	- 1,614.41

Source: Data analysis results, 2021

The production efficiency of farmers for durian and rambutan trees also has a big difference. Despite being severely affected by the mangrove forest, durian producing farmers still have income, with the average revenue/household/year of 249,828 thousand VND, and the average production cost/household/year of 90,498.17 thousand VND. VND, average income/household/year is 159,329.84 thousand VND. In contrast, rambutan farming farmers are most severely affected, with an average revenue/household/year of 16,200 thousand VND, while the average production cost/household/year is up to 17,814.41 thousand VND, average income/household/year was negative 1,614.41 thousand VND.

3.2.3. Impact of Saltwater intrusion on production activities

Saltwater intrusion in 2021 has a strong impact on the production of farmers. Specifically, according to the survey results, for durian growing farmers, the average number of dead trees per household is 36 trees, for rambutan growing farmers, 46 trees. Due to the large number of dead trees and the remaining trees affected by yield, there are 31/166 farmers growing durian (accounting for 24.6%) and 41/124 farmers growing rambutan (accounting for 33.06%). no income from farming. Besides, the research results also show that 47/126 (37.3%) and 84/124 (67.74%) farmers growing rambutan have no income in the year (negative income). This is a rather high rate, showing that mangrove forest seriously affects productivity and harvested output, causing great economic losses to producing farmers.

Table 2. Effects of saline intrusion on production and household income

Features	Durian tree	Rambutan tree
Average number of dead trees/household (trees) 36 46	36	46
No revenue (farmer)	31	41
Number of farmers with no income (farmer)	47	84

Source: Data analysis results, 2021.

3.2.4. Solutions to help farmers reduce the impact of saltwater intrusion on their income from cultivation

3.2.4.1. Solutions from local government

- Construction of irrigation works: culverts, dams, pumping stations, closed dikes, canals

As a result of the survey, all farmers surveyed highly appreciated this solution (247/250 respondents, accounting for 98.8%) evaluated from the level of efficiency for the construction of irrigation works: culverts, dams, pumping stations and 95.6% evaluated from

the level of efficiency for the closed canals. This solution has helped prevent salinity when the water is salty from the large river into the interior field.

- Timely information on hydrological data to farmers

According to the analysis results, this solution is highly appreciated by farmers, there are 121 opinions on the total sample of 250 have chosen the level of efficiency accounting for 48.4%, and the level of complete efficiency accounts for 49.2% with 123 opinions. Farmers receive messages from hydrologists and promptly do not irrigate when the salinity is high, affecting crops.

- Disaster support policies

Through the survey results, all farmers have highly appreciated this solution, with 188/250 opinions from the effectiveness level accounting for 75.2%, they have received support from the local government. All farmers damaged by saltwater intrusion, those farmers are supported with costs under the policy of the Government's Decree No. 02/2017/ND-CP. This solution helps farmers have the cost to buy new varieties, fertilizers, take care of the garden, restore and reproduce soon after saltwater intrusion, avoiding adverse effects in the following years.

- Organizing training courses

Through the interview results, 50% of the farmers rated this solution at the effective level and 36.8% rated it at the completely effective level. This solution has helped farmers improve their understanding of the current drought and saltwater intrusion situation in each area, as well as how to restore their orchards after saltwater intrusion.

3.2.4.2. *Solutions from farmers*

Level (1) Completely ineffective; (2) Ineffective; (3) Normal; (4) Effectiveness; (5) It's completely effective.

<i>Solutions from farmers</i>	Implementation rate	Efficiency level				
		(1)	(2)	(3)	(4)	(5)
Invest to dig ditches, build pond banks to store water for irrigation	87,6	0	2,4	11,2	35,2	47,6
Invest to buy plastic fabric sheet covering the ditch	61,2	5,6	6,0	29,6	36	19,2
Repairing drains, dams	100	0	1,6	8,0	52,8	44,8
Measure salinity before irrigation	100	0	0	4,8	31,6	62,4
Use more organic fertilizer for plants	84	0	12,0	13,2	37,6	26,8
Use lime for salty washing	62	2,0	16,0	28,4	30,0	11,2
Apply new planting methods	55,2	3,6	12,0	44,8	20,0	5,2
Invest to buy water storage tools, irrigation tools	55,6	12,0	9,6	18,4	35,2	12,0
Converting to other varieties or intercropping with other plants	54,8	10,0	6,0	22,8	24,4	24,4
Planting new salt-tolerant varieties	34,4	8,8	20,8	35,2	13,6	9,2

Source: *Data Analysis Results, 2021*

- Invest to dig ditches, build pond banks to store water for irrigation

According to the survey results, this solution is highly appreciated by respondents, 219/250 farmers have implemented this solution, accounting for 87.6%. Most of the farmers still choose to dig a pond to store water, although it is expensive, they will be able to control the water source and the pond can be used for several years.

- Invest to buy plastic fabric sheet covering the ditch

Through the analysis results, there are 153/250 farmers have implemented this solution. In particular, 138/250 respondents rated this solution from the level of effectiveness (accounting for 55.2%). Most of the farmers have implemented and achieved effective, the ground is covered with polyester film material that will help keep surface water from evaporating when hot weather will increase the salinity of the soil.

- Repairing drains, dams

According to the analysis results, all farmers have implemented this solution, of which 244 farmers rated this solution as very effective at levels 4 and 5.

Farmers have implemented this solution to ensure the closure and prevent salt water from entering the orchards.

- Measure salinity before irrigation

This solution has been implemented by the majority of farmers 212/250, of which, 155 out of 250 respondents rated from the level of effectiveness, accounting for 62.4%. Farmers measure salinity before each irrigation and non-irrigation with salinity higher than 1‰; for some fruit trees sensitive to salinity such as durian, rambutan, ... They do not irrigate with a salinity of more than 0.5‰ to avoid damage.

- Use more organic fertilizer for plants and use lime for salty washing

Through the analysis results, the majority of farmers are still implementing the solution with 210/250 farmers and highly appreciate this solution, with 161 options evaluated from the level of efficiency, accounting for 64.4%. Farmers have completely applied organic fertilizer to the plants during the time when the soil is saltwater intrusion and increased organic fertilizer application also increases the soil's resistance capacity and restores the garden after saltwater intrusion.

- Converting to other varieties or intercropping with other plants

According to the survey results, more than 50% of respondents implemented this solution, 122 out of 250 farmers rated this solution at the level of effectiveness (accounting for 48.8%). They renovated the soil and switched to intercropping with other crops or switched completely to planting other salt-tolerant crops such as: longan, oranges, grapefruit, jackfruit and coconut for short-term farming, ensuring revenue sources or less damage to saltwater intrusion.

- Apply new planting methods

As a result of the survey, 138 out of 250 farmers implemented this solution, of which 25.2% of respondents rated this solution from the level of effective. Because the

effectiveness of this solution will not be high if not combined with other solutions. Farmers implement higher planting or mulching in combination with organic fertilizers, in order to reduce the salinity in the soil and help the roots climb up to be less salinity.

- Invest to buy water storage tools, irrigation tools

According to the survey results, 55.6% of farmers have implemented and highly appreciate this solution. They have been implementing it effectively, accounting for 47.2%. A water-saving irrigation system will help save water because conventional irrigation uses a lot of water. In addition, it also helps to reduce labor and limit the amount of chemical fertilizers, prevent erosion, it helps to protect the ecological environment while keeping moisture and nutrients in the soil, helping plants grow well.

3.2.5. Solutions to reduce negative effects of saltwater intrusion on farmers

From the research results, in order to increase the income of farming farmers in the conditions of saline intrusion in Vinh Long province, the research team offers specific solutions as follows:

*3.2.5.1. Solutions from farmers to **prevent** saltwater intrusion*

Most of the farmers in saline intrusion areas are aware of the response to saline intrusion. However, it is necessary to promote the initiative in responding to saltwater intrusion further. The thesis proposes some solutions as follows:

First, manage and protect water resources. First, it is necessary to strengthen the manhole covers to prevent leakage, replace the manhole covers with trees because of high water leakage, replace with iron materials, and reinforce rubber pads. Next, farmers use tools such as rubber latex and ditch screens to store water to prevent salinity.

Second, proactively equip themselves with equipment to prevent saltwater intrusion. Farmers monitor their own salinity by equipping themselves with a salinity meter to check the salinity in water storage and when to water the plants. In addition, farmers memorize and update knowledge that salinity affects the type of crop they are cultivating.

Third, actively build a sprinkler irrigation system to save water. On average, each household cultivates about 0.6-0.7 hectares, so it is necessary to consider boldly investing in this system.

Fourth, farmers need to change their farming practices, focus on cultivating the soil, and attach importance to the role of organic fertilizers in agricultural production.

Fifth, farmers actively change the method of planting trees. This change is related to (1) varieties, (2) intercropping. This measure helps farmers to live with saline intrusion through soil improvement, use of suitable and resistant varieties and/or application of intercropping with other crops or completely switching to tolerant crops. Other salinity contributes to income enhancement and soil improvement.

Sixth, farmers actively diversify their incomes: for areas specialized in durian cultivation, in order to diversify their incomes and grow them for a long time, farmers can intercrop green-skinned pomelo in durian orchards for a short period of time. early period. For rambutan growing areas, intercropping with other fruit trees with high salt tolerance, suitable for each region's soil such as mango, longan, and plum to ensure income.

3.2.5.2. Solutions from the local government in preventing and combating saltwater intrusion

(1) Local authorities need to update the plans in organizing the implementation of the national target program to respond to saltwater intrusion in consultation with many stakeholders including experts, farmers, etc. farmers and associations so that the plans are fully implemented.

(2) Protect specialized farming areas affected by saline intrusion, especially areas with high economic efficiency (such as durian).

(3) Replicating the model of VietGap production groups, especially in specialized durian growing areas such as Mang Thit district to improve product quality and increase product value.

(4) Strengthening policies to support saltwater intrusion prevention and control through the support of loans from social policy banks to equip equipment for saltwater intrusion prevention and control.

(5) Invest in construction and improve the quality of irrigation works and non-constructions.

(6) Improve the quality of training courses, create prestige for farmers from training courses, invite experts, explain in detail according to the needs of farmers.

(7) Organize the updating and informing of information to farmers about salinity in rivers and canals as quickly as possible so that people can have a plan and timely treatment until the end of the saltwater intrusion cycle.

(8) Invest in research centers and breed more plant varieties adapted to saltwater intrusion conditions.

4. Discussion and Conclusion

The study was conducted to understand the current situation of saltwater intrusion in Vinh Long province in 2020. Thereby, the study investigated the level of application and assessment of farmers about the solutions currently applied by the State and the farmers themselves. Research results show that, to cope with the negative impacts of saltwater intrusion, the State and farmers have many different solutions to overcome. The solution groups applied and appreciated by many farmers are water resource management, tree restoration, and water storage. However, technical solutions such as changing new plant varieties, new planting methods, and applying technical methods in economical irrigation have not been implemented much. For the State's solution groups, farmers appreciate the construction and information solutions group, followed by the technical and financial support policies, and finally the transfer solutions. economical irrigation technology, plant variety conversion planning, provision of water storage tools.

Through the process of analyzing and synthesizing research results, the topic proposes some solutions to limit the impact of saltwater intrusion on the income of farmers. Firstly, farmers need to improve their initiative in preventing saltwater intrusion. Second, local authorities need to improve the effectiveness of coordination in the prevention and control of saltwater intrusion.

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BAC YEN TOURISM - POTENTIAL, CURRENT SITUATION AND DEVELOPMENT ORIENTATION

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Abstract

Bac Yen is a highland district of Son La province, this land is the residence of many ethnic minorities with diverse traditional cultures. The district has rich natural and humanistic tourism resources, many tourist attractions have been exploited early, attracting many tourists and bringing about high economic efficiency. However, the achievements of Bac Yen's tourism industry are still quite modest, not clearly showing the role of the industry in the economy. On the other hand, tourism development is sometimes not sustainable, there are many challenges to face. In this article, the authors briefly assess the potentials for tourism development in Bac Yen, clarify the achievements as well as some limitations, and give appropriate tourism development orientations of the district more reasonable.

Keywords: *Bac Yen, routes - tourist attractions, tourism, travel resources.*

1. Introduction

Bac Yen is a highland district located in the southeast of Son La province. The district has a convenient location when it is 100 km from the center of Son La city to the northeast, about 200 km from Hanoi city to the southeast. With rich tourism resources including natural and human resources, in recent years, Bac Yen has been known as an attractive tourist destination for domestic and foreign tourists.

Bac Yen is famous for many beautiful natural landscapes, both wild, poetic and majestic of the Northwest mountains; at the same time, this is also a land with a long history with rich and diverse cultural traditions, imbued with the identity of 7 ethnic groups living together (Thai, Muong, Mong, Dao, Kinh, Tay, Kho Mu). Those are great potentials for Bac Yen to develop a variety of tourism types, from community, ecological and cultural tourism to discovery and adventure tourism...

In fact, the number of tourists coming to Bac Yen is increasing day by day, Bac Yen tourism industry has gradually positioned itself as a destination brand, which brings great revenue and opportunities to promote and introduce nature, culture and people of Bac Yen with all parts of the country and the world.

However, compared with the potential of available tourism resources, the achievements of Bac Yen tourism are only the first step, still very small and not commensurate with the potential of the district. On the other hand, many challenges have

also arisen such as landscape disruption, environmental pollution, loss of national cultural identity... Therefore, within the framework of this paper, the authors focus on assessing the potentials. potential for tourism development in Bac Yen, clarifying the tourism development picture of the district, thereby orienting products and tourism development space more rationally, effectively and sustainably.

2. Method

The author uses professional methods to research theoretical and practical bases for tourism development, applied in research in Bac Yen district; use methods of collecting, analyzing and synthesizing documents and data; field methods, experts; Sociological investigation method aims to assess the potential, clarify the current situation of tourism development in Bac Yen, on that basis, orient the product and space for tourism development more effectively.

3. Results

3.1. Potential for tourism development in Bac Yen district

3.1.1. Natural tourism potential

Bac Yen has high terrain with very complex characteristics, strongly fragmented, steep, many high mountains, deep crevices, small flat land area. The terrain is both diverse and majestic, with high mountain ranges (Phu Sa Phin, Hang Chu, Hang Dong, Pu Han Pao, Pu Ngan,...) interspersed with river valleys and streams, with many caves, suitable for visiting sightseeing, sightseeing, is a favorable condition for the development of tourism, sports, mountain climbing, exploration, waterfall...

Bac Yen's climate is generally favorable for the development of a variety of crops and livestock such as: industrial crops, fruit trees, cattle raising and forestry production, on the other hand, due to the very cool climate. suitable for developing eco-tourism and resort tourism. From October of last year to April of next year, there are often clouds on the high mountains, forming an ideal place for tourists to hunt for clouds.

Bac Yen is located in the Da River basin, with a rather thick system of rivers and streams. The water surface area of Hoa Binh hydropower reservoir is large, has been bringing great benefits to the people thanks to fishing, is a potential for developing sightseeing tourism for yachts, vacationers and tourists. ecological calendar. Besides, the climate and water characteristics in 3 communes Xim Vang, Ta Xua and Hang Chu can raise salmon.

The land characteristics of the district are very suitable for special crops with high economic efficiency such as peaches, apples, Ta Xua tea, flowers such as orchids, mustard flowers, buckwheat flowers, ect

On the basis of exploiting the advantages of natural conditions, Bac Yen district currently has two tourist attractions that are attracting a large number of tourists to visit and experience: Ta Xua Cloud Paradise and Dinosaur Back. in Hang Dong commune. In addition, in the district, there are many natural tourist attractions that are highly attractive to tourists such as Hua Nhan lotus pond, Ta Xua Hills, Dolphin's Peak, Basin waterfall, and hot springs in Lao Lay and Phieng Ban villages.

Ta Xua cloud paradise in Ta Xua commune has long been described by tourists as the "heaven on earth" of the North. This is one of the beautiful and attractive cloud hunting spots in Bac Yen in particular and the Northwest in general. The best time to hunt for clouds is in the mornings from October last year to April next year, at this time Ta Xua is like a magical cloud paradise - where the Mong people walk on the clouds every day, living with clouds, wind and mountains.

Dinosaur spine belongs to Anti Tra village, Hang Dong commune. There is a mountain range stretching out into the valley thousands of meters deep called "dinosaur spine". Conquer the spines of dinosaurs to discover the beauty of mother nature, such as clouds, waterfalls, and even terraced fields with typical Hmong techniques and methods of cultivation on rocky slopes.

Hua Nhan lotus pond is located in Hua Nhan commune, located on the top of a high mountain with a fresh and cool climate. Lotus lagoon is a valley stretching along the mountainside, lotus blooms at sunrise, flowers stretch on leaves creating a gentle and pure beauty.

It can be seen: Bac Yen has many natural advantages for tourism development, many beautiful natural landscapes have been exploited and brought about high economic efficiency.

3.1.2. Humanistic tourism potential

Bac Yen is the residence of 7 ethnic groups, this land has a long history and rich revolutionary tradition. The humanistic tourism potential of Bac Yen ethnic groups is very diverse and rich, many spots have been put into operation and attract a large number of tourists.

Typical archaeological, historical-revolutionary relics in the district include: Khe Ho ancient stone beach in Hang Chu commune and A Phu couple's cave in Hong Ngai commune.

Khe Ho ancient stone carving beach is located in the middle of a valley about 50 hectares wide in Hang Chu village. At this rocky beach, there are 9 carved granite blocks, divided into 6 clusters located 50-200m apart. On the faces of these blocks, there are many engravings with unique shapes with different themes, reflecting the aesthetic thinking and feelings of people in contemporary social activities. Khe Ho ancient stone beach is not only a unique work of art but also contains many values of culture, history, beliefs and scientific research values.

The historical site of A Phu couple's cave, also known as Tham Cop cave, is located in Hong Ngai commune. The cave is located in the U Bo mountain range, with a length of nearly 200m, the cave's widest place is up to 40m. Surrounding is the primeval forest, in front is the people's cultivation. According to local history, Tham Cop cave is located in the 99 resistances base area. During the resistance war against the French, this place was chosen by the Military Intelligence Company of the General Staff to station and store weapons to find a way to overcome. Da river prepared for the Northwest campaign in 1952. It can be said that the 99 resistances base area is a relic of special historical significance, marking an important stage in the revolutionary struggle of the people of the provinces. ethnic minorities in Bac Yen district in particular and Son La province in general under the leadership of the Son La Provincial Party Committee.

About 20m south of A Phu cave, there is a water cave. The entrance to the cave is about 5m deep underground. The cave is about 300m long. The cave is dark, with a width of about 7m, from the floor to the ceiling, the average height is about 10-12m, in some places it is only 4-5m high. The cave floor is a stream flowing along the cave. From the entrance of A Phu Cave, tourists can freely admire the beauty of the Northwest mountains, watch the peaceful and poetic Da River and experience the life of the Thai, Muong and Dao ethnic groups with extremely cultural features. Uniquely along the Da River.

Along with historical values, Tham Cop cave has entered literature with another name: "A Phu couple's" cave, a name associated with the famous literary work "A Phu couple" by writer To Hoai. In recent years, the number of tourists coming to contact and visit the cave has increased more and more through the commune, which shows that the "A Phu couple" cave is becoming a "unique" highlight of Bac Yen tourism.

Folk festivals: It can be said that the festival system of ethnic groups in Bac Yen district is quite rich and unique. This is not only a place for community cohesion, preservation, education, and transmission of good cultural values of the ethnic group, but also a very important human resource for economic development and local tourism. The most typical festivals such as Xen Muong, Xen Ban of Thai, Muong; New rice festival of the Mong people...

The festival of Xen Ban and Xen Muong in the blooming season is a festival for Thai people to pray for good luck and harvest, this is a very important cultural and religious activity for the community. They put into it their great wishes for a peaceful and prosperous life in Muong village, and at the same time, it is also an opportunity to compete and have fun, boys and girls learn and feel through singing and playing the piano. They pray to the God of Water to bless the rain, good weather, good crops, good health, peaceful village; at the same time, to thank the gods for giving the villagers a bountiful harvest, bringing prosperity to the village, to the community, to all people. In addition, there are many traditional folk games of the nation such as: drumming gongs, playing chess, throwing con, playing odd, singing and answering contests, playing the flute, playing the flute... These games have been closely associated with the Thai people. Since childhood, it has become a feature in the culture of the ethnic community.

For the Mong people in Son La in general and the Mong people in Bac Yen in particular, the rice celebration has long been an important ritual in the spiritual life of the people here. Because it is an important holiday, family members always gather around the tray to express gratitude to ancestors and heaven and earth. The new rice offering ceremony is chosen as a beautiful day, after the last bag of rice is brought home from the fields, then the Mong people will hold a new rice festival. For the Mong, when rice is brought back, everyone in the family cannot eat it before the ancestors, especially the head of the family. Only when the ancestor worship is finished, the head of the family can eat. In Bac Yen, the Mong live at an altitude of over 1800m, scattered on the slopes of the high mountains, their economy is mainly dependent on shifting cultivation and forestry, they can only grow a single upland rice crop in a year, a year, so the new rice celebration plays an extremely important role.

In addition, in Bac Yen, there are many traditional festivals that are being restored and preserved such as: Cau Autumn Festival of the Dao ethnic group - Phieng Con commune; Xen Ban Festival of the Thai ethnic group Cang village - Phieng Ban commune, Culture and sport festival in Hang Chu commune...

Culinary culture: As a district with many ethnic groups living together, Bac Yen's cuisine is also very diverse and rich, bearing the characteristics of the Northwest region, especially the cuisine of the Thai, Muong, and Mong people. With the cuisine of Bac Yen in general, of the Thai, Muong, and Mong in particular, the locality and ethnicity are deeply imprinted through the exploitation and processing of dishes. From ingredients, processing, presentation, enjoyment... creating its own uniqueness and appeal. Currently, these products are not only served to tourists with local needs, but also become commodity products (gifts) that follow tourists when they return to their families: Lam rice, seven-color sticky rice, buffalo meat kitchen counter, vegetables, spices...

In addition, there are many products of the district that are known and popular by tourists such as: Hang Chu wine, apple cat, Ta Xua Shan Tuyet tea, Hang Dong chili bamboo shoots...

Ta Xua Shan Tuyet tea is hundreds of years old, associated with the history, culture and lifestyle of the Mong people. The tea forest here naturally exists at the same time, without any human influence or care. Ta Xua Shan Tuyet tea has white buds, yellow wings, big leaves, and what makes Ta Xua tea special is that all the drying stages are done by hand. It is from the elaborate stages of making tea that the people consider this as a precious gift to entertain guests on important occasions. This is considered one of the beauties and typical specialties of Ta Xua highland.

Coming to Hang Chu, it is impossible not to enjoy the wine with the strange aroma of forest leaves, the rich taste of upland rice. Hang Chu wine is produced entirely from carefully selected rice, along with herbs, yeasts for brewing are also traditional yeasts. The fermentation is done meticulously and carefully, wine distillation is also an extremely important step. The longer the wine is left, the better it is, so when it's finished, the people here often brew the wine in jars, if the house has the conditions, it will brew on the ground for more than 1 year, then bring it out to drink. This wine was previously made by the Mong people to worship the land, heaven and ancestors on important occasions such as anniversaries, Tet, village festivals and treat distinguished guests. Up to now, with convenient transportation, Hang Chu wine has become a specialty gift and a commodity of the Mong people in the highlands of Bac Yen.

Traditional folk art: In addition to the above types, the folklore of the ethnic groups in Bac Yen district also has many unique folk songs and dances: Xoe dance, bamboo dance of the Thai and Muong ethnic groups; flute dance, lip lute of the Mong ethnic group, bell dance of the Dao ethnic group, and counter singing of the Muong people; The fairs bear the characteristics of the Northwest mountains and forests; games and performances in the festival: Throwing balls, Throwing pa pao, pushing sticks, Tulu, shooting crossbows...; Traditional crafts: brocade, bamboo and rattan... These are all sources of folklore capital that

can become materials for designing and building unique and attractive tourism-supporting products and activities guide.

It can be seen that Bac Yen has many advantages for tourism development, the richness of tourism resources has created an attractiveness and is an important basis for diversifying tourism activities. Coming to Bac Yen, tourists can not only discover the beautiful, fresh and majestic natural scenery, but also have many experiences when participating in traditional cultural festivals; participate in fairs and love markets typical of the Northwestern people; learn about the unique customs and practices of the ethnic minorities here; participate in folk games; enjoy traditional dishes...

3.2. Overview of the current situation of tourism development in Bac Yen

Along with the development of tourism in Son La province, tourism in Bac Yen has achieved remarkable achievements. Currently, the district is located in Phu Yen - Bac Yen tourist cluster, connected by important traffic routes: 37, 43 and Hoa Binh hydropower reservoir.

In recent years, Bac Yen district has implemented many policies and measures to focus on promoting tourism development, especially community-based tourism in association with preserving national cultural identity, contributing to economic growth local society with tourism products such as: "Phuot" tourism, national cultural experience tourism, eco-tourism, caves, adventure sports, discovery... at the same time focusing on collecting income. attract investment, improve the quality of infrastructure, develop accompanying services to serve well, with quality, and attract domestic and foreign tourists.

The district has also enhanced the promotion of images, natural beauty and ethnic cultures on the mass media, so the tourism development of Bac Yen has achieved quite positive results. The number of tourists to Bac Yen in the period 2015 - 2019 is constantly increasing at the rate of 19%/year. In 2018 reached over 30,000 turns of people, revenue reached 16.2 billion; In the first 6 months of 2019, there were 19,584 arrivals, of which 169 were international visitors, the revenue was estimated at about 9 billion VND [1, 26], [2, 11]. Bac Yen district is striving to turn tourism development into one of the important economic sectors, actively contributing to hunger eradication, poverty alleviation, and raising people's incomes.

Bac Yen tourism achieved the above positive results due to a number of basic reasons. First of all, the district has soon identified the potential and advantages of tourism development and created conditions for tourism to gradually become an important economic sector in the general economic structure. In addition, the district has issued many policies to encourage investment incentives and expand production and business activities. Secondly, initially, there was effective coordination between all levels, sectors, districts in the province - especially the coordination between the Department of Culture and Information and the grassroots in the management and operation of tourism activities, remove the remaining problems. Simultaneously, the awareness of tourism economic development among people of all walks of life, especially in the residential community in the tourist destinations of Bac Yen has been enhanced.

However, compared with the potential of available tourism resources, the achievements of Bac Yen tourism are only the first step, still very small and not commensurate with the potential. Many limitations and challenges have emerged, which require quick remedial action. That is the fragmentation in tourism development of the district, the tourism products are not attractive and attractive. Currently, tourism activities in the district are mainly enjoying and photographing natural landscapes, forms of cultural tourism and community tourism are still limited, traditional handicraft products and local specialties are still limited inaccessible to tourists.

On the other hand, the infrastructure system for tourism is still limited; the service system of motels, hotels, food and beverage services, small-scale goods trading, is not up to standard, has not yet met the needs of tourists; Tourism promotion has not been widely deployed. Besides, the education level in Bac Yen is relatively low, the labor force is very little trained in tourism, even the households involved in the tourism service business or the district cultural manager do not have Tourism expertise leads to confusion in tourism management, conservation and restoration of cultural values.

Besides the opportunities it brings, tourism activities also have potential risks such as disrupting the natural landscape, polluting the environment and losing the local cultural identity.

3.3. Bac Yen tourism development orientation

In order to overcome the limitations and promote tourism development, Bac Yen district needs to have the right orientations and synchronously implement breakthrough solutions in line with reality. One of the urgent requirements in the current period is to properly orient and plan specialized tourism products, and at the same time identify and build key intra-regional and inter-regional tours and routes.

The first is to identify specialized tourism products of Bac Yen.

Bac Yen has the advantage to exploit different experience tourism products: backpacking on the highland roads of Bac Yen, Ta Xua rattan hunting tourism, photography of natural landscapes, sports and adventure games, experience the ancient tea hill, Son Tra forest, indigenous peach garden, horse racing festival, Ta Xua tea star, Hang Chu winemaking process, traditional ethnic festival...

Developing souvenir products such as landscape photos, Ta Xua tea, Hang Chu wine, Son Tra wine, dried apples, soaked apples, ethnic costumes, ethnic musical instruments, ethnic utensils, honey Bees, traditional remedies, and typical safe fruits of Bac Yen district.

Developing a model of community-based tourism, homestay in traditional ethnic style and smart tourism, responsible tourism in a new trend.

The second is the orientation and planning of typical tourist attractions.

Currently, Bac Yen has two tourist attractions that are attracting a large number of tourists to visit and experience: Ta Xua Cloud Paradise and Dinosaur Back in Hang Dong commune. In the coming period, it is necessary to orient and build Bac Yen district to become a provincial tourist area, in which focusing on building 6 typical tourist sites: Ta Xua cloud paradise (Ta Xua commune); Dinosaur spine (Hang Dong commune); A Phu

Cave (Hong Ngai Commune); Pu Nhi Pine Hill (Phieng Ban Commune); Ho Sen (Hua Nhan commune); Khe Ho ancient carved stone beach (Hang Chu commune).

The third is to identify and build key tours and routes.

a) Currently, the development of tourism within the district associated with specialized tourism products plays a very important role. Associated with 6 tourist destinations planned in Bac Yen tourist area, it is possible to identify routes with the following products:

Bac Yen town - Ta Xua: experience the heaven of clouds, take pictures of natural landscapes.

Bac Yen town - Ta Xua - Hang Dong: experience adventure sports tourism: Dinosaur spine.

Bac Yen town - Hong Ngai: visit and experience caves and historical relics.

Bac Yen town - Phieng Ban: visit and experience ecotourism Pu Nhi Pine Hill.

Bac Yen town - Hang Chu visit and experience Khe Ho ancient carved stone beach.

Bac Yen town - Hua Nhan visit and experience Ho Sen in the mountains.

If associated with organizing tourism space and concretizing products, Bac Yen district can orient tourism development along two routes as follows:

Route along Da river (Including lowland communes along the river: Phieng Ban, Bac Yen town, Song Pe, Muong Khoa): Forming a tourist route for Song Da lake bed. Tourists will visit the river landscape of the lake bed (in which Bac Yen district alone has a length of over 72 km) with a quiet, peaceful scene of the Northwest mountains, visit the scenic Bac Yen town. (Ho Phieng Ban Park, Cho Phien, tourist entertainment, urban sports, tourism, ...), Song Da lake bed tourism, river civilization, ecotourism, community tourism In the field, visit to learn the cultural identity - history of the cultural villages of Muong, Thai, Dao, Mong people of the lake-bed communes, take a hot mineral bath in Mon village and on both sides of the river,... On the basis of those tours, planning to build amusement parks and entertainment areas along the River are: Chieng Sai, Song Pe, Muong Khoa, Pac Nga and local cultural, cultural, sports, and cultural sites. Traditional foods are tourism products: Xoe dance, music, cuisine, wine, rice lam, throw con,... along with the investment in construction of roads along the two riverbanks, afforestation will be planned. ecology associated with watershed protection forests. This route can be associated with tours in the district such as: Tourists from Bac Yen to Hong Ngai; Bac Yen to Ta Xua - Hang Dong.

Upland route (Including the communes of Ta Xua, Hang Dong, Hong Ngai, Lang Cuu, Xim Vang and Hang Chu): This route takes advantage of the cold climate ecology of the highlands combined with the cultural characteristics of the people. The highlands are also imbued with traditional identity. Exploiting the advantages of the locality to attract tourists such as: Cultural tourism, resort, extreme sports, discovering the values of wet rice civilization, terraced fields, waterfalls, lakes small electricity, associated with learning about traditional activities, unique cultural identity of ethnic minorities, highland cuisine (Ta Xua tea, forest fruit, wine and fruit juice made from Son Tra fruit); Peach, Hang Chu wine; pigs, chickens on the hill, salmon, Thang Co,...), develop traditional culture, arts and sports such

as new rice eating custom, trumpet dance, leaf trumpet, pounding, push sticks, tug-of-war, shoot crossbows,... Orientation for the development and construction of holiday houses associated with the ecological environment and natural landscape. This route is associated with tours in the district such as: Tour to visit Tham Ang and Toc Tac caves, Ang village in Pac Nga commune and down the lake bed of Song Da - Hoa Binh.

b) Within Son La province, identify inter-district lines such as:

Bac Yen - Son La - Quynh Nhai: visit and experience tourism to discover the reservoir area of Hydraulic lake, learn about historical sites.

Bac Yen - Yen Chau - Moc Chau - Van Ho: visit and experience highland tourism, historical sites.

Bac Yen - Son La - Muong La: visit and learn about Son La Hydroelectricity project, eco-tourism, discovery and relaxation (Ngoc Chien).

Bac Yen - Son La - Thuan Chau: sightseeing to learn about history, eco-tourism (Golden Forest, Pha Din...).

Bac Yen - Phu Yen - Moc Chau: sightseeing to learn about history, highland tourism.

Bac Yen - Phu Yen: visit to learn about history and ecology.

c) Building inter-provincial routes, linking with the Northwest provinces to expand:

Tour, tour route Bac Yen - Yen Bai - Lao Cai - Lai Chau: visit, experience travel discovery (Kau Pha pass, Fansipan), resort (Tram Tau).

Tour, tour route Bac Yen - Phu Tho - Tuyen Quang - Ha Giang: visit to learn history (Hung Temple), ecology (tea hill), experience discovery, adventure (Happiness road, Ma pass) Pi Leng, the North Pole...).

Tour, tour route Bac Yen - Hoa Binh - Hanoi: visit and learn about Hoa Binh Hydropower project, cultural villages of ethnic groups; research (museums in Hanoi).

Tour, tour route Bac Yen - Son La - Dien Bien - Lai Chau - Lao Cai - Yen Bai - Phu Tho - Hanoi: visit to learn history (Prison, Dien Bien Phu battlefield, Hung temple...), experience discovery (Fansipan, passes), academic research (museum...).

4. Discussion and Conclusion

Bac Yen upland district has many advantages for tourism development, both in terms of natural and human tourism resources. Bac Yen has many high mountains, deep ravines, steep slopes; has very rich vegetation, many old forests, hills, steep slopes creating beautiful natural landscapes; cool year-round climate, fresh environment; There are many precious and rare species of plants and animals, which are diverse tourism resources, ideal for sightseeing and scenic tourism activities, resort tourism, eco-tourism, sport tourism. Adventure climbing and nature exploration. From October of the previous year to April of the following year, there are often cloudy clouds creating a sea of white clouds, this is a different point to attract tourists to hunt for clouds. The district is home to the Mong, Thai, Muong, and Dao people for a long time, still imbued with traditional cultural identity, which can develop community tourism, visit historical sites, homestay, etc...

In recent years, the number of tourists to Bac Yen has been increasing, tourism products are increasingly diversified, better meeting the needs of visitors. However, many environmental, landscape and cultural problems have also appeared, requiring quick remediation. Therefore, the reasonable tourism development orientation, rapid planning and synchronous implementation of a series of solutions are being actively deployed and implemented by the district, in order to build tourism into a dynamic economic sector of the district.

The most effective and practical solutions for Bac Yen at this time is to accurately identify specialized tourism products of the district, on that basis, to plan and build tourist attractions, tours - routes associated with these products. specialization products. The next step is to strengthen the promotion and promotion of the destination in the forms of: building tourism image and brand, maintaining and organizing tourism events; publish and supplement publications on tourism, design electronic travel manuals... Third is to develop infrastructure systems such as transportation, restaurants, standard hotels, and to build points of interest. waste treatment, ensuring environmental hygiene for tourists to experience at tourist sites, spots and villages. Finally, develop smart tourism, step by step create a data source for businesses and people to participate in exploiting this source for business purposes, strengthening the link between the State - Businesses - Tourists and people in areas with tourism resources.

With rich and attractive tourism potential, combined with breakthroughs, integration and sustainable development, with professionalism such as developing typical, different, attractive and unique tourism products, approach 4.0 technology, develop smart tourism to promote and attract domestic and international tourists, Bac Yen tourism will surely quickly become a driving economic industry, making a positive contribution to the tourism industry. economic restructuring, creating more jobs, eradicating hunger and reducing poverty for the people here.

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NEW VERSION OF ME LINH FLOWER VILLAGE MODEL CONCERNING INTERNATIONAL EXPERIENCES

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Abstract

The article summarizes the flower business model from the experience of the world's leading flower exporting countries, featuring Dutch flower auction and farm models, Ecuadorian rose quality control, Colombian recirculating flower agriculture., Japanese flower value chain, Malaysian flower e-commerce, Israel smart flower watering system and Kenya flower copyright. Me Linh Flower Village (Hanoi) has a long history but is an old version with spontaneity, lack of investment in construction, so the flower value is not high. Based on reference to international experience, the new version of the Me Linh flower village model combines the characteristics of the flower village model of selected countries.

Keywords: *International experience; Model of Me Linh flower village; Flower; Model*

1. Introduction

Vietnam has only a few localities famous for growing flowers such as Sa Dec flower village in Dong Thap or Da Lat flower in Lam Dong. The organization of flower village business to create high value is always set, but the implementation method is not very effective. Available resources and easily accessible international experience have not been effectively exploited.

Flower agriculture has become the mainstay economic sector of Me Linh district (Hanoi). Flower products are still limited in terms of product quality, ability to research, develop and innovate varieties, small production scale, low degree of standardization and specialization, and lack of professional market skills.

Flowers of Me Linh district are almost not stagnant and are mainly consumed in the district and some neighboring markets. Consumption is mainly through intermediaries who are retail traders and peddlers. Besides the achievements, flower development is still limited as planning flower areas is difficult due to the fragmented, small, and scattered nature; Spontaneous flower production, depending on growers' preferences, unstable consumption markets, simple consumption forms, easily affected by price fluctuations, diseases, rudimentary preservation methods, make flowers easily crushed, there is no specific research on flower varieties.

Me Linh Flower Village (Hanoi) is a model of a traditional craft village, which is quite self-contained and has not effectively mobilized its potential. This model needs a new

version to both promote local potential and take advantage of international best practices and experiences. The study and summary of good international experience is a reference base for building a new version of the Me Linh flower village model, creating value on a larger scale because of exploiting local potentials.

2. Literature Review

Countries with the world's traditional flower industry provide abundant flowers from family farms. Unique flower auction models for effective marketing, perfect chain logistics system and reduced transportation loss, strict flower quality control system, strong product innovation, large research ability research, and development. Investment in information technology facilitates effective information promotion in all sectors. The study "Role of information technology in agriculture" (Jkaaya, 1999) highlights scientific achievements and the application of technology platforms to agricultural programs. The issue of protecting health, and combating environmental pollution, especially exposure to toxic substances and pesticides is also mentioned in the US Farm Law in the report "Sustainable Agricultural Policies" (Jackson),2009). The Solow economic growth model inherits and adapts the Harroth-Domar (1956) model, emphasizing that long-term growth can only depend on technological progress growth. Studying "The world of organic farming: statistics and trends 2008", Willer & colleagues forecast organic farming trends and improve human health based on country analysis data. have leading agriculture such as Japan, USA, Colombia, India.

The study "The successful experience of the Dutch flower industry for the development of the Yunnan flower industry" (Chen & Zhao, 2019), points to a scientific marketing system focusing on the competition model. price. The study "Evaluation of the life cycle of cut roses" (Alig & Frischknecht, 2018) showed that Ecuadorian roses have several 50 to 100 petals and are better tolerant of harsh environments than normal flowers. The study "Agriculture Colombia" (Kathryn, 1942) reveals biotechnology that allows to grow agricultural crops on mountain tops and uses special methods to eliminate pests. Agriculture is the most influential area of Japanese politics (Aurelia, 2013). Rural development increases international influence, especially young women could access many new ideas and livelihood techniques. The report "Flower similarities in the development of e-commerce infrastructure in Malaysia and Singapore" (2007) by Poong et al., built a flower e-commerce model. Israel's experience in water demand management (WDM) is a potential tool to enhance prosperity and growth with limited water availability (Arlosoroff, 2007). Kenya is interested in commercial negotiations with countries and the European Union (EU) on UPOV flower copyright (Whitaker & Kolavalli, 2006).

In Vietnam, the research on the flower village model is very limited. Research on "Developing a process for growing and propagating ancient roses in Sa Pa and Hai Phong in Long Xuyen, An Giang" (Nguyen Thi My Duyen et al., 2021) to evaluate the impact of the ancient rose variety *Rosa gallica* L. Sa Pa and Hai Phong in Long Xuyen, An Giang, for good growth and beautiful flowers.

3. Method

Research, analyze and compare flower industry models of 7 countries to find out the characteristics of each model, conduct surveys and in-depth interviews with 5 households about varieties, consumption markets, business types, cultivation techniques, costs, and annual revenue of floriculture.

4. Results

4.1. Flower production patterns of countries and characteristics

The Netherlands has a high production capacity and flower competitiveness. In 2011, the production value of flowers and ornamental plants in the Netherlands was 8.6 billion euros. The production value of cut flowers in the Netherlands is about 2.1 billion euros (2012) and 2.9 billion euros (2016). Most florist farmers in the Netherlands have mastered professional floriculture technologies. The scale of floriculture is according to the family farm, they mainly grow 1 or 2 varieties with large scale, specific variety, and a high degree of specialization (Chen & Zhao, 2019). The Netherlands organizes flower distribution through discount auctions, which is the highlight of the Dutch leading flower production brand in the world. At Bloemenveiling Aalsmeer (VBA), approximately 19 million flowers are distributed each day to customers in a 1 million square meter building within a few hours (Koster, Myu, 2006). After the auction, the products are shipped directly to the location specified by the buyer and the electronic ordering system provides the information. (Figure 1)

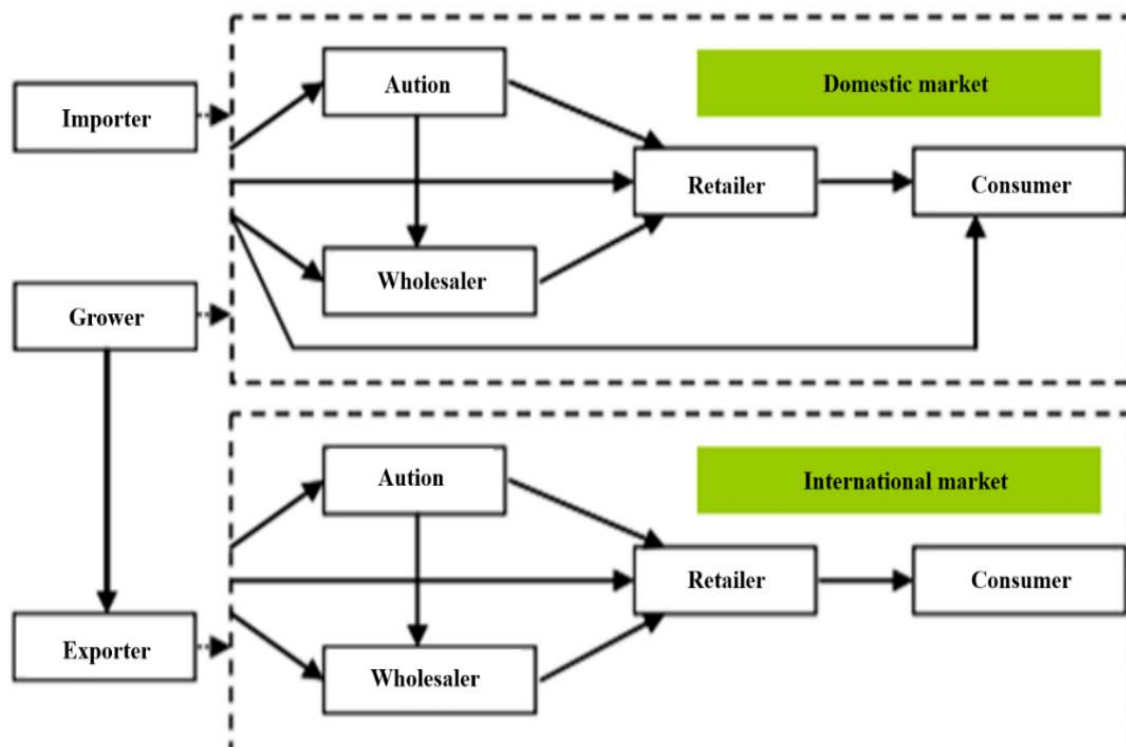


Figure 1. Flower auction model in the Netherlands

Source: Self-built by the author team

Ecuador organizes flower villages under the model of the IoT complex. Households growing flowers in Ecuador have an average income of about 5000 USD/person/year while the per capita income in this country is only about 1200-1300 USD/person/year. The Ecuadorian commission standard is a combination of smart technology, state development policies, and scientists (Alig & Frischknecht, 2018). All stages are connected to the Internet with the server system of the flower garden. The system analyzes data on ambient temperature and harmful agents to give warnings and methods to protect flowers. Trade agreements facilitate, the diffusion of technology from multiple sources and promote local entrepreneurship. (Knapp,2016). Agriculture has proven resilient to changing global trade conditions and climate change. (Figure 2)

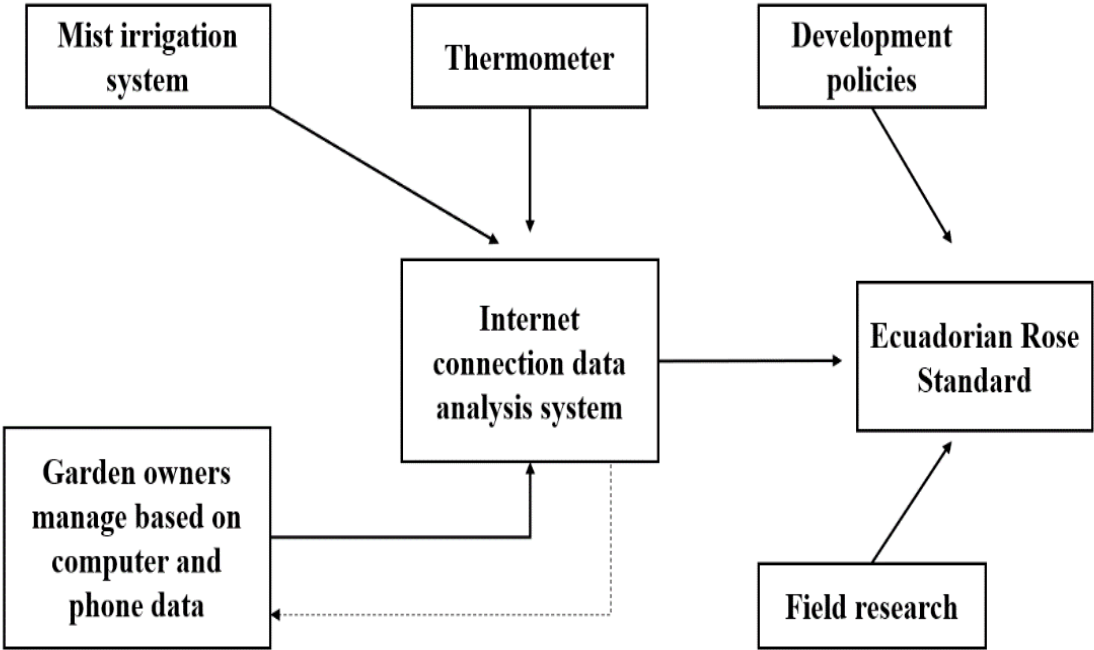


Figure 2. Ecuadorian rose quality control model

Source: Self-built by the author team

Colombia's cyclic flower model is divided into three phases: 1. The floriculture system includes infrastructure, disease management, fertilization, harvesting, and waste treatment; 2. Post-harvest work includes sorting, packing, and preserving; 3. Shipping to international markets (Parrado, Bojacá & Schrevens, 2011). The farm strictly checks the quality of flowers before they are sold to the market. Insect and crushed flower products are processed to produce fertilizers. This probiotic accounts for 30% of the total fertilizer that gardeners use in a flower growing season. (Figure 3)

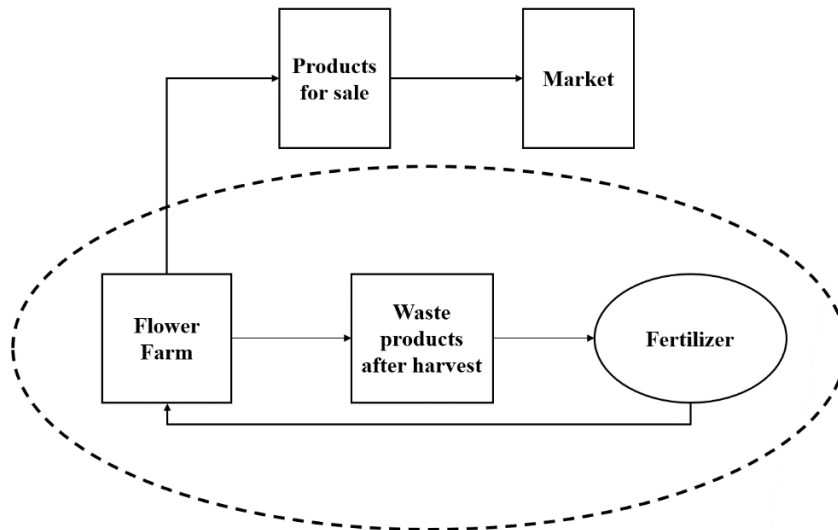


Figure 3. Simple model of cyclic flowers in Colombia

Source: Self-built by the author team

Japan associates flower production with flower consumption along the flower value chain between households, local authorities, collecting cooperatives, and businesses as the focal point of product consumption (Mulgan, 2013). The equipment system and production process are designed and delivered to flower growers from the Science and Technology Transfer Center. Accurate and transparent product purchase and sale contract information, along with efficient public service support, local cooperatives and businesses to facilitate smooth processing. (Figure 4)

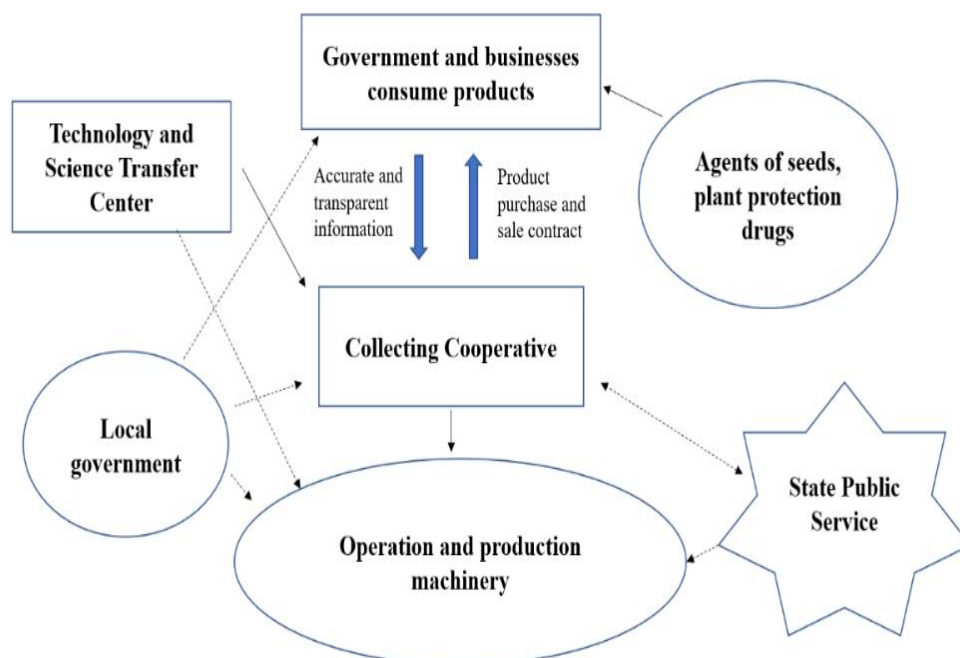


Figure 4. The model of linking flower production and consumption along the value chain in Japan

Source: Self-built by the author team

Malaysia uses an e-commerce model of flowers. Households after harvesting flowers will have 2 modes of transportation: Directly transporting flowers to traditional markets and through flower-collecting businesses. Businesses will connect with e-commerce platforms for consumers to choose the flower products they want with the listed prices. Once the flower order is paid, the shipping companies immediately pack and ship the flowers out the same day due to the perishability of the flowers. In the higher segment, if exporting internationally, shipping companies will have advanced methods of freezing and preserving flowers to reach foreign consumers while maintaining the color and value of flowers. (Figure 5)

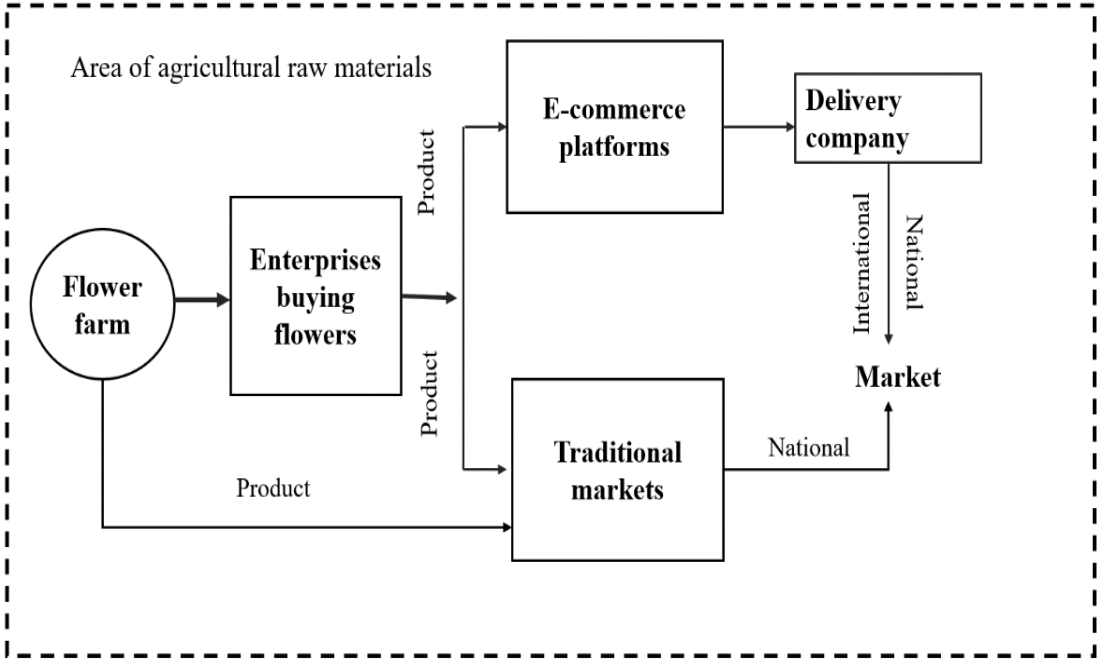


Figure 5. E-commerce model of flower production in Malaysia

Source: Self-built by the author team

Israel succeeds in the smart watering system model. This model has the highest water efficiency ratio of 70 to 80%, compared to open irrigation, which reaches 40% (Megersa & Abdulahi. 2015). Recycling using water, wastewater, adding nutrients mixed with water and desalination is an innovation used to solve water scarcity. The system automatically measures the ambient temperature and adjusts the appropriate amount of water for efficient water use. Technology continues to be innovated to save water resources for irrigation of dry areas to increase productivity. (Figure 6)

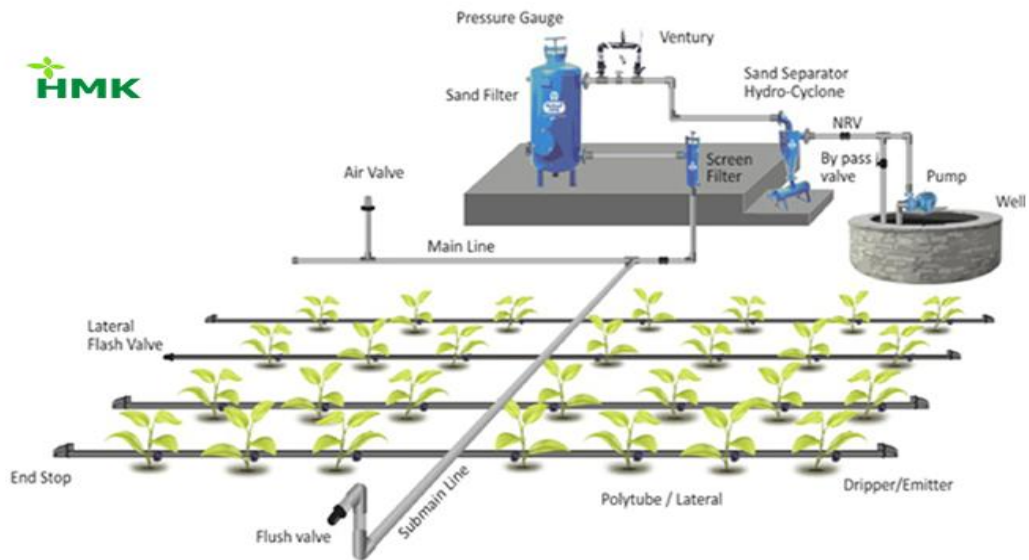


Figure 6. Model of smart irrigation system in Israel

Source: An Yen

Kenya leads the way among countries in Sub-Saharan Africa in the production and export of flowers, 60% of Africa's cut flowers originate in Kenya. The special feature of the model is the protection of intellectual property rights, access to high-quality inputs, marketability, and flower branding (Whitaker & Kolavalli, 2006). The flower growing model in Kenya is a combination of human, scientific, technical and environmental factors. The protection of flower copyright, the development of the environmentally and socially responsible flower industry creates confidence for high quality Kenyan flower products according to EurepGap standards. (Figure 7)

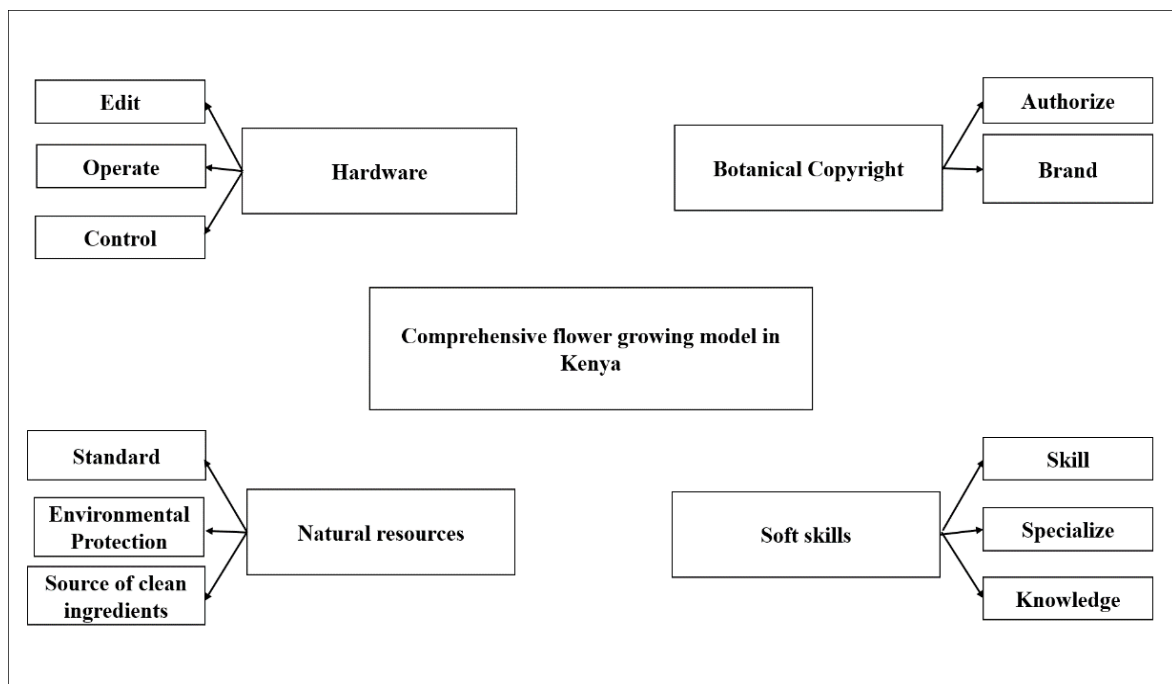


Figure 7. Comprehensive floriculture model in Kenya

Source: Self-built by the author team

4.2. Survey results on the model of Me Linh flower village

Out of 5 surveyed flower growing households, only 1 household (N.T.A) is organized as a small business. Spontaneous, small-scale business, not associated with other businesses, reduces the value of flowers, and increases costs when each household has to actively find markets. Me Linh flowers are only consumed in districts and provinces around Hanoi or beyond, exported to Thailand, China, and Japan. (Table 1)

Table 1. List of interviewed households

NO	Name	Address	Types of flower	Business type	Consumption market
1	P.M.T*	Noi Dong, Me Linh, Ha Noi	Roses	Small farm	Me Linh market, export China, Laos and Thailand
2	N.V.B*	Dai Thinh, Me Linh, Ha Noi	Chrysanthemum flowers	Small farm	Me Linh market, Quang An market
3	N.T.T*	Lieu Tri, Me Linh, Ha Noi	Roses	Small farm	Me Linh market, Dong Xuan market
4	P.V.S*	Kim Hoa, Me Linh, Ha Noi	Chrysanthemum flowers	Small farm	Me Linh, Phu Tho, Vinh Phuc, Bac Ninh market
5	N.T.A*	Dai Thinh, Me Linh, Ha Noi	Ancient Bonsai Roses	Business	Export Thailand, China, Laos and Japan

Source: Self-built by the author team

The technique of growing flowers and caring for them is quite simple. Methods of pest control are also manual in nature, mainly by spraying pesticides. The owner has 2 households (P.M.T and P.V.S) using biological methods of natural enemies and protection by nets. The inevitable weather risks are diseases that cause tree death and the weather in the North is too cold or frost in winter makes it impossible to grow. Regarding economic risks, growers must compete in the market with other floriculture villages. (Table 2)

Table 2. Technical indicators of household flower cultivation

Technical target	P.M.T	N.V.B	N.T.T	P.V.S	N.T.A
Breeding method	1. Root cuttings 2. Branching	1. Root cuttings	1. Eye grafting	1. Root cuttings 2. Branching	1. Root cuttings 2. Branching
Method of preserving flowers	Cold storage	Leave it in nature	Cold storage	Leave it in nature	Cold storage

Technical target	P.M.T	N.V.B	N.T.T	P.V.S	N.T.A
Methods for flowers to bloom	Pruning branches at the right time, covering flowers	Pruning branches at the right time, covering flowers	Pruning branches at the right time, covering flowers	Pruning, shooting, lighting, wrapping flowers	Cut and choose the date, choose the location of the cut, monitor the weather index
Pest control methods	Spraying pesticides, using natural enemies	Spraying pesticides, using natural enemies	Spraying pesticides, using natural enemies	Spraying pesticides, cover with nets	Seasonal disease prevention, periodic spraying once every 7 days. Summer spray prevention: worms, thrips, fungi. In winter, spray the room against hemorrhoids
Risk	Diseases, dead trees, water sources.	Disease, weather, frost, water source	Disease, weather, frost, water source	Diseases, foggy weather, water sources..	Pests make cotton bad, difficult to control thoroughly.
	Price competition in the market.	Price competition in the market.	Price competition in the market.	Price competition in the market.	Price competition in the market..

Source: Self-built by the author team

The cost of growing flowers of households is mainly the cost of pesticides and fertilizers. These are the two essential factors of caring and nurturing flower plants. The larger the production scale, the higher the cost. Besides, other costs such as electricity, environmental costs, labor costs and transportation costs also play a particularly important role in the family flower business model. (Table 3)

Table 3. Survey results on flower growing costs

<i>Unit: million VND/ha/year</i>					
Cost of growing flowers	P.M.T	N.V.B	N.T.T	P.V.S	N.T.A
Fertilizer	50	30	30	20	70
Plant protection products	30	15	25	10	100
Environment	5-7	5	5	5	7
Electricity	5	4	1.5	3	5
Labor	90-100	None	0-60	None	150
Transport	20-30	Not estimated	Not estimated	Not estimated	80
Total cost	211	54	116.5	38	412

Source: Self-built by the author team

Flowering revenue ranges from 200 million VND to nearly 600 million VND/ha/year depending on the quantity of flowers grown and the cost of each flower. Households growing flowers all earn positive profits. Compared with small-scale households, using available family labor, large-scale households have reduced net profit due to high labor costs. (Table 4)

Table 4. Survey results on revenue from floriculture

<i>Unit: million VND/ha/year</i>					
Revenue from growing flowers	P.M.T	N.V.B	N.T.T	P.V.S	N.T.A
Flower production/ha	560.000	216.000	300.000	100.000	800.000
Average selling price of 1 cotton (VND)	1000	2000	1000	2000	2000
Average total revenue (million VND/ha/year)	560	432	300	200	1600
Average profit (million VND/ha/year)	349	378	183.5	162	1188

Source: Self-built by the author team

From the actual survey, it can be seen that the Me Linh flower village model is quite small in scale and has not been closely linked to flower farmers with consuming termite oil, which reduces the value of flowers. The care and farming techniques are rudimentary and lack of mechanization. The cost of hiring labor for tending, pruning and transportation is large, which reduces profits. The overuse of fertilizers and pesticides has a negative impact on people's health and the environment. Me Linh Flower Village has not yet invested in research and development, protected the copyright of Me Linh flower varieties, traded through traditional markets, has not gone through auctions or e-commerce platforms, has not had quality control regulations. quantity of flower products, lack of investment in innovation of flower varieties. The main flowers are hips, daisies and lilies which are difficult to create high value (Figure 8.a).

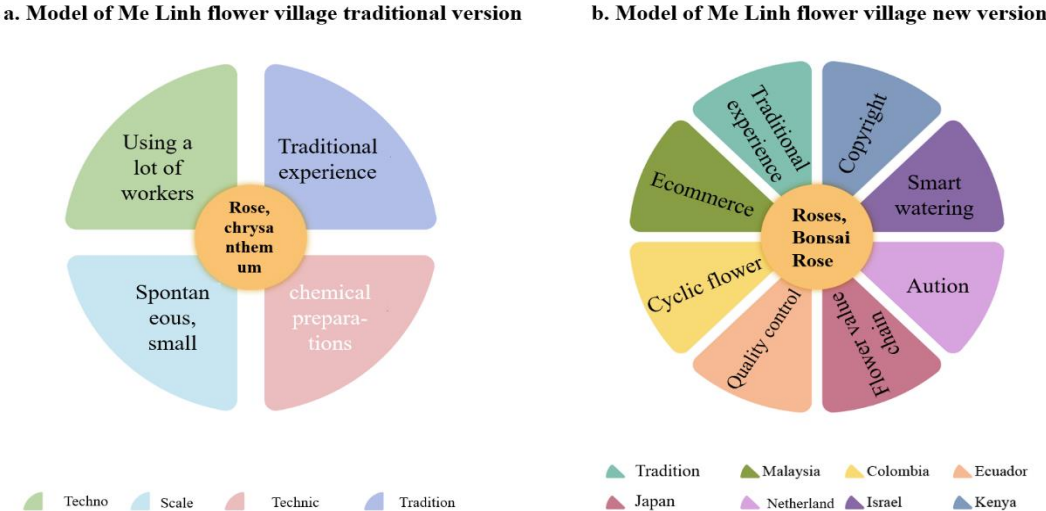


Figure 8. Model of Me Linh flower village traditional and new version

Source: Self-built by the author team

The new version (Figure 8.b) is a breakthrough based on good practice from 7 countries and 5 households studied. The centerpiece of the new version is a high value chemical that can be a Bonsai rose (which costs many times more than a regular rose) or an upgraded traditional flower. From the success of the model of other countries, it is possible to integrate into the model of Me Linh flower village, including the flower business tradition of Me Linh flower village, flower auction and farm (Netherlands), quality control. flowers (Ecuador), circular flower agriculture (Colombia), linking flower production and consumption along the value chain (Japan), e-commerce (Malaysia), smart watering (Israel), global farming representative (Kenya).

5. Discussion and Conclusion

Discussions of the results

From the experience and good practice of 7 countries with strong flower production, namely the Netherlands, Ecuador, Colombia, Japan, Malaysia, Israel and Kenya, to develop Me Linh flower village, the research proposes 7 solutions: 1) Receiving high technology, building and exploiting the process of planting, tending and consuming flowers from successful countries; (2) Transforming flower structure, expanding production scale of high-value chemicals; (3) Mobilizing the highest quality investment sources, namely investment in research and development of high-value domestic and international flower varieties; (4) Encourage innovation towards building a source of high quality flowers; (5) Focusing on the production of antique Bonsai roses as the core high value along with other high-demand chemicals, creating the brand name of Me Linh Bonsai roses as well as other flowers in the country and the region; (6) developing Me Linh flower e-commerce; (7) Completing the policy of developing the flower industry in the district. được nhận nguồn vốn này.

Recommendations

Hanoi needs to have a specific, clear and oriented strategy to promote the production and export of high-value flower products as a reliable basis, the premise of the locality to proactively plan to mobilize resources for product development. flower products. At the same time, it is necessary to support the locality to protect the geographical indication of the Me Linh flower.

Enterprises need to pay more attention to investment and development of Me Linh ancient flower breeding technology and promising new varieties. To shift the basic direction to producing flower products with high added value, good quality of varieties and using high technology in flower cultivation and preservation. There is an adequate mechanism to encourage scientists, researchers, and universities to participate in flower research.

District Farmers' Associations, socio-political organizations, and social organizations such as the Youth Union, the District Women's Union, appoint officials, members, and farmers to research, study, exchange experiences and promote Me Linh at domestic and foreign fairs, At the same time, promote. propagate and mobilize the production and business of high quality and safe flowers for the health of farmers and consumers.

Encourage farmers to change flower varieties, research, research and develop old varieties of Bonsai roses as well as other flowers, convert flower structure to high value ones. Support to connect forums, electronic exchanges such as Facebook, Zalo... so that business households can easily exchange information, experience, and consume flowers effectively.

Conclusion

The research is to build a new version of Me Linh flower village model with reference to international experience. On the basis of summarizing each outstanding aspect of each flower model of other countries, by surveying 5 flower business households in Me Linh district, the new version of Me Linh flower village is a breakthrough in organizing chemical business. overcome the limitations of the old version model, create a new state and increase the value of flower products. To make this new version effective, solutions need to be implemented in a synchronous manner and with suitable deployment conditions.

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THE STUDY ON AGRICULTURAL DEVELOPMENT OF PATHEIN TOWNSHIP (1996 TO 2006)

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Abstract

Achieving balanced growth between regions within the country is important for the development of the country and efforts have been made for the promotion of regional development. The objective of the study is to examine the development of Pathein Township as a case study to show the development efforts of a region, which is one of the 24 special development Regions in Myanmar. The agricultural sector of Pathein Township has been improved because of modern techniques, loans from the government and construction of many water sluice gate and reservoirs and irrigation works, which has supported. Regional planning in developing countries is closely linked with Rural Development. Despite rapid urbanization, the mass of the population still has a rural way of life and earns its living in agriculture. In absolute terms the number of people dependent on agriculture continues to grow. In many developing countries where agricultural activities are predominant. Myanmar has been building up its economy by encouraging the development of agriculture as the base.

Keywords: *Agricultural, Pathein Township, Regional Development, Rural Development, Urbanization*

1. Introduction

Myanmar is embarking on a Program for all round national development and promoting the quality of life of the people to achieve the aim of the emergence of peaceful, modern and developed nation. The challenge of development is to improve the quality of life. Especially in the world's poor countries, a better quality of life generally calls for higher incomes but it involves much more. It encompasses as ends in themselves better education, higher standards of health and nutrition, less poverty a cleaner environment and more equality of opportunity, greater individual freedom, and a richer cultural life. In traditional economic measures, the term "development" may be defined as the capacity of national economy. Therefore, rural development may be fined and measures which are aimed at improving the living conditions in the countryside. It encompasses diversification of rural economies and new sources of income, development of enterprises and public services, of agriculture and industry, and of communities and the conditions for individual families. Myanmar still is predominantly an agricultural economy based mainly on rice and a few other major crops. The factors that can promote agricultural development are: improvement in technologies, rural infrastructure, and education. Agriculture is the most important economic activity because this sector provided about a half of the gross domestic duct (GDP) of Myanmar, and employed more than, two-thirds of the labor force.

2. Method

Aim and Objectives

- To express the changes of agricultural sector and modern techniques relate activities
- To observe the processes of regional planning in developing countries linked with rural Development

- To analyze the local people's response on agriculture is the most important economic activity because this sector provide about a half of the Gross Domestic Product (GDP) of Myanmar

This paper was based on both primary and secondary data. Primary data was collected from field survey and open talk and questionnaire. Secondary data has been collected from government official records. Data were analyzed by using both qualitative and quantitative techniques.

3. Results

✚ Rural Development Activities

Measures for the development of rural area have been undertaken with an added momentum under the guidance of the Head of State starting from 1989 to foster the national reconciliation and the regional development of the country. Owing to the fact, the state has already laid down the development programs implemented throughout the country. Those development programs are as follows:

✚ Agricultural Land and main Crop

In Ayeyawady Region, over 3.6 million acres out of more than 4 million acres of agricultural lands are paddy fields. The acreage of alluvial and garden lands is 0.2 million each. The total acreage farmland is over 20000 and that of the hill-side cultivation is over 500. Farmlands can be seen in the northern part of the division, and hill-side cultivation is found on Rakhine Yoma. There is 0.6 million acres of double cropping. In dry season, double cropping is carried out by irrigation. There are altogether about 33000 acres of irrigated farmlands.

The principal crop of Ayeyawady Region is paddy. The division is renowned as the rice bowl of Myanmar. Agriculture is the vital organ of the Myanmar economy as well as the basic part of it. The first of the four economic objectives is "Development of agriculture as the base and all-round development of other sectors of the economy as well". Pathein Township is one of the regions of 24 special development regions.

Table 1. Special development regions

Sr.	State / Region	Development Areas
1	Kachine State	(1) Myit Kyina (2) Baumou
2	Kayah State	(3) Loikaw
3	Kayin State	(4) Pa-An
4	Chin State	(5) Kalay
5	Sagaing Region	(6) Monywa
6	Taninthayi Region	(7) Dawei (8) Myeik
7	Bago Region	(9) Taungoo (10) Pyi
8	Magwe Region	(11) Magwe (12) Pakokku
9	Mandalay Region	(13) Mandlay (14) Meikhtila
10	Mon State	(15) Mawlamying
11	Rakhine State	(16) Sittwe
12	Yangon Region	(17) Yangon
13	Shan State	(18) Taunggyi (19) Pinlon
14	Shan State (North)	(20) Lashio
15	Shan State (East)	(21) Kyaington
16	Ayeyarwady Region	(22) Pathein (23) Hinthada (24) Maubin

✚ Location, Climate and People

Pathein township is situated in the Ayeyawady Region between North latitude 16°, 37', and 17°, 12' and East longitude 94°, 20', 94°, 45' and 27 feet above sea level. It is surrounded by Tharbaung Township in the North, Kan Gyi Dour Township in the East, Nge Pu Taw Township in the South and the Bay of Bengal in the west. The total area of Pathein Township is 644.88 square miles and the land area of Pathein Township is 412713 acre. The climate of Pathein Township is hot and wet and it is one of the regions, which has low temperature and monsoon climate. The highest temperature is 106.7 F mostly during the month of May. The average rainfall is 102.69 inches and the highest rainfall is 116.48 inches usually in August. The lowest temperature is 51.3 in July.

✚ Ayeyarwady Region in Myanmar



As Pathein Township is the capital of the Ayeyawady Region, the majority of the people are Burma and the second of Kayin, and Rakhine. Most of the people are Buddhist, but Christian, Hindus, Islam, and other believers also reside there. The population of Pathein Township by race and religion. There are 22 quarters and 53 villages tract and 51691 houses, 53549 families and the population of 34625 (Year 2004).

Agricultural Sector

In assessing regional development, it is needed, apart from the social sector, to look into the region's economic performances. Hence, this paper will focus on the economic sectoral performances of Patheingyi Township. The land area of Patheingyi Township is 412723 acres and the population is about 346425 (2006). The area of agricultural land is 123370 acres and the area of irrigated land is 99970 acres. The main crops of the region are rice, and others are corn, peanut, sunflower, beans, coconut, mango, banana, chili etc. There are 123370 acres of agricultural land, 289353 acres are fallow land and 412723 acres are potentially cultivable land, wet land, virgin land are included in potentially cultivated land.

Table 2. The structure of population in Patheingyi Township by races (1996 - 2006)

Sr.	Race	Population		Percentage%	
		1996	2006	1996	2006
1	Kachin	139	289	0.05	0.08
2	Kayar	35	88	0.01	0.03
3	Kayin	22856	37018	7.61	10.69
4	Chin	195	404	0.06	0.11
5	Bamar	271607	294636	90.43	85.05
6	Mon	73	281	0.02	0.08
7	Rakhine	4860	11752	1.62	3.39
8	Shan	176	467	0.06	0.13
9	Foreign immigrant	422	1490	0.14	0.43
Total		300363	346425	100	100

After 1990 wet lands can be cultivated by agricultural new technology. Similarly, virgin land also can be cultivated and agricultural land increased. Besides Monsoon paddy summer paddy can be cultivated alternately the whole year round and paddy production has increased steadily. The crops of Monsoon season are paddy, corn, groundnut and the crops of the winter season are bean, pea, peanut, chili and oil crops.

It can be seen clearly that because of the project for extension of agricultural land, the use of modern implements and fertilizers, loans from the agriculture bank and the construction of sluices and reservoirs for cultivation for all seasons, the agriculture of the region has improved. Perennials such as mango and coconut are also cultivated. The production of mango decreased because of the decline in cultivated area due to the increase in demand for other crops. In Patheingyi Township due to favorable climate and soil condition, coconut, betel vine, and mango trees are thriving. Due to utilization of commercial fertilizers and application of the latest and modern methods of plantation, yield per acre is increased. The utilization and distribution of fertilizers in Patheingyi Township from the Period 2001/02 - 2005/06 is presented in Table 3.

Table 3. The Utilization and distribution of Fertilizer (2001/02 - 2005/06)

Sr	Cropping year	Urea ton	T-Super (tons)	Potash (tons)
1	2001-2002	2980	2000	1200
2	2002-2003	1410	2914	1758
3	2003-2004	12162	1200	1200
4	2004-2005	5540	581	1196
5	2005-2006	4605	610	1297

According to Table 3 four main fertilizers, Urea, T-super, Potash and Compound were used. Farmer used 2000, 2914, 1200, 581, 610 tons of T-super fertilizer in 2001, 2002, 2003, 2004, 2005 respectively. In 2003, 12162 tons of Urea fertilizers were used. In 2003-04 to increase yield per acre, more Urea fertilizer was applied. In 2005-06, due to the proper cultivation method, the application of Urea, Tsuper and Potash was used correctly based on the right ratio and right method and instruction. As the agricultural sector has improved, the application of fertilizer is also improving year after year up till now. This kind of improvement supports the development of the region. Sluices and area under irrigation in 2005.

The role of sluices and reservoirs, one of the main factors for agriculture is also discussed in this paper. The government has undertaken dams, sluices and reservoirs projects for the development of different races and border regions. As Patheingyi has got many water resources, there were constructed sluices for cultivation of various crops. The name of the sluices and the area of irrigated cultivation are included in Table 4.

Table 4. Sluices and area under irrigation 2005

Sr	Sluices	Area of irrigation (Acres)
1	Boe Maung	4730
2	Ka Ta Gyi	1500
3	Ma Gyi Sin	800
4	Jade Late	1250
5	Bu Gwe	1800
6	Myat Oo	1250

Township Agriculture Department

Sr	Sluices	Area of irrigation (Acres)
1	Boe Maung	4730
2	Ka Ta Gyi	1500
3	Ma Gyi Sin	800
4	Jade Late	1250
5	Bu Gwe	1800
6	Myat Oo	1250

The natural resources of Pathein Township are the Ayeyawady River and its tributary river named the Pathein River. Water from these facilities is irrigated to the farmlands for cultivation by building the sluice gates. Before 1988 there were only one, but after 1988 another 5 were extended and there are of great support for the whole year round cultivation. The total area of cultivation is 123370 acres but only 99970 acres of them are irrigated. So, more are still needed there for better cultivations and for expansion of production.

Myanmar Agricultural Development Bank (Pathein Township) has extended annual yearly loans for agricultural development. There are two types of loans, namely loans for monsoon season and loans for the winter. Loans for crops such as rice and beans are included in the monsoon season loan, chili are included in the winter season loan. There are three types of loans, special, ordinary and normal, for the main crop, rice. Loans are given depending on the price of the seeds and type of crops. As shown in table 7, 303 million Kyats were distributed to 7101 borrowers in the year 2006 and especially for crops such as rice and beans. Beans are for export as the price for these crops has risen.

However, the agricultural sector of Pathein Township has improved because of the support in agricultural techniques and loans from the government. These factors supported the extension of cultivation which is important for the consumption of the growing population. The main products of Pathein such as paddy rice, other grains and marine products are distributed the country.

Improving the quality of life is the challenge of development. The achievements owe a great deal to the policies and strategies aiming at acceleration of growth based on equitable and balanced development of the whole country. In developing countries, most of the people live in rural areas. Through investment in rural infrastructure and social programs, the governments are making efforts to improve the lot of the rural population. Regional planning in developing countries is closely linked with Rural Development. Despite rapid urbanization, the mass of the population still has a rural way of life and earns its living in agriculture.

In absolute terms the number of people dependent on agriculture continues to grow. Development must therefore be conceived of as a multidimensional process involving major changes in social structures, popular attitudes, and national institutions, as well as the acceleration of economic growth, the reduction of inequality, and the eradication of poverty.

The tactics to rural development and poverty alleviation is to uplift the socioeconomic conditions of the rural area. Then the development of the States and regions is in turn dependent on the development of districts and townships. In this case, Pathein Township in the Ayeyawady Region has been select as a case study to show that the development a region is attributed to the development of a nation.

4. Discussion and Conclusion

Agriculture is the main occupation and the mainstay of the national economy of Myanmar. Agricultural development is a prerequisite for industrial development of Myanmar. Specially, Ayeyarwaddy region is the top paddy producer in the country as such is commonly known as the paddy granary of Myanmar (or) a big rice pot of Myanmar. Agricultural development can have significant direct impacts on rural welfare or Ayeyarwaddy region. If

agricultural productivity is increased in Ayeyarwaddy region, farmers receive benefits both through increased home consumption and through the income generated from farm product sales of domestic market and international market. The government deliberate to encourages and emphasizes on the agricultural development programs in the Ayeyarwaddy region (or) rural areas of Myanmar. The agricultural development programs should include such as providing agriculture credits to farmers, the adoption of new techniques of production in agriculture, using high-yield variety (HYV) seeds and chemical fertilizers and changing in entrepreneurial attitudes, provision of sufficient irrigation water, provision and support for agricultural mechanization, application of modern agro- technologies, and so forth. There are six major contributions of agriculture sector to economic development of Myanmar. They are following as:

If the government implements the agricultural development programs, it will lead to rising per capita income, the elimination of absolute poverty in rural areas, lessening income inequalities and employment opportunities for the people of Irrawaddy region (or) rural areas, improving social and economic conditions of peasantry, increasing living standard and rural welfare, and so forth.

Finally, agricultural growth stimulates on non-farm growth and employment, landless labor can benefit from those employment opportunities. In the long run, many farmers will also receive income from non-farm employment. An increased in agricultural production for domestic market is one of the primary contribution of agriculture sector to overall economic development of Myanmar.

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USING DSPIR MODEL TO ANALYZE WETLAND ECOSYSTEM SERVICES AT XUAN THUY NATIONAL PARK, NAM DINH PROVINCE, VIETNAM

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Abstract

Wetland ecosystem services have a significant impact on people's lives in coastal areas. However, they are facing serious decline. This study analyzes the pressures on wetland ecosystem services in Xuan Thuy National Park (NP). 150 households were selected for interviews, 05 focus group discussions, 10 in-depth interviews were conducted in 5 buffer zone communes to collect both qualitative and quantitative data. The study used DSPIR model to evaluate the current status of ecosystem services in Xuan Thuy NP. The results show that the NP is facing challenges in conserving biodiversity by both human and natural impacts, six major pressures on ecosystem services, two of which are: infrastructure development; lagoon dredging operations need further clarification. Addressing these pressures requires the engagement of all stakeholders, especially managers.

Key words: *DSPIR, Biodiversity conservation, Xuan Thuy National Park, Mangrove*

1. Introduction

Wetlands are one of the most dynamic ecosystems on the planet (Ghermandi et al., 2008), and they provide a variety of valuable benefits to humans. They are, nevertheless, ecologically sensitive and adaptable systems (Turner et al., 2000). Origin, geographic position, water and chemical regimes, dominating species, and soil and sediment features all contribute to the diversity of wetlands. Wetland ecosystems are among the world's most significant, delivering a diverse range of ecological services that are important to well-being of humans (Barbier, 1997; RCS, 2007). Scientists came up with the first global nature conservation convention (Matthews, 1993) and remain the only group of ecosystems to have their own international convention (Turner et al., 2000).

Wetlands are estimated to cover 5–10 percent of the earth's land surface (RCS, 2007, Mitsch and Gosselink, 2007), or around 1,280 million hectares, globally, albeit this is

thought to be an underestimate (MEA, 2005). According to some estimates, the global amount of wetland destruction is over 50% (ICSU, 2008). This is hypothesis, based on extrapolation of 20th century wetland loss in the best-recorded regions, such as North America, Europe, Australia, and New Zealand. There is no accurate data on the worldwide magnitude of wetland loss, however evidence of major individual wetland loss exists (MEA, 2005).

People have become more vulnerable to environmental, economic, and socio-political disturbances as a result of the loss of wetlands, which has had a substantial impact on biodiversity and community livelihoods (ICSU, 2008; Odada et al., 2009).

One strategy to promote prudent use of wetlands and avoid conversion and development is to provide statistics and information on their values (Mmopelwa, 2006). However, in comparison to other wetlands, there is a general paucity of knowledge on wetlands in Vietnam, particularly information on wetlands in Xuan Thuy, where there is a lot of pressure, compromising wetlands' ability to deliver ecosystem services on a continuing basis. This necessitates a grasp of the environmental services supplied by wetlands as well as the risks they face. At the aggregate level, wetland ecosystem services, drivers of change, and subsequent impacts are pretty well understood, but such knowledge is necessary specifically for the area of interest in order to establish a sustainable use strategy. Wetlands in the Red River Delta currently lack this information. The widely used 'Drivers – Pressures – State – Impact – Response' (DPSIR) model examines the fundamental difficulties confronting wetlands' long-term use. Furthermore, the study discovered knowledge gaps that, if filled, might improve wetland management.

The purpose of the paper is to analyze and evaluate the causes and pressures on wetland ecosystem services in Xuan Thuy National Park, Nam Dinh province.

2. Method

Study areas

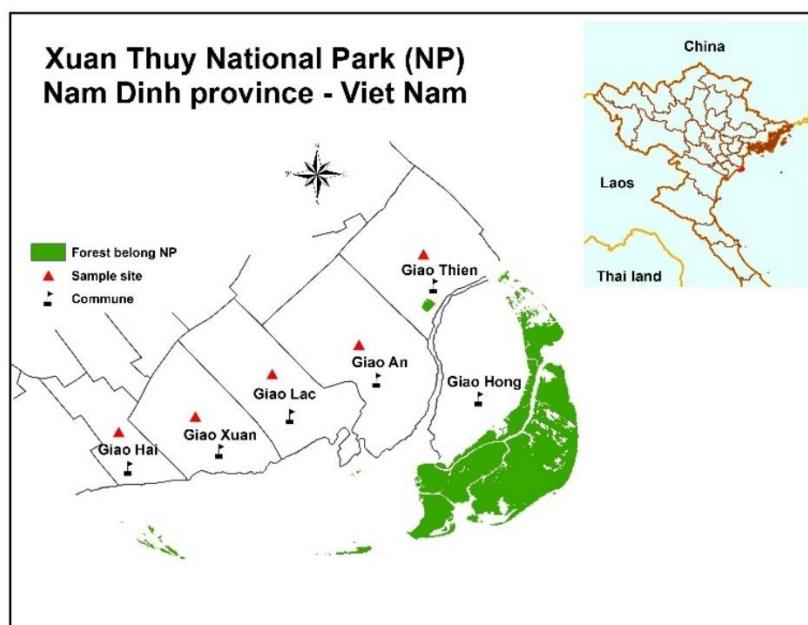


Figure 1. Location of Sampling

Xuan Thuy National Park: Xuan Thuy NP is located in the south of the Red River Estuary, within the administrative boundaries of Giao Thuy district, including the outer part of the Ngan dune, the whole Lu dune and Xanh dune. Xuan Thuy NP has a very convenient and important location with international significance as a Ramsar site and a world biosphere reserve. It is one of nine wetland areas in Vietnam that has been recognized as a world Ramsar site.

The study was conducted in five communes in the buffer zone of Xuan Thuy NP: Giao Thien, Giao An, Giao Lac, Giao Xuan, Giao Hai (Figure 1).

Data collection

Household survey

A total of 150 households located in five buffer communes in Xuan Thuy NP were interviewed during January 2021. We used semi-structured questionnaires to find out the ecosystem services utilized, people's dependence on them, the dynamics of change and people's impact on ecosystem services.

Group discussion

During the focus group discussion, the list of ecosystem services acquired from the home survey was confirmed. At the commune level, five group discussions were held, with an average of 8–10 participants in each group. The members of the group are selected based on their livelihood and dependence on the wetlands. The various sources of change, as well as people's reliance on wetlands, were explored in depth among the groups. The ecological services that were listed were also graded during the debates

In-depth interview with key informants

Representatives of the Xuan Thuy NP, Department of Agriculture and Rural Development, Department of Natural Resources and Environment, leaders of the People's Committees of 5 communes, and heads of villages were selected to conduct in-depth interviews. The key questions centered on wetlands livelihood strategies and changing dynamics. During the research, ten employees were interviewed as key informants to help us better understand change patterns and drivers. The main criteria for selecting informants were their knowledge of wetland resources, their dependence on and participation in wetland management. The main topics of the in-depth interviews focused on the following areas: (a) what is the state of the wetlands and availability of ecosystem services, (b) What are the main drivers of change, (c) The changing trends of available ecosystem services, and (d) the What management decisions are needed to manage wetlands?

Consultation workshop: the research results were presented at the consultation workshop in April, 2022, with the participation of the representatives from Nam Dinh provincial and Giao Thuy district levels: Department of Natural Resources and Environment, Department of Science and Technology, Department of Agriculture and Rural Development, leaders of 5 buffer zone communes and Xuan Thuy NP Management Board.

Data sources

The examination of secondary source data was used to synthesize wetland ecosystem services in Xuan Thuy NP, as well as threats to them. These sources include materials

published in journals, books, national and international conference presentations. Investigated and collated sources of information, with specific reference to ecosystem services (providing, regulating, cultural, supporting services) (MEA, 2005) and the DPSIR framework, were discussed.

Using the DPSIR model

Driving – D, Pressure – P, State – S, Impact – I, Response - R. The DPSIR model describes the interrelationships between Drivers (socio-economic development, root causes affecting ecosystem services), Pressure (livelihood activities, direct socio-economic development impact on the degradation of ecosystem services), State of ecosystem service quality, Impact of ecosystem services decline for public health, socio-economic development activities and ecological environment, Response of the state and society for sustainable development of ecosystem services). Applying synthetic analysis model, DPSIR (Driving Forces - Pressure - State - Impact - Response) to assess the current status of ecosystem services in Xuan Thuy NP. From there, provide solutions to manage, exploit and use natural resources rationally.

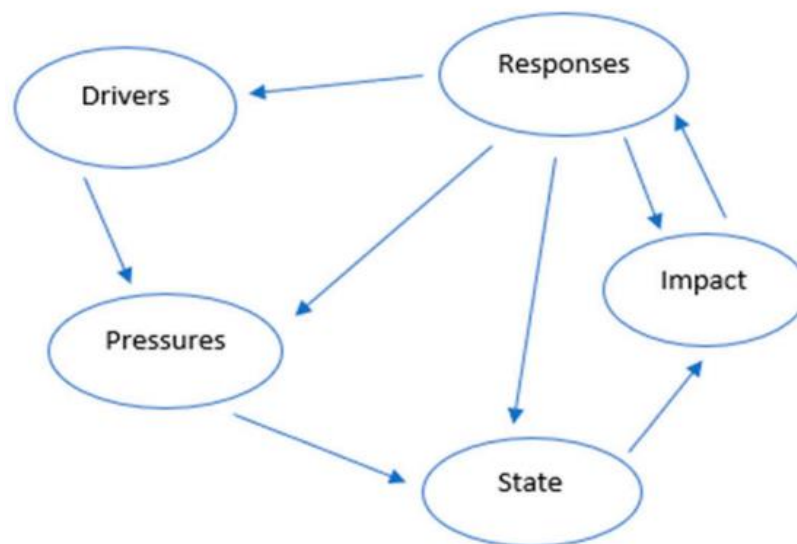


Figure 2. The DPSIR assessment Framework (Kristensen, 2004)

DPSIR has been widely used to examine the causes, consequences, and responses to environmental change in a holistic manner, as well as to organize environmental data. DPSIR has more recently been used to evaluate the influence of environmental change drivers on ecosystem services (Zhang and Lin, 2017). This study uses modeling as a convenient organizational framework to structure environmental information systematically.

3. Results

Basic information about the household survey

Among 150 respondents, 60 are male, accounting for 40%, the rest are female. The women in the 5 communes who participated in the interview are very brave, they not only

take care of the housework in the family but also know very well the business and economy in the family, they are the key people, keeping the money and taking care of the family, so the data is very reliable. The ages of the interviewees ranged from 24 to 89 years old, with a mean age of 48.5 years (Table 1). With 28.5 percent of responders, the age range 41-50 is the most well-represented. This implies that the respondents have experienced in various issues related to their own livelihood activities and in the community. Small family size (less than 4 people in the family) predominates (66.3%). Most of the respondents are owners, so they have a good understanding of the livelihood of their house as well as the disadvantages that their family is facing.

Table 8. Summary of socio-economic respondents based on the survey

Social-economic situation	Categories	Frequency (n)	Proportion (%)
Gender	Male	60	40
	Female	90	60
	21 – 30	10	6.4
	31 – 40	32	21.3
	41-50	43	28.5
	51-60	42	27.7
	Above 60	24	16.1
Number of persons in the family	≤ 4	99	66.3
	5 – 7	43	28.9
	≥ 8	7	4.8
Relationship with the owner	Owner	101	67.1
	Wife	28	18.5
	Husband	3	2.0
	Other	19	12.4
Years of stay in the commune	Under 20	15	10.0
	21-30	19	12.4
	31-40	26	17.3
	41-50	28	18.9
	51-60	35	23.3
	Above 60	27	18.1

Sources: Author's survey

Ecosystem services provided by Xuan Thuy National Park

A summary of the main ecosystem services provided by Xuan Thuy NP is shown in Table 2 as follows:

Table 2. Key ecosystem services provided by Xuan Thuy National Park

Main services provided	Details of services provided
<i>Providing services:</i>	
1. Food	Seafood: clams, fish, shrimp, <i>Solenidae</i> , fish
2. Fresh water	Planting rice and crops
<i>Regulating Services</i>	
1. Climate control	“The mangroves make the climate cool, it's so wonderful, it's a green lung, especially in the summer, it's too cool to come here”
2. Air Purifier	“The mangroves filter the air too well, making the air fresh”
3. Nutrition cycle	In alluvial soil, baby crabs living in mangroves make the soil porous.
4. Absorb and store carbon	“If there are trees, there is definitely carbon sequestration, but we don't know about storage”
5. Flood control, breakwater	“Mangroves can prevent waves a lot, if there is no forest, the dyke inside cannot withstand the waves from the sea, this service is very clear”
6. Pollination	In the season of <i>Aegiceras corniculatum</i> or <i>Bruguiera</i> flowers, from April to June, many beekeepers come here to raise bees, honey in Xuan Thuy NP has brand name, however, most beekeepers are outsiders, only few are local people”
7. Controlling illuvium	Every year in Xuan Thuy National Park, according to the people here, 30-40 cm of alluvial soil is deposited, leaves and branches fall, making the soil fertile and porous.
<i>Cultural services:</i>	
1. Travel	Most tourists come to Xuan Thuy NP in the summer, Xuan Thuy NP has tourism service unit.
2. Education and research	Sightseeing tourism, environmental education, bird watching. A few households here provide boat services for tourists to travel around.
3. Bird watching	Xuan Thuy National Park is a very good model for environmental education and biodiversity research
4. Spiritual value/inspiration	Many delegations of domestic and foreign tourists come to Xuan Thuy National Park to watch birds
	"Everywhere I go, I just want to go home quickly, I have been living here for a long time, get used to the forest, love the forest, whenever I look at the forest, I'm not tired anymore"
<i>Supporting services:</i>	
1. Restore nutrients to the soil	1. Alluvial soil and fallen tree branches contribute to the regeneration of soil nutrients (soil in mangroves).
2. Agricultural production support	2. Thanks to mangroves blocking waves and preventing salt water, people can do agriculture.
3. Spawning grounds, food supply, breeding animals	3. “Mangrove is a good shelter for fish, shrimp live there, there are trees based on it, March and April are season for shrimp and fish multiply”

The Red River Delta is a vital ecosystem for ensuring food security through supplying crops. The abundant soil resources in the wetlands support agriculture, with the cultivation of important food crops, including rice and peanuts. These crops contribute to ensuring consumption for households in the delta.

Seafood in Xuan Thuy NP is very rich, the wetlands provide a common supply of animal protein for most homes in the form of fish and fiddler crab. That seafood source is rich of amino acids, vitamins, minerals and many unsaturated fatty acids (Allison and Okadi, 2009). Xuan Thuy NP, has about 165 species of zooplankton and 154 species of benthic animals. This aquatic abundance supports the strong development of commercial fisheries in the delta, which serve as a major source of employment and income for many households.

Household consumption, income generation, and social obligations are all impacted by ecological services. These services are an equally essential supply of raw materials for the entire community, and they lead to other sectors like as purchasing and seafood processing, which employ a large number of people, particularly women, children, and the elderly. As a result, various employment opportunities are made available to the local community. Although the specific contributions of these services from wetlands (in terms of employment and cash revenue) are unknown, the available evidence highlights the importance of wetlands for local people's livelihoods.

Cultural services refer to spirit and inspiration, recreational and educational functions: ecotourism services are developed in Xuan Thuy NP, in the summer, the number of visitors to the Park increases significantly, In addition to traveling in the Park by boat, dining, entertainment, sightseeing on board, many tourists come to the NP to see birds. According to the 2020 report of Xuan Thuy NP, the number of tourists to the NP has increased steadily over the years, peaking in 2019 with 21,036 domestic visitors, 267 international visitors, and 300 delegations visiting and working at Xuan Thuy NP.

Wetland ecosystem services in Xuan Thuy National Park in the DSPiR model

Drivers to increase or decrease pressure on wetlands in Xuan Thuy National Park

Indirect drivers include demographics; economic (trade, market); sociopolitical, (legal corridor); science and technology; culture and religion (such as choices about what and how much to consume). Socio-economic development policies, including changes in local land use, infrastructure development for aquaculture, national security, water surface exploitation and climate change. There are several obvious direct drivers of wetlands ecological change in Xuan Thuy NP, particularly the encroachment of forest land for aquaculture. The population in 5 communes in the buffer zone of Xuan Thuy NP in the past 10 years has not increased significantly, only fluctuates around 38,000 people, therefore, population is not an indirect driving force that strongly affects the change of ecosystem services at the study site.

Pressure on wetlands at Xuan Thuy National Park

Wetlands face different pressures, wetland changes in Vietnam are generally the result of rapid urbanization, massive aquaculture expansion, pollution from excessive use of

pesticides in agriculture. Natural stresses include sea and shoreline erosion, subsidence, and seawater intrusion. Specifically, for Xuan Thuy NP, through discussions and in-depth interviews with local leaders, six pressures were identified (Table 3), of which two issues need to pay more attention. These two, discussed further below, include reclaimed wetlands for housing and infrastructure development; dredging operations. Dredging in the lagoon causes mangrove death due to the discharge of waste from the lagoon to the outside, they do not have a pipeline to collect waste to the treatment point.

Table 3. Pressure and impact on wetlands in Xuan Thuy National Park

Pressure	Impact
Aquaculture	Loss of mangroves.
Mining operations	Trapping wild birds, illegal harvesting of firewood and fishery products, including littering, uprooting trees and rafts by tourists, reduces the biodiversity resources. Using electrofishing equipment, the bag net destroys small species.
Dredging the lagoon	Use of machinery for dredging, noise pollution, construction of dykes to bring machines into dredging, sludge discharge from lagoons, Changes in terrain and hydrology, as well as dredging for direct burial and destruction of mangroves and related fauna... seriously affect biodiversity resources
Human activities	Deforestation, excessive hunting, overfishing, and the extinction of flora and wildlife are all examples of environmental degradation.
Wetland improvement	Serving agriculture and urbanization
Domestic wastewater, indiscriminate use of fertilizers for agriculture and animal husbandry	Soil and water pollution

*Source: Author's survey: Focus group discussions and household interviews in 2021
Many households in the core area of Xuan Thuy National Park*

Currently, in Xuan Thuy NP, there are still 6 households with aquaculture ponds in the core zone of the Park, because they lived and made a livelihood there before the NP was established, the planning of the NP covers their land, this is also a pressure on conservation work, because it is necessary to harmonize the interests of stakeholders.

Dredging

Dredging is the process of removing underwater and soil sediments. It is done in the delta for a variety of economic and social purposes, like as aquaculture and land reclamation. Some of these operations are so large, they include excavators to do the dredging. Mud, dirt, creek banks, and vegetation along the path are removed during dredging

and dumped as trophy dredging. Heads of households and authorities are responsible for dredging, although dredging is carried out after receiving an application from the household head for the NP, however, the NP staff is still thin to closely monitor all dredging activities. Dredging is considered a major problem for the NP. The research team could only collect information through group discussions, household interviews and field observations. Dredging has a major negative impact on water quality and has the potential to affect fisheries. Dredging causes physico-chemical changes in plain water, according to Ohimain *et al.* (2008), particularly in pH, total dissolved and suspended solids (TDS and TSS), electrical conductivity, turbidity, sulfate, dissolved oxygen, oxygen demand (such as biological oxygen demand (BOD) and chemical oxygen demand (COD)). These activities can result in the extinction of subtidal benthic species and communities (population densities and zooplankton taxa), the release of organic matter, nutrients, and/or contaminants on aquatic organisms, and the disruption of surrounding physical/chemical conditions (reduced light penetration and primary production) (Nayar *et al.*, 2007).

Other pressures mentioned in the report (Table 3) include indiscriminate fertilizer usage in agriculture, which leads to eutrophication (Obire *et al.*, 2008); As an economic activity, aquaculture (shrimp, crab, clam, and fish) has converted mangrove areas into shrimp ponds, resulting in wetland impacts; climate change; industrial and domestic wastewater (Ajao and Anurigwo, 2002); and unsustainable hunting and overfishing (Phil-Eze and Okoro, 2009); In October 2004 UNESCO recognized Xuan Thuy NP as the number one important area (core zone) of the Red River Delta Biosphere Reserve, which confirmed the special international position of Xuan Thuy NP. Next is the buffer zone, this area mainly focuses on aquaculture and agricultural production (mainly concentrated in 5 communes in the buffer zone), bringing high income for local people, and also the cause of environmental impacts, negative impacts on the environment, threatening the sustainable development of the NP. Unreasonable human intervention in agricultural production, aquaculture and the law of river sedimentation in the intertidal zone has caused the regulation of water regime and water quality in Xuan Thuy NP area. Xuan Thuy encountered great obstacles, negatively affecting the natural ecological balance of the area. Therefore, it is necessary to make reasonable adjustments, with technical measures as well as management institutions to ensure the sustainability of the ecological environment, while ensuring the development of aquaculture, fishing, agricultural production to improve people's living standards.

State of wetlands in Xuan Thuy National Park

Changes in the ecology (condition) of wetlands have been attributed to the factors mentioned above. A combination of these forces is harming the health and integrity of wetlands, raising the risk of rapid changes in the ecosystem, which could have serious ramifications for human health (MEA, 2005). Although the rate and magnitude of changes caused by any of these forces are unknown, it is obvious that wetlands are in danger of being degraded (Coleman *et al.*, 2008). The area's unique biodiversity has shifted dramatically, and many significant species have perished. More than 10 years ago, in Xuan Thuy NP, there were 70 spoonbill storks and nearly 30 spoonbills regularly coming to migrate. However, up

to now, that number is only counted on the fingers. Previously, when it was still a mangrove area, Xuan Thuy NP was auctioned by people in the surrounding communes for aquaculture in the core zone of the mangrove forest. Later, when it was recognized as Xuan Thuy NP, it became difficult to solve the balance and harmony between the issue of preserving the living environment for species and the interests of aquaculture households, although the Xuan Thuy NP management board has coordinated with the authorities of 5 communes in the buffer zone, including: Giao Thien, Giao Lac, Giao Xuan, Giao An and Giao Hai, clearly specifying the planning and boundaries of the area. Infringement is prohibited in the National Park.

Ecosystem services are degraded as the state of this ecosystem changes due to the loss of mangroves and a decline in the number and quality of wetlands, either directly or through the interconnections of these ecosystem services (ICSU, 2008). Because the ability to deliver a group of services is contingent on the proper functioning of others (MEA, 2005), any issue will have an impact on the others.

Impact on dependent communities in Xuan Thuy National Park

Plains have a strong link between healthy natural systems and human well-being (ICSU, 2008), and it is apparent that the loss of wetlands can result in abrupt changes in the ecosystem services provided, with serious implications for human well-being (MEA, 2005). The changes seen at the study site have resulted in a decline in the flow of ecosystem services reliant on the community, particularly the destruction of traditional livelihood systems, which has resulted in economic harm. and people are affected. The impact on the services provided is very clear in Xuan Thuy NP, that is the consecutive loss of crops of clam farming households. Many households can no longer depend on mangrove forests, they have to find other livelihoods. The rural poor are more directly reliant on natural resources than the urban affluent, who can provide substitutes.

Response in DSPIR model

At Xuan Thuy NP, there have also been many projects on community livelihoods, research on sustainable use of water resources in Xuan Thuy NP area, economics of biodiversity conservation in Xuan Thuy NP, analysis reports of benefits and costs of coastal wetland use options in Giao Thuy district, proposing a plan for rational and sustainable use of wetland resources.

4. Discussion and Conclusion

4.1. Discussion

The DPSIR model is increasingly being used to study environmental changes and their influence on human welfare. In developing countries like Vietnam, the DPSIR framework has the potential to be a useful instrument for communicating with and among policy communities. The model may be used in this study to determine the ecological services offered by wetlands in Nam Dinh, as well as the primary pressures threatening their continued provision, particularly in light of the benefits to local wetland users. Overall, the study provides a wide range of ecosystem services that are critical to local people's livelihoods. Among the most important ecosystem services are providing services, especially

food (fish, clams, shrimp, crabs), against natural disasters. Wetlands also serve as a large greenhouse gas storage facility, with benefits that extend beyond the region. However, because to development pressures such as aquaculture expansion, dredging, and land reclamation, the ecology has undergone significant alterations. The main stresses on the wetlands of Xuan Thuy NP are similar in some respects to the causes of wetland loss worldwide and elsewhere (Turpie, 2000). In the twentieth century, roughly half of the world's wetlands were lost due to conversion to agricultural and urban areas. (Rijsberman and Silva, 2006). The study also found that most, the main pressure is not directly rooted in local community activism, could go some way towards explaining why these groups view themselves as 'victims' of the plains' changing environment. However, in order to better understand how local communities contribute to shifting ecosystem service delivery, the role of local communities in contributing to such pressures has gotten scant attention. We discovered that delivering and regulating ecosystem services were the most under strain among the major ecosystem service groups, driven by all four fundamental pressures highlighted in the review. The cultural sector appears to be the least impacted.

The research on the relationship between ecological services and human well-being in the delta is limited, and any assessment of this relationship must rely on individual observations. With this caution in mind, we conclude that the loss of providing and regulating services will affect livelihoods in the study area, despite the fact that services are plainly crucial to human health elsewhere.

According to the findings of this study, inefficient wetlands pressure reduction is caused by mismanagement in legal and administrative entities. This is in line with the growing acknowledgment of institutional forces as significant environmental change drivers (Young, 2002). As a result, the dominant driver of ecosystem change in the delta at the study location must be considered governance. The political dynamics of wetland development are highlighted in many studies, including (MEA, 2005). To allow for an analysis of the full nuclear chain, more attention to the indirect drivers of change in deltas is required, including the application of ecological and social science linkage methodologies. The results run from indirect control processes to direct controls that change the ecosystem (ICSU, 2008).

First, the new study highlights the most prominent of the threats, but does not yet specify the extent to which each threat has altered wetland ecosystem services; where threats are most likely to occur and ecosystem services are most impacted.

Second, the amount to which each ecosystem service contributes to human well-being is still unknown due to a lack of research and documentation (Ebeku, 2004). Because the linkages between ecosystem services and human wellbeing are not always evident, and the value of ecosystem services is frequently unknown (and hence removed from the cost–benefit analysis), this lack of information hinders management decision-making.

Third, there is a need to better understand the nature of community-beneficial ecosystem services. Some authors emphasize the importance of economic valuation as a means of assessing the contribution of wetlands to people's welfare (Bingham et al., 1995;

Howarth and Farber, 2002), while others stress the importance of ecosystem services being overvalued (Balmford et al., 2002; Mmopelwa, 2006).

Finally, the absence of sufficient evidence to identify the beneficiaries and losers as ecosystem services fluctuate in place and time is a major knowledge gap identified in this study. A feature that distributes access to and benefits from ecosystem services (by time, space, and user from global to local using a scale) that will help us better understand the complexities of social and political dynamics that are key determinants of wetlands' ability to provide ecosystem services and thus sustain livelihoods. Ecosystem services in terms of space and time; how ecosystem services affect people's livelihoods in the delta; determining the whole value of wetland ecosystem services in the Red River Delta, taking into account non-economic factors; How institutions work, affecting the flow of ecosystem services benefits; and, eventually, how those benefits, or the loss of those advantages, are allocated across such groups and communities, inside and without deltas.

4.2. Conclusion

The use of DPSIR model and sociological investigation method to assess pressures on wetland ecosystem services is a right step, fully describing pressures, states, impacts, and drivers. It is a clear fact that the ecosystem services in Xuan Thuy NP are declining in both quantity and quality, caused by both human and natural causes, in which the six main pressures on ecosystem services are particularly noted. However, in this study, it only stopped at describing the pressures, to better understand the nature and impact level of each pressure, it is necessary to have more in-depth research, especially, it is necessary to have an evaluation study. Comprehensive assessment of the impact of infrastructure construction and lagoon dredging on trees and plants in Xuan Thuy National Park.

Acknowledgments

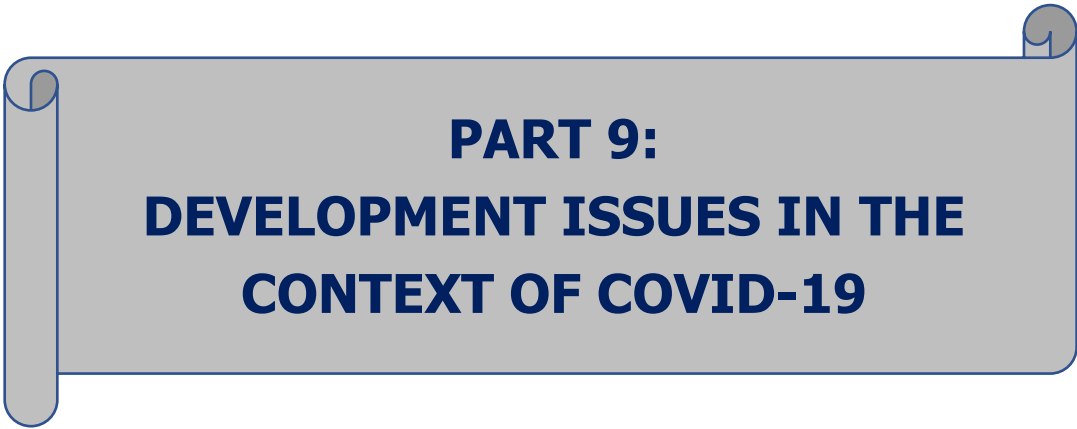
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**PART 9:
DEVELOPMENT ISSUES IN THE
CONTEXT OF COVID-19**

LIVELIHOOD CHOICE OF RETURNEES DUE TO COVID-19 PANDEMIC: CASE STUDY IN SON LA PROVINCE, VIETNAM

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Abstract

This study aims exploring livelihood opportunities and factors impacting livelihood choice of the returnees to Son La province due to the Covid-19 pandemic in 2021. The survey of 300 returning migrant people show that most of the returnees had been engaged in agricultural activities before migrating to the cities. In the context of Covid-19 crisis in 2021, most of the returnees had to come back to their hometown because of their concerns over the Covid-19 infection, their suspended business or activities, downsized production scale, or reduced working hours. Upon their return, 85.5% returnees found job and most of them have been working on the household farmland. As soon as the pandemic under control, most of the returnees plan to migrate again to look for higher paid job and better life in the cities. While economic drivers encourage returnees to resume migration, the main reason making returnees to stay at their hometown is family concerns and responsibilities.

Keywords: *Covid-19, Livelihood, Returnee, Migrant workers*

1. Introduction

Vietnam has experienced a rapid modernisation and industrialisation over the past 20 years. GDP of manufacturing and industrial increased from 78,4% to 86,4% and urban population growth from 27.1% to 36.8% between 2005 to 2020 (GSO, 2020). Industry and manufacturing concentrate in industrial zones and city areas. In 2018, migrants from 15 years old is 788,9 thousand people, accounting from 1.1% of total population aged 15 and above (GSO, 2019). Migration in Vietnam is mainly driven by employment motivations (Ngoc et al., 2017; Phuong & Thuy, 2020) and most of places of destinations are cities and urban areas (GSO, 2019).

Son La, the mountainous province of difficulties, is one of the poorest province in Vietnam. In 2020, the rate of multidimensional poverty in Son La was 30.53% (higher than

the average rate of the whole Northern Mountainous region of 14.38%) and average monthly per capita income was 1,745 thousand Vietnamese Dongs (GSO, 2022) (equivalent to 34.3% income of Red River Delta region, to 41.1% of the national wide scale). Therefore, many workers in Son La province migrated to other provinces for working in industrial zones and urban areas. By 31 December 2021, according to the report of the Department of Labor, Invalid and Social Affairs of Son La province (DOLISA), Son La has 118,448 people migrating to other provinces. 4 districts having the high rate of migrants are Thuan Chau (accounting for 22.3%), Phu Yen (16.6%), Muong La (13.2%) and Song Ma (12.6%)

The fourth wave of Covid-19 since April 2021 of more severity leading to lockdown and in many provinces have had negative impact socio-economic activities, including production and business activities. Many enterprises and production facilities had to suspend their activities or reduce production and business (Cong Thang et al., 2021; Dau Anh Tuan, 2021; Quang & Dinh, 2022). During the Covid-19 crisis, migrant workers faced many difficulties and challenges such as job loss and reduced income (Quy et al., 2022; Thanh Mai et al., 2021). To cope with this situation, migrant workers had to cut their spending, seek support from communities or return to their hometown (Quy et al., 2022; Thi Mai Anh et al., 2022). Covid-19 crisis had led to a reverse migration across the country, especially from cities and key Southern economic zones to rural areas. Between early 2021 to 16th February 2022, as reported by DOLISA, about 104,000 people (accounting for 88.2% of total migrants) returned to Son La. The returnees came back from many provinces and localities, such as Hanoi (22.6% of total returnees), Bac Ninh (11.1% of total returnees), Hai Duong (5%), Bac Giang (4.7%).

As March 11, 2022, 81.14% of Vietnamese population were partially vaccinated against the coronavirus. Accelerating vaccination coverage have given Vietnam some latitude in opening its economy and relaxing movement restriction from March 2022. Upon the reactivating economic activities, returnees may migrate again for job opportunities. However, taking into account hindering risks to the health and employment opportunities, a part of returnees is still not ready for migration.

This short paper presents the results of a study on returnees to Son La province due to the Covid-19 pandemic. Specifically, the article presents demographic characteristics and reasons for migration, type of work at the destination place, livelihood during the stay at hometown and reason driving returnees to continue to migrate or stay at the hometown.

2. Method

Information of this short paper was collected through a survey of 300 returnees to Son La province during the 4th wave of Covid-19. Returnees are people of over 15 years old living in 15 communes and towns of three districts of Thuan Chau, Muong La and Song Ma. These districts are home of the most returnees in the province. In each commune, 20 returnees were randomly selected from the lists of returnees monitored by the DOLISA for direct interview through a structured questionnaire. One returnee represents one household in the commune. Of the total 300 interviewed returnees, 126 are female, accounting for 42%. The survey is done between 20th and 31st March 2022. The information and data captured in the survey were treated by STATA to produce descriptive statistical analysis to assess the livelihood status and choice of returnees.

3. Results

3.1. Livelihood and reasons for migration

The survey results show that 81.0% of returnees have experienced in agricultural production. Only 8.7% of female returnees had worked in non-agricultural work, lower than the rate of 15.5% for male returnees. 92.6% of respondents are ethnic minorities, specifically Thai people. Average age of returnees is 33 years and migration time is averaged at 3.5 years. Among interviewed returnees, 62.0% of respondents are aged between 25 and 35, 22.7% of respondents aged between 15 and 25, and only 15.3% of respondent aged 35 years old and above. These statistics may reveal that returnees of 25-35 year-old group are much concerned by responsibility of educating and taking after their children.

In terms of education level, most of returnees completed lower secondary education (66.3% of respondents), following by upper secondary education (27.0%) and then college or higher education (6,7% of respondents). The survey results also show that uneducated female returnees account for 16.7% while this rate among male returnees is only 6.9%. Several studies in Africa have shown that people who are better educated are more likely to migrate than those who are not (Caldwell, 1968; Sabot, 1972). In particular, the study in Tanzania shows that workers with lower secondary education are most likely to migrate (Sabot, 1972).

There are many reasons for returnees to migrate to work outside as shown in Table 1. However, the reason cited by 87.0% of respondents is low income from working at home. The other two reasons are relatively cited are that “they could not find suitable jobs at home (38.4% of respondents) and “employment shortage” at the hometown (34.8% of respondents). These two reasons further explain low income at the place of origin. As mentioned above, most of the returnees had worked in agriculture prior to their out-migration. Meanwhile, the average land area of a household is only about 6,600m² in mountainous areas, so agro-forestry-fishery production is not enough to cover family spending. 15.0% of respondents, most of them are young, said that they expected a changing living environment. The results of this study are consistent with the conclusion of Nguyen et al. (2015) that rural-urban migration is also caused by insufficient employment in rural areas.

Table 9. Reason for migration

Reason	Unit	Male	Female	Total
Couldn't find relevant job at hometown	%	44.4	30.3	38.6
Too little time for working at hometown/ employment shortage	%	39.2	28.7	34.8
Income at hometown too low/ wanna to have higher income	%	86.5	87.7	87.0
Relatives/Friends introduce jobs	%	21.1	22.1	21.5
Enterprises/Business going to the hometown for recruitment	%	0.0	0.8	0.3
Go to work right after vocational trainings	%	1.2	2.5	1.7
Wanna to change environment life	%	15.8	13.9	15.0
Have no land for production	%	7.0	9.8	8.2
Have no production resources	%	4.1	2.5	3.4

Source: Computed from the survey, 2022

3.2. Livelihood of returnees during migration

The majority of returnees migrated to cities (96.7% of respondents), of which 75.9% worked in big cities (Hanoi, Hai Phong, Binh Duong, Ho Chi Minh City, etc.). Only 3.3% of respondents migrated to other places in rural areas for job. The survey also shows that among interviewed returnees, 74.2% of respondents were workers before their return to home. 16.1% of respondents are self-employed and very few returnees do jobs as office workers, clerks, store staffs and maids. There is a clear difference in choosing job between male and female migrants. While 80.2% of female returnees applied for worker position, only 69.8% of male returnees were workers in factories. In contrast, 20.9% of male returnees chose to do manual labor, while only 9.5% of female returnees choose this type of work. This can be explained by the fact that women tend to opt for jobs with stable wages and working hours to match their role in family life while free job can bring higher income but longer and unstable working time.

Table 10. Economic activities that returnees did before coming back to the hometown

Name of job/employment	Unit	Male	Female	Total
Worker	%	69.8	80.2	74.2
Staffs in stores, supermarkets, agents, etc.	%	1.2	3.2	2.0
Administrative workers in organization, enterprises.	%	3.5	3.2	3.4
Manual job/free labor work	%	20.9	9.5	16.1
Manual job/servant in restaurant, food stalls	%	1.7	1.6	1.7
Other employment	%	2.9	2.4	2.7

Source: Computed from the survey, 2022

Although 79.5% of returnees worked for enterprises or business establishments, only 46.6% of returnees have labor contracts from 3 months to indefinite term. There is a relatively high percentage of employees working for the enterprise but don't have labor contract. The study shows that workers younger than 35 years old having a higher rate of labor contract (58.2% of respondents) than workers over 35 years old (45.9% of respondents)

The Covid-19 pandemic has negatively affected production and business activities of all economic sectors and people's lives, including migrant workers. Many migrant workers have to return to their homeland in 2022 for many different reasons as shown in Table 11. The reasons for the highest rate of returning migrant workers are: "afraid of contracting Covid-19 at the place of destination" (58.0% of respondents); "losing jobs" (32.3% of respondents) when businesses had to stop production, to cut workers due to complete social distancing at the place of destination; "unstable job due to reduced working time" (31.3% respondents); anxiety (24.3% of respondents); "Health concerns of children and relatives at hometown" (21.7% of respondents); and about 18.3% of respondents said they were called by their families due to worries about the serious pandemic situation at work. The study also reveals reasons as worries of getting Covid-19, losing job, unstable job, psychological stress were more cited by male returnees than female returnees. Meanwhile, female returnees are more concerned by taking care of relatives and children.

Table 11. Reasons for the coming back to the hometown

Reason	Unit	Male	Female	Total
Losing job/Laid off	%	36.2	27.0	32.3
Reduced working time, unstable job	%	35.1	26.2	31.3
Reduced salary, income	%	4.6	3.2	4.0
No income, money for living at the place of destination	%	15.5	11.9	14.0
Afraid of infected by Covid-19 at the place of destination	%	60.9	54.0	58.0
Health concerns of children and relatives at hometown	%	19.5	24.6	21.7
Anxiety and stress	%	28.2	19.0	24.3
Recalled by family at the hometown	%	20.7	15.1	18.3
Suffering from accident, health concerns of the returnees	%	1.1	1.6	1.3
Other reasons	%	9.8	6.3	8.3

Source: Computed from the survey, 2022

3.3. Livelihood of returnees after coming back to home

After their return, 85.5% of respondents found in economic activities, while only 14.5% of respondent don't have any work or job. The main reasons for not working are: “not finding work outside of the family” (41.5% of respondents); “workers do not want to go to work” (41.5% of respondents) as returning to their homeland is said as just a temporary measure to avoid Covid-19; “ I could not find suitable jobs” (26.8% of respondents) and “ I am afraid of being infected with Covid-19” (24.4% of respondents).

At home, 84.9% of respondents have been working in the agriculture for family. 13.4% of returnees participate in non-farm activities. While non-farm employment opportunities in Son La province is very low, work experiences that returnees had accumulated during migration making very little contribution to the livelihood of returnees at home.

3.4. Choice of livelihood of returnees for the post-Covid-19 time

From March 2022, with a relatively high percentage of adults being vaccinated, social distancing measures have been eased and production and business establishments reopened on a large scale, creating opportunities for laborers. Migrants who have returned to their homeland return to work in other provinces. The survey results in Son La at the end of March showed that 61.6% of respondents would continue to migrate to work outside. Only 38.4% of respondents would stay. However, those who said that they were staying in their homeland to work after the Covid-19 were in fact still in the consideration and waiting stage.

The reason for staying at home to work is that “caring of the family” (56.3% of respondents). Even if there is no epidemic, migrant workers can return to their homeland because of their responsibilities to their children and elderly parents (Thanh et al., 2017); “family business with full employment” (54.5% of respondents); Still worried about the Covid-19 (33.0% of respondents); the family does not want to go away (32.% respondents); Working away from home also does not save much (14.3% of respondents). Only 5.4% of respondents who would

stay said that there were job opportunities for them locally and 2.7% said that the job at home was quite good compared to the job in the place of destination. The study also shows that workers who stay at home have an average age of 34.3, higher than the average age of 32.1 of those would continue to migrate. Thus, more aged migrants tend to return to their hometown after along time working outside. The percentage of women who stay and work in their homeland is 43.2% compared with 34.9% for men. This is an issue that localities must pay attention to regarding employment policies for migrant workers when they no longer have the opportunity to find jobs in the place of destination, especially workers engaged in the labor-intensive industry are vulnerable to the potential of being fired after the age of 35.

Table 12. Reason for stay at the hometown post-Covid-19

Reason	Unit	Male	Female	Total
Business of family have sufficient employment for labor	%	58.6	50	54.5
Current job at home is better than job in other provinces	%	3.4	1.9	2.7
Need time to take care of family	%	60.3	51.9	56.3
Family don't want and encourage to work outside	%	31	33.3	32.1
Having more job opportunities at the locality	%	6.9	3.7	5.4
Little saving when working outside	%	17.2	11.1	14.3
Concern over Covid-19 pandemic	%	31.0	35.2	33.0
Other reason	%	1.7	3.7	2.7

Source: Computed from the survey, 2022

For returnees choosing to stay, difficulties include: no capital for production because of absence of accumulated assets (58.2% of respondents), lack of knowledge on agricultural production (41.8% of respondents), risk aversion against business and low income (26.5% of respondents), no land for production (17.3% of respondents). Only 4.1% of returnees who would stay say that they have no difficulty or barrier to stay in their hometown for work.

For returnees whose plan is to continue to migrate to other places, their motivations are driven by low-income jobs at home, employment shortage, boring life, concerns about the future of their children, external job opportunities introduced by friends or relatives. Among those reasons for re-migration, the most important reason is low-paid job at home (62.0% of respondents), followed by poor condition of living in the rural areas (12.9% of respondents). Quality of public services (school, healthcare....) are weighted in their choice to migrate to cities. Urban amenity is also a factor attracting the migration of rural labor to urban areas (Shilpi et al., 2014). 12.3% of respondents were called by their employers to return to work (Table 5). Average income of returnees working in other provinces is 8.1 million VND per month, 45% higher than the amount they earn at the hometown (4.6 million VND per month).

Table 13. The most important reasons for the returnees’ post-Covid-19 out-migration

Reason	Unit	Male	Female	Total
Insufficient employment at hometown	%	10.9	4.4	8.4
Job at hometown give low salary/income	%	60.0	65.2	62.0
Poor living condition at the hometown may affect the future of their children	%	15.5	8.7	12.9
Employers call to be back to work	%	10.9	14.5	12.3
Call by friends and/or relatives	%	1.8	4.4	2.8
Easy to find a job outside	%		1.5	0.6
Other reason	%	0.9	1.5	1.1

Source: Computed from the survey, 2022

Some challenges facing returnees who will continue to migrate are fear of Covid-19 infection (71.7% of respondents), worry about their children and parents at home (48.9% of respondents), not having enough employment (45.7% of respondents), fear of not finding a job (17.1%) and fear of not finding a suitable school for their children (2.2% of respondents).

4. Conclusion

The results of the investigation of 300 returnees to Son La province due to the Covid-19 pandemic show that the main reasons for migration have economic nature, i.e. higher income in cities and industrial areas. The majority of returnees complete lower secondary school and work as workers in business and enterprises in big cities. Reasons pushing migrant labor to coming back to their hometown are the fear of Covid-19 infection, losing jobs or reduced working time as well as reduce income at the place of destination in the context of prolonged lockdown. Upon their return, 85.5% of respondents found jobs and mainly do agricultural activities for their family. Once the pandemic control measures adaptive to the new circumstance, 61.6% of returnees confirm that they would continue to migrate to work, 38.4% of returnees would either stay at home or be still in hesitation. For those who would stay permanently, they would like to spend more time to taking care of their parents and children in one hand, and economic activities of the family are sufficient. It is noted that these people are more aged than those continue to migrate. For returnees who continue to migrate, the two most important reasons for their decision are “looking for a better-paid and higher-income job” and “concern about the future of their children” as living conditions in place of destination are believed to be better.

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DETERMINANTS OF THE BEHAVIOR AND HABITS USING ONLINE SHOPPING IN VIETNAM DURING THE COVID - 19 PANDEMIC

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Abstract

The COVID-19 pandemic has significantly changed the online shopping behavior of Vietnamese consumers. This study aims to explore the factors affecting online shopping behavior and habits in Vietnam during the COVID-19 pandemic. Through a questionnaire sent via Google Form in February 2022, the authors received 778 responses with 750 responses being valid. The research results show that both the fear of the COVID-19 pandemic and the perceived behavioral control have significant impacts on the online shopping intention and behavior of consumers in the context of the COVID-19 pandemic. Since then, the study suggests several recommendations to enhance the transition from traditional shopping to the online form, to support consumers to shop with confidence in the context of the pandemic and even in the "new normal condition".

Keywords: *Theory of planned behavior, online shopping intention, online shopping behavior, shopping habits, COVID-19.*

1. Introduction

The outbreak of the COVID-19 pandemic has greatly impacted every aspect of people's lives worldwide (Liguori and Winkler, 2020; Zahra et al., 2021). The COVID-19 pandemic caused by the new strain of Corona virus (SARS-CoV-2) has affected 202/204 countries and territories and was officially declared a pandemic by the World Health Organization (WHO). During the 3 years of the pandemic, Vietnam's society and economy have had certain changes - people's fears have led to a change in daily activities, from face-to-face meeting to online conservation. This extremely affects people's life, but it is a condition to ensure the safety of the whole family and the whole society (Meyer, 2020). One of the visible impacts of how people cope with isolation is their changing shopping

habits (Nguyen, 2015). Online shopping on e-commerce platforms becomes necessary and useful (Nguyen, 2020).

Stemming from the above issues, the article studies the impact of COVID-19 on online shopping behavior and habits in Vietnam, thereby providing some orientations and recommendations for the regulatory agencies and online businesses in Vietnam.

2. Literature Review

2.1. Theoretical basis

Research on factors affecting online shopping behavior and habits in the context of the COVID-19 pandemic has been carried out by many researchers, in which academics often pay attention to the relationship among factors affecting online shopping behavior and habits of consumers during the COVID-19 pandemic. In these studies, the authors have applied the following theories: Uses and gratifications theory (UGT); Theory of Planned Behavior (TPB); Technology Acceptance Model (TAM) and Theory of Perceived Risk (TPR).

Uses and Gratification Theory (UGT)

The Uses and Gratification Theory, originating in the 1940s (Palmgreen, Wenner and Rosengren, 1985), argues that people have the initiative in choosing and using media based on their own needs (Wu et al., 2010). Thanks to the development of technology, businesses are now gradually turning to online business to meet the needs of customers better, thereby attracting them. These shows the role of UGT Theory in explaining motivations to use a particular e-commerce platform (Luo et al., 2011). In the current context where the COVID-19 pandemic is spreading rapidly and strongly, it is the pandemic that has pushed consumers to make purchasing decisions through e-commerce platforms with the demand to protect their health and safety (Tran, 2021). However, the UGT theory also has limitations such as too much emphasis on individual factors and heavy behaviorism. In addition, UGT focuses more on the public than the content of the message that the media wants to convey, the audience can only agree or refuse to receive the media message for ideological, cultural or political reasons.

The Theory of planned behavior (TPB)

The theory of planned behavior (TPB) was first proposed by Ajzen in 1985, claiming that behavioral intention determines the final behavior that the factor affecting behavioral intention is attitude (the evaluation of behavior) and subjective norm (other people's assessment of the behavior) (Ajzen and Fishbein, 1980). Currently, TPB theory is also widely applied in research and behavior related to the use of technology (Ajzen, 2020) and especially in the field of e-commerce or online shopping. In the process of online shopping, cognitive factors controlling behavior also affect consumers' decisions and purchase intentions, it may come from the opinions of friends, relatives, colleagues. and it leads to the decision to continue or not to continue the online shopping behavior (Hsu et al., 2006). In terms of strengths, TPB model is considered to be more optimal in predicting and explaining consumer behavior in the same research content and context, TPB overcomes the disadvantages of other models by additional cognitive behavioral control factors. An

individual's behavioral intention cannot be the sole determinant of behavior. By adding "behavioral control perception", the theory of planned behavior can explain the relationship between behavioral intentions and actual behaviour. Regarding limitations, the TPB model has some limitations in predicting behavior (Werner, 2004). The first limitation is that the determinant of intention is not limited to attitude, subjective standard, perceived behavioral control (Ajzen, 1991). Empirical research has shown that only 40% of behavioral variability can be explained by using TPB (Ajzen, 1991; Werner, 2004).

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) proposed by Fred Davis (1989) is based on the Theory of reasoned action (TRA) model developed by Fishbein and Ajzen (1975). This model is used to explain and make predictions about users' acceptance and use of technology. Previously, the model was only used a lot in the field of technology, however, today this model is applied more in the areas related to behavior, consumer intention on e-commerce sites and online shopping. There are typical studies that use TAM model to predict user behavior in email (Szajna, 1996), in website (Koufaris, 2002; Van der Heijden, 2003) and in online shopping (Van der Heijden, 2003; Xiang et al., 2016).

Theory of perceived risk (TPR)

In the Theory of Perceived Risk (TPR), Bauer (1960) has showed the theory of perceived risk related to consumption behavior. Theory of Perceived Risk demonstrates that the behavior of using technology always involves risks, including two factors: (1) Perceived risk related to products/services; (2) Perceived risks related to online transactions regarding conducting e-commerce transactions on electronic devices (Bauer, 1960). In which, product risk includes the possibility that goods are not as expected, not meeting the requirements of consumers (Peter et al., 1975). In addition to the perceived risk associated with the product, there is also the perceived risk of online transactions affecting customers' purchase intention.

2.2. Proposed research hypothesis

Fear of the COVID-19 pandemic

Consumers are changing their shopping habits from offline shopping to online shopping with more frequency than before the pandemic. Because the COVID-19 virus can be spread through person-to-person contact and effective drugs or vaccines have not been found yet (Smith et al., 2020), consumers must switch their purchases to online shopping to reduce disease exposure (Iversen et al., 2020). Similarly, Cintia et al. (2020) conclude that customers have the behavior to avoid crowded places, brick-and-mortar stores even if they are still open. Pandemic hazard perception significantly affects customers' shopping intention and consumption behavior in the context of a pandemic (World health Organization, 2020; Baker et al., 2020; Lima et al., 2020). Therefore, the proposed research hypothesis is:

H1: Fear of the COVID-19 pandemic has a positive impact on consumers' online shopping intention in the context of the COVID-19 pandemic

Safety

The issue of security in online payment systems is quite complicated because risks are shared between the seller, the buyer and the intermediaries that support the payment process (Fianyi et al., 2019). The rise of cybercrime and the development of tools to penetrate personal data have impacted the security of e-commerce, increasing cases of identity theft, privacy violations and financial information (Fianyi et al., 2019). However, Hartono et al (2014) argue that the aspects of confidentiality, integrity, availability and non-repudiation play an important role in the concept of security. Research by Raja et al (2008) shows that in order to enhance safety and security, it is necessary to increase the participation rate of relevant issuers or payment service providers to reduce threats. So, the proposed research hypothesis is:

H2: Safety in payment has a positive effect on consumers' online shopping intention in the context of the COVID-19 pandemic

Convenience

In addition to the safety that consumers pay attention to, there are advantages of online shopping including convenience and savings. Many businesses are well aware that e-commerce greatly affects their business operations (Zeithaml et al., 2002). So, the proposed research hypothesis is:

H3: Convenience has a positive effect on consumers' online shopping intention during the COVID-19 pandemic.

Saving

In addition, the price of online goods may be lower than the one of offline shopping because the seller saves several costs in the selling process. This makes customers feel that purchasing online will save more time and money for them. Low price is one of the main drivers of online shopping behavior (Jadhav et al., 2016). The research hypothesis proposed by the authors is:

H4: Savings have a positive effect on consumers' online shopping intention during the COVID-19 pandemic.

Online shopping intention and behavior

According to Pavlou (2003), when a consumer intends to use online transactions to shop, it is called online shopping intention. Similarly, online shopping intention represents the extent to which customers intend to use e-commerce platforms to shop in the future and have recommendations for others to do online shopping (Nguyen Thu Ha et al., 2019). In the process of online shopping, customers tend to continue using this form of shopping in the long term, forming the intention to continue to buy again in the future. This is considered to be an important factor affecting the operation of e-commerce websites in general and businesses in particular.

According to Fishbein and Ajzen (1980), intention is a factor to motivate an individual ready to perform a behavior in the future. Based on that theory, Delafrooz et al. (2011) have shown that online shopping intention is the likelihood that a person will definitely consume a product through shopping on the Internet. According to TPB theory,

the intention to perform a particular shopping behavior can be predicted by the impact levels of perception (purpose to control behavior), subjective norm and attitude (Ajzen, 1991). Therefore, the proposed hypothesis is:

H5: Intention has a positive influence on consumers' online shopping behavior in the context of the COVID-19 pandemic

From the theories and hypotheses presented above, the hypothetical model of the study is proposed as follows:

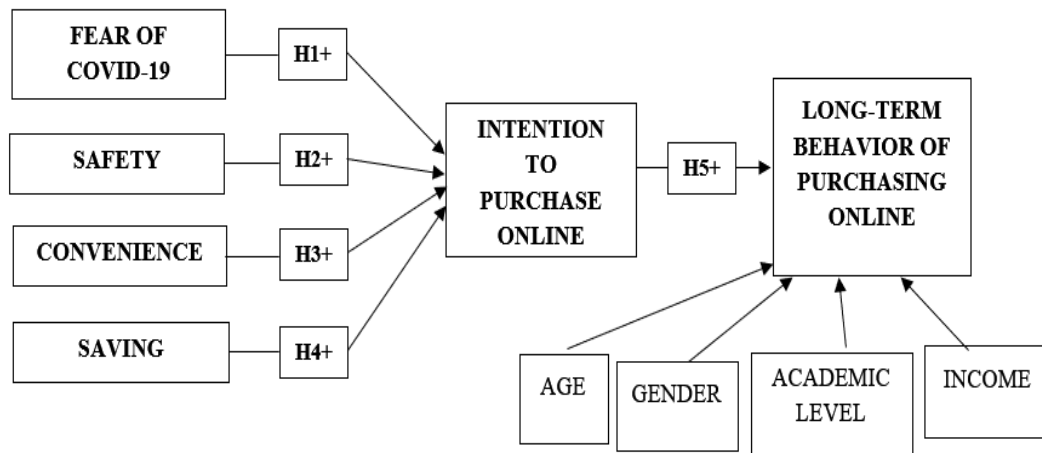


Figure 1. Hypothetical model of the study

Source: Proposal of the authors

3. Method

3.1. Sample selection and data collection

To test the model and research hypotheses, the authors use qualitative method, sampling method is conducted with the aim of saving cost and time. According to the regression method, the minimum sample size is $n \geq 8m+50$ (where n is the sample size, m is the number of independent variables proposed in the research model) (Tabachnick et al., 2007). The study uses 17 independent variables, so the minimum sample size will be $8 \times 17 + 50 = 186$. In order to ensure the reliability and significance of the research results, the authors collected and selected 750 survey questionnaires, completely meeting the requirements mentioned above.

The surveyed subjects are those who have used online shopping in Vietnam through social networking sites or e-commerce platforms. The authors used Google's questionnaire creation tool (Google Forms) to create the survey and approach the survey participants through posts on social networks such as Facebook, Instagram and direct contact via email from February 14, 2022 to the end of March 1, 2022. The research space is all geographical areas of Vietnam, so the authors have tried to get feedback from survey respondents from many different regions across the country. However, after closing the survey form, the authors found that the survey subjects were still concentrated mainly in the North, especially in Hanoi city.

3.2. Formation and construction of the scale.

The scale used to study the impact of the COVID-19 pandemic on shopping behavior and habits is a 5-point Likert scale ranging from 1- Completely disagree to 5 - Totally agree. The variables of the scale in the study were suggested by previous authors (Lazzerini et al., 2020; Vitenu-Sackey et al., 2021; Tran, 2021). Besides, the authors also develop new scales such as safety, convenience and economy. The scales used in this article are presented in Table 1.

Table 1. Scales used in the study

Symbol	Content	Source
Fear of disease		
NL1	I feel the COVID-19 pandemic is dangerous.	Tran Trong Thuy (2021).
NL2	Purchasing on e-commerce platforms will protect me from the risk of spreading the disease.	
Safety		
AT1	The site is fully featured to ensure safety and security	Nguyen Hong Quan (2021)
AT2	When I shop online, e-commerce platforms protect me against any potential commercial risks during my online shopping.	
Convenience		
TL1	I feel the interface of the e-commerce platforms is simple and easy to use.	Self-suggested group of authors
TL2	I find it easy to get information and order on the e-commerce platform.	
TL3	I feel there are many choices when purchasing on e-commerce platforms.	
TL4	I feel that shopping online will help me make payment more conveniently, without having to wait in line.	
Saving		
TK1	I feel that shopping on e-commerce platforms is faster than traditional shopping.	Eliasson Malin (2009)
TK2	Using e-commerce services can help me save travel costs to view goods.	
TK3	I feel that shopping on e-commerce platforms is much more economical than shopping directly (due to vouchers, offers, coupons, promotional codes ..)	
Shopping intention		
YD1	I only intend to shop online if the products are not available in brick-and-mortar stores	Arifani and Haryanto (2018)
YD2	I plan to shop online	
YD3	I will recommend friends and family to use online shopping	

Symbol	Content	Source
Shopping behavior on e-commerce platforms in the future		
HV1	I think online shopping will meet my shopping needs well in the future	Self-suggested group of authors
HV2	I tend to prioritize online shopping on e-commerce platforms over traditional shopping in the future	
HV3	I will shop online more often in the future	

4. Results

4.1. Descriptive Statistics

Table 2. Descriptive statistics of the survey sample

Characteristics	Options	Frequency	Ratio (%)
Sex	male	364	48.53
	Female	386	51.47
Age	Under 20 years old	183	24.40
	20 - under 30 years old	238	31.73
	30 - under 40 years old	181	24.13
	40 - under 50 years old	58	7.73
	50 - under 60 years old	53	7.07
	60 years old and up	37	4.93
Academic level	Under the university	114	21.87
	University	489	51.87
	After university	147	26.27
Monthly income	Under 10 million	387	51.6
	From 10 million - under 20 million VND	258	34.4
	From 20 million - under 30 million VND	56	7.47
	From 30 million or more	49	6.53
Area of study/work	North	311	41.47
	central	251	33.47
	male	240	25.07

Source: Analysis results of the author's team

The descriptive statistics in Table 1 show that 51.47% of survey participants are female and 48.53% of survey participants are male. The percentage of survey participation between the two genders is not too large, showing that the participation in online shopping of both men and women is almost equal. 31.73% of survey participants are between the ages

of 20 and under 30, with college/university education (51.87%) and graduate (26.27%). This shows that the majority of respondents are young, educated, so they tend to approach online shopping. Older age groups such as 40 to under 60 years old account for only nearly 15% and over 60 years old group accounts for only 4.93%, indicating that older people often have difficulty accepting new forms of shopping. In terms of monthly income, most samples focus on less than 20 million VND (86%), while income over 20 million VND is relatively small. Regarding the study/working region, the sample is relatively evenly distributed, with 41.47% in the North, 33.47% in the Central region and 25.07% in the South.

4.2. Check the reliability of the scale

Table 3. Results of testing the reliability of the scale

Factor group	Observed variables	Correlation coefficient on total variable	Cronbach's Alpha coefficient if excluding the variable
Fear of disease (NL)	Cronbach's Alpha = 0.751		
	NL1	0.604	-
	NL2	0.604	-
Safety (AT)	Cronbach's Alpha = 0.710		
	AT1	0.550	-
	AT2	0.550	-
Convenience (TL)	Cronbach's Alpha = 0.801		
	TL1	0.618	0.750
	TL2	0.620	0.749
	TL3	0.618	0.750
	TL4	0.601	0.758
Saving (TK)	Cronbach's Alpha = 0.750		
	TK1	0.567	0.678
	TK2	0.592	0.650
	TK3	0.575	0.670
Online shopping intention (YD)	Cronbach's Alpha=0.755		
	YD1	0.628	0.638
	YD2	0.582	0.679
	YD3	0.557	0.704
Shopping behavior on e-commerce platforms in the future (HV)	Cronbach's Alpha=0.754		
	HV1	0.591	0.662
	HV2	0.603	0.648
	HV3	0.556	0.701

Source: Analysis results of the author's team

The results of Table 3 show that the Cronbach's Alpha coefficient of the factors proposed in the study are higher than 0.06, which means that all observed variables are accepted and will be used in the next factor analysis. Besides, all observations of the scale have the total variable correlation coefficient greater than 0.3. In addition, if the Cronbach's Alpha coefficient is removed, all variables are smaller than the total Cronbach's Alpha coefficient, so no variables need to be removed. In other words, the observations of the scale have high reliability, making the research model reliable.

4.3. Result of exploratory factor analysis EFA

Table 4. EFA. analysis results

KMO. coefficient		0.797
Bartlett's test	Chi-squared value approx.	3873.804
	DF	136
	Sig	0.000

Source: Analysis results of the author's team

Table 5. Correlation analysis of scales

	NL	AT	TL	TK	YD	HV
NL	1					
AT	0.377	1				
TL	0.482	0.270	1			
TK	0.331	0.141	0.192	1		
YD	0.527	0.289	0.428	0.321	1	
HV	0.217	0.194	0.360	0.153	0.227	1

Source: Analysis results of the author's team

The KMO test results show that the KMO coefficient is $0.797 > 0.5$, helping to conclude that the factor analysis and research data are completely appropriate. In addition, the Bartlett test result is 3873.801 with the Sig significance level of $0.000 < 0.05$, showing that the observed variables are correlated with each other in the population and satisfy the conditions of factor analysis. Table 5 shows that there is no interaction between the independent variables, that is, the independent variables are all loosely correlated with each other.

4.4. Regression analysis

Table 6. Results of regression analysis

Hypothesis	Proposed impact	Normalization coefficient	SE	CR	P	Pass the test
H1	+	0.327	0.042	7,777	0.000	Yes
H2	+	0.092	0.036	2.585	0.010	Yes
H3	+	0.149	0.33	4.533	0.000	Yes
H4	+	0.121	0.034	3,606	0.000	Yes
H5	+	0.107	0.045	2.383	0.017	Yes

Source: Analysis results of the author's team

From the above table of regression analysis results, the authors propose the following regression model:

$$YD = 0.327 \times NL + 0.092 \times AT + 0.149 \times TL + 0.121 \times TK$$

$$HV = 0.107 \times YD$$

Thus, hypothesis H1, H2, H3, H4 and H5 have been tested, i.e. 4 factors are fear of disease, safety, convenience and saving have positive influences on online shopping intention. Simultaneously, online shopping intention has a positive impact on the long-term online shopping behavior of consumers. In other words, the 5 proposed hypotheses are all accepted and passed the tests. Specifically, with a standardized coefficient of 0.327, the variable fear of the pandemic has the strongest impact on the online shopping intention of customers in Vietnam, while the impact of the safety variable on the shopping online intention is the weakest (0.092). In summary, all impacts are statistically significant when $P\text{-value} < 0.05$. Therefore, the hypotheses proposed by the authors are statistically significant.

5. Discussion and Conclusion

5.1. Discussion

After running the test models and determining the impact coefficients, it can be concluded that the research hypotheses (H1, H2, H3, H4, H5) are accepted and no hypothesis is rejected. In which, the factor Fear of the COVID-19 pandemic has the largest standardized coefficient (0.327) which is considered to have the strongest impact on the intention to purchase online in Vietnam in the context of the COVID-19 pandemic. Therefore, this study is consistent with the research results of Tran Trong Thuy (2021). Although online shopping is not new and popular in Vietnam, it is especially effective when the COVID-19 pandemic continues to cause severe impacts on Vietnam society. During this time, the number of people purchasing online through websites increased dramatically due to the convenience, savings and safety of transactions.

The Convenience factor also shows a positive impact on the online shopping intention of customers in the context of the COVID-19 pandemic with a standardized

coefficient of 0.149. The research results show that the online shopping intention of customers is also influenced by the ease of finding information and the variety of choices when shopping online.

In addition, the Savings factor with a standardized coefficient of 0.121 also has a positive impact on the online shopping intention of customers in the context of the COVID-19 pandemic, when customers are increasingly aware of the speed of seeking information and reduce costs when shopping online.

Finally, the Safety Factor also shows a positive impact on the online shopping intention of customers in the context of the COVID-19 pandemic with a standardized coefficient of 0.092. Although it has the lowest standardization coefficient, it is still one of the factors that positively affect consumer purchasing behavior because online websites are full of safety and security features.

5.2. Recommendations

To state agencies

Firstly, in order to reduce consumers' fear of pandemics, state agencies should limit mass gatherings, establish checkpoints to check individual travel, and encourage people to stay at home. These have a strong influence on people's behavior. In addition, it is necessary to diversify forms of people's propaganda to minimize community gatherings.

Secondly, in the context that most people still consider cash as a familiar form of payment, even many people purchase online but still pay in cash with the delivery person, to increase savings by purchasing for online shopping, state agencies need to promote the awareness about the advantages of online payment trends with great incentives to encourage people to change their consumption habits.

Third, in order to improve people's security when making payments in online shopping, state agencies need to quickly complete the legal framework in this area. Currently, online shopping is still an emerging field in Vietnam, which is a combination of sales and technology, between physical products and virtual stores, with its own characteristics. Therefore, the regulatory framework in our country in general still has many loopholes, especially policies to protect consumers and limit the risk of fraud of corporate customers when conducting online transactions.

To online retail businesses

Firstly, instead of just propaganda on newspapers, television, radio, businesses need to come up with practical solutions such as opening safe collection points at pharmacies, supermarkets and launch smart lockers (iLogic Smartbox) so people can pick up goods automatically (Ministry of Industry and Trade, 2020). Smart lockers are an extremely convenient and safe method because they need an OTP or QR code to open, and customers can take the initiative to pick up their goods without having to come into direct contact with many people. These new forms both help to comply with the Government's policies and meet the needs of people to maintain their daily activities.

Secondly, in order to increase savings for consumers, in addition to a various source of goods, businesses need to provide many promotional policies when using e-wallets or

paying via bank accounts to purchase with reasonable prices and limit direct personal contact. In addition, businesses can also combine together to build promotion campaigns when purchasing combos at lower price.

Third, ensuring safety when making payments, quality and security of shopping websites is also a factor that directly affects online shopping behavior, businesses also need to pay attention to improve website quality and strengthen the security system to protect consumers from unnecessary risks.

Fourth, businesses need to constantly improve the quality of products and services provided. This is one of the top criteria that determines the online shopping behavior of consumers, as well as the ability of businesses to retain customers. Therefore, as long as one buyer receives a product that is not as advertised and reflects it back to groups and forums, others will immediately have a bad feeling about the quality of the product, leading to that they will find substitute products of other businesses

5.3. Conclusion

Applying the theoretical framework TPB, UGT, TAM, and TPR, the study examined the online shopping intention and behavior of Vietnamese people in the context of the COVID-19 pandemic through assessing the influence of four factors including: fear of the COVID-19 pandemic, convenience, saving and safety. The results show that the impacts in TPB model are statistically significant, and the results confirm that all four factors have positive impacts on online shopping intention and behavior, ranked in order of influence, respectively: i) Fear of the COVID-19 pandemic; ii) Convenience; iii) Saving and iv) Safety.

Due to the objective factor of social isolation in the context of the COVID-19 pandemic, the survey process and research results still have some limitations. In which, the biggest limitation is that the number of participants is not much and diverse, mainly students and officers. Further studies can apply the TPB model to assess the content of economic, social and political impacts on consumer behavior on a broader scale. In addition, COVID-19 is a prominent issue that needs attention at present, future studies should continue this topic and evaluate consumers' online shopping behavior through many more factors, such as perceived risk, customer trust or corporate brand name.

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A FRAMEWORK OF CONTROLLING ROLE STRESSORS AND ENHANCING JOB RETENTION BY MANAGING ORGANIZATIONAL CLIMATE IN THE COVID-19 PANDEMIC

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Abstract

Role conflict and ambiguity are serious problems in organizations. The role stressors undermine employee job satisfaction and engagement, negatively affect employee well-being and, in turn, promote turnover intentions. By extending the Job Demands-Resources model, we argue that psychosocial safety climate and team climate regulate working circumstances by managing these stressors. This study was conducted to provide a broader view of the composition and relationships among organizational climate, role stressors, and job retention. However, the Covid 19 pandemic has recently had a substantial impact on the organizational environment, employees' mental health. As a result, considering their relationships among organizational climate, role stressors, and job retention cannot be separated from the influence of the Covid 19 pandemic. As shapers of organizational culture, especially in the Asia region, managers should be responsible for creating a safe and supportive climate to reduce negative stressors, thereby promoting employee retention, especially in the context of global crisis.

Keywords: *Organizational climate, role stressors, job retention, covid 19*

1. Introduction

Scholars have been interested in the link between management and employees in organizations since the 1930s. An employee's attitude toward the organization reflects the outcome of the work environment, which is still an important problem in organizational behavior study. It has been demonstrated that the organizational climate is a crucial component in understanding employee behavior, and this topic has been explored in the organizational behavior literature since the late 1970s (Lee & Idris, 2017).

The organizational climate is the total of psychological atmospheres, which are employees' views of their workplace (James et al., 2008). However, because it is based on employee impression, determining the exact organizational climate is difficult (Berberoglu, 2018). However, it is undeniable that the organizational environment has a significant impact on individuals' attitudes toward their work, personal connections, and job performance. Furthermore, the organizational climate is a condition for managing job-related stress and strain. Understanding and developing a good culture that can mitigate the negative effects of stressors is an important management topic.

However, previous research has only looked at how the organizational environment affects employee satisfaction and organizational commitment. As a result, this research will develop a theoretical model emphasizing the importance of role stressors as a mediating factor in the link between organizational environment and job retention. Key factors such as organizational climate, role stress, and staff retention are investigated from the aggregate perspective of the sub-components.

Furthermore, the impact of the Covid 19 pandemic has recently changed the working environment, creating pressure and stress at work, resulting in the reduction or layoff of a huge number of employees in recent years. “*The pandemic of COVID-19 has drastically changed the way we work, communicate, and socialize and left us with the challenge of making significant changes in a matter of days on an extraordinary scale*” (Li et al., 2020). Undoubtedly, there have been other more issues confronting employees and corporate organizations so far. As a result, during times of global crisis or pandemic, managing the organizational environment, work stressors, and job retention must also be studied and evaluated more attentively. It not only changes their morphology but also impacts their relationship. That is the motivation for us to develop a framework of working environment management in the context of the crisis caused by the pandemic.

2. Literature Review

Organizational climate is defined as the way employees perceive their company and its goals (Payne et al., 1971). Griffin & Moorhead (2014) emphasize the recurrence of employee behaviors, attitudes, and emotions.

Previous research has separated the organizational climate into several components; however, we divided it into two sub-factors based on the viewpoint of Lee & Idris (2017): psychosocial safety climate and team climate. Although both factors have their characteristics, both can indicate the presence of psychological safety during teamwork, which permits teamwork to fulfill corporate goals more efficiently (Dollard & Bakker, 2010).

Psychosocial safety climate – PSC: refers to the organizational environment in which employees believe that the organization's policies, management processes, and practices, prioritize and ensure their employees' psychological safety, and well-being (Dollard & Bakker, 2010). The work environment is referred to as "psychological environments" when examined and studied at the individual level – that is, employees' views of how the organizational environment psychologically influences their health and well-being (Geisler et al., 2019).

Theoretically, PSC extends the theory of Job Demands-Resources (JD-R). According to JD-R theory, all work environments have specific demands and resources that contribute to work-related stress or motivation (Bakker & Demerouti, 2014). PSC is expected to improve employee psychological well-being, work satisfaction, and job engagement.

PSC is a specialized environment produced by management activities to safeguard employee well-being, provide incentives to meet employee requirements, or remove hurdles to employees reaching their goals (Yulita et al., 2014). As a result, a high PSC level will provide psychologically safe working conditions, allowing employees to feel like they

belong in their organizations (Lee & Idris, 2017). Employees with high PSC levels can accomplish their jobs more comfortably and without fear of failure. Organizations with a high PSC level have unambiguous orientations, and employees may believe the organization is concerned about their interests.

Team climate refers to the perceptions, actions, and attitudes of individuals in the group (Seibert et al., 2004), or the sharing of vision, safety, and work orientation, as well as encouragement for creativity among members (Basaglia et al., 2010). Mutual trust and respect among team members create a healthy group culture in which everyone feels comfortable being themselves (Edmondson, 1999). In other words, a good teamwork climate enables team members to understand their tasks to achieve group objectives. When roles are defined, team members can collaborate successfully to achieve the desired work outcomes (Kleingeld et al., 2011).

Role stressors: Employees usually attempt to achieve company goals by performing effectively in their roles. The role is a set of expectations associated with a work position in an organization. Depending on the type of request, people may feel stressed. When people think they are unable to comprehend and perform task-related role requirements, role stressors arise (Kahn et al., 1964). There are two forms of role stressors: role ambiguity and role conflict (Singh et al., 1996). Singh et al. (1996) discovered that clear rules, regulations, organizational norms, and well-communicated information reduce role stressors. In contrast, if managers are unclear about anticipated behavior, role conflict will arise.

Role conflict: One of the most well-studied psychosocial risk factors in the workplace is role conflict. Role conflict represents the coexistence of two or more groups of expectations of work towards the same person, whereby complying with one set of expectations makes conforming to another set of expectations difficult (Kahn et al., 1964; Singh et al., 1994). In this case, the job requirements they are taking on are competing and contradictory, making it hard for them to perform them all.

Based on the JD-R theory, role conflict is more likely to result in energy-depleting stress (Bakker & Demerouti, 2007). Role conflict causes employees to become stressed and capable of acting in ways that irritate coworkers and superiors, which has the potential to lead to interpersonal conflict. However, role conflict can be beneficial to an organization since it can encourage creativity when individuals work together to resolve these disagreements (Ortqvist & Wincent, 2006).

Role ambiguity is defined as the degree of disagreement between the information supplied to the individual performing the position or the insufficient information necessary to do the function successfully (Kahn et al., 1964). The root cause of job ambiguity is a lack of understanding regarding what tasks must be accomplished, as well as why and how to carry them out. Role ambiguity appears when an employee's job description or responsibilities are not clearly defined and employees do not understand their role (Brunsting et al., 2014). Despite that, it can also help businesses in some situations by facilitating adaptability to changing conditions and contributing to management flexibility (Ortqvist & Wincent et al., 2006).

Job retention: Job satisfaction and work engagement are constitutive factors of job retention (Halbesleben & Wheeler, 2008).

Work engagement is the contribution of members in work towards their company; and when engaged, they can express themselves physically, intellectually, and emotionally in accomplishing the task. Individuals are engaged when they are emotionally linked to others and mindful of their work (Kahn, 1990). Employees understand what they expect, what is expected of them, and what they must do to reach their work objectives; they see themselves as a part of the organization, meaningful to their colleagues, trusted with many opportunities to improve and grow. According to Saks (2006), work engagement is defined as a good attitude toward the organization's values and activities. Employees who are engaged are frequently aware of the business environment and work collaboratively with colleagues to improve work performance for the benefit of the company.

Job satisfaction: Hoppock (1935) and Davis et al. (1989) define work satisfaction as any combination of psychological, physiological, and environmental elements that lead a person to feel pleased with his or her employment. With this viewpoint, even while job satisfaction is influenced by a variety of external circumstances, it is still influenced by employees' internal feelings. Vroom (1964) describes job satisfaction as an individual's emotional orientation toward his/her duties. When an employee joins a business, they bring their own set of needs and desires. Job satisfaction is a comparison between an individual's level of expectation for a job and perceived benefits from completing that job (Kaliski, 2007). Job satisfaction is indicated by a favorable attitude toward work.

3. Results

3.1. Research framework

By minimizing role stressors, a healthy corporate climate enables staff to achieve organizational goals. More communication is exchanged between management and employees when the organizational atmosphere is actively established by management (Whitaker et al., 2007). Employees can focus more on their tasks when they have open contact with management. Firms with a good psychological safety climate are less likely to be bullied through dispute resolution procedures. Agreeing with this view, Kwan et al (2016) found that employees who operate in such environments are more inclined to take a proactive strategy by speaking up and asking for support from the organization as well as the managers, this prevents the tension from escalating. As a result, employees stay with the organization, express their optimism, satisfaction, positive attitudes, and proactive behaviors. Many studies have also demonstrated that role clarity has a favorable influence on work satisfaction, organizational citizenship behavior, and thus decreasing turnover intention (Hassan, 2013).

During the COVID-19 pandemic, social distance is critical for limiting the virus's transmission. We have to learn quickly how to stay connected at work using digital or social networking tools. However, maintaining social connections is critical for humanity's existence and mental wellness. At our remote workstations, we tend to feel more anxious and conflicted (Rymaniak et al., 2021). Fu et al. (2021) discovered that the reported number of COVID-19 cases impacts workers' job functioning (engagement, performance, and emotional exhaustion). Boin (2005) found that a crisis can destabilize a company and its employees. Organizations must function under stress in such an environment. As a result of

these difficulties, there has been a significant increase in staff layoffs (Adkins et al. 2001). Many firms also attempt to cut the number of employees to save expenses during the crisis, while expecting more resilience from remaining employees (Naudé 2012). Despite that, Naudé (2012) discovered that during a crisis, employees tend to complain less about labor conflicts due to fear of being fired.

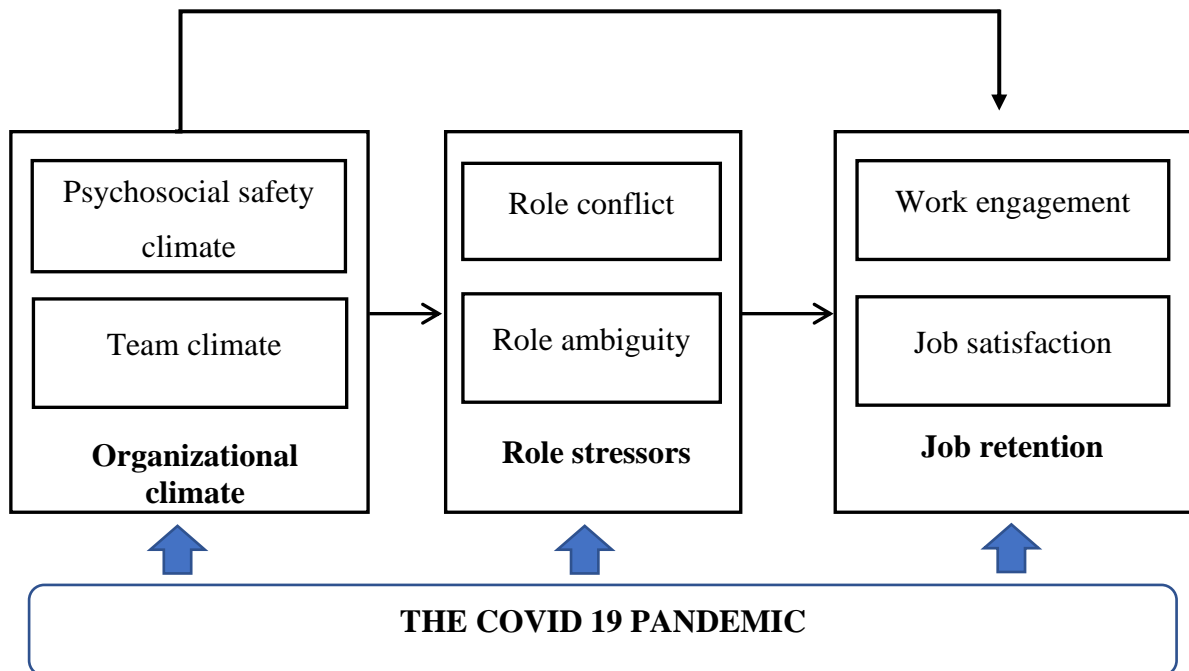


Figure 1. The research framework

3.2. Implication

Managers must build and develop a secure and supportive organizational climate that reduces negative role stressors. Because it can be actively shaped by powerful and influential people in the organization (James & James, 1989). This is especially true in the Asian culture, where the emphasis is on collective power structures and teams rather than individual efforts (Zhang et al., 2005; Zhong et al., 2016). Leaders must pay close attention to decentralization, assignment, and job design to avoid overlapping or unclear tasks among employees, hence limiting conflicts. Furthermore, they should notify and instruct staff on whom to contact and what steps to take if such problems arise. In addition, creating a friendly and mutually supportive cultural atmosphere should be promoted rather than just focusing on regulations and procedures. However, in some circumstances, role stressors can be beneficial by enhancing employees' inventiveness and spirit of overcoming difficulties. Managers must make use of this opportunity to find new ideas, boost team spirit, and so on.

During the Covid 19 pandemic, employees might face challenges with the new work environment and go through traumatic experiences, they will need to learn how to deal with complexity, how to adapt to the new reality of work, and they will need emotional and interpersonal support. Mental, emotional, and physical safety are being examined and organizations are implementing resources for employees. So, it is essential for business

managers and employees to become more flexible to the new situation. Organizations are engaging more with employees and learning what motivates them. Eisenberger et al. (2002) study affirmed that organizational support could help leaders to increase employee retention; this advantage can positively impact the organization's performance during and after the crisis.

4. Conclusion

Based on the theory of job demand - resources (JD-R), this study was conducted to provide a broader view of the composition and relationship amongst organizational climate, role stressors, and job retention. Accordingly, we emphasize the psychosocial safe climate and the team climate as a tool to prevent role conflict and ambiguity. Building and maintaining a good organizational climate is a long-term strategy to ensure the well-being of employees, motivating them to become more satisfied and engaged at work. In the context of the covid 19 pandemic, the links amongst organizational climate, role stressors, and job retention should be investigated more extensively, which helps organizations to have a more comprehensive view and develop strategies to build a sustainable organizational environment

Future research studies should perform quantitative analyses to test this proposed model, confirming and determining the relationships among factors; thereby building control solutions and developing effective organizational and human resource management strategies in the context of Covid 19 pandemic.

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MEANS OF COMMUNICATION PREVENT FAKE NEWS DURING COVID-19 PANDEMIC IN VIETNAM

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Abstract

Fake news is a painful problem for many countries worldwide, including Vietnam. The study was conducted to find out how the means of communication prevent fake news in Vietnam in the context of the COVID-19 pandemic showing no signs of stopping. The author used observation methods, in-depth interviews, and a sociological survey to conduct the research. Results show that in Vietnam, there is an extensive communication system. With which early and drastic involvement and coordination, communication has played an essential role in shaping the positive flow of information in social life in Vietnam. That has brought people progressive awareness, positive attitude, and right action during the epidemic. From there, the researcher proposes a communication model to prevent fake news. In which, the core role' social networks is emphasized as a key means of magnifying the influence of all information. At the same time, it affirms the decisive role of the official media as a reliable address to authenticate the information that the public is interested in. On that basis, the study recommends the combined use of social networks and official information channels in order to contribute to preventing fake news and cleaning up the information environment in social life.

Keywords: *means of communication, prevent, fake news, COVID-19, Vietnam.*

1. Introduction

The means of communication plays a vital role in social life. Especially in modern society, when the world is increasingly integrated and open, globalization is firm. They form chains of exchanging, receiving, and sharing information. From there, it helps each individual, organization, and a state agency have a broader view of the community and all aspects of social life. More importantly, through that understanding, the means of communication creates each individual's connection with organizations and state agencies. The most concentrated manifestation of modern means of communication is social media.

Besides the good things, social media's benefits are the negatives and negatives of society, such as violence, fraud, bullying... Especially the problem of fake news and misinformation, distorted. And this is very evident in the context of the COVID-19 pandemic that broke out and spread worldwide.

Due to their widespread social networks, many people are attracted to fake information, misinformation, or misrepresentation in Vietnam. However, along with the strong involvement of the Government, the means of communication system has also

been promoted its role in preventing fake news, misinformation, and distortion on social networking sites. Since then, they have been cleaning up the information environment, shaping the flow of positive information in social life makes an essential contribution to the anti-epidemic achievements that Vietnam has achieved and is working hard to maintain that achievement.

With the desire to clarify the activities of the means of communication in preventing fake news, misinformation, and distortions in Vietnam recently, focusing on the fight against the COVID-19 epidemic, the author has implemented research “Means Of Communication Prevent Fake News In Covid-19 Pandemic In Vietnam”.

Based on shown communication models such as Magic Bullet theory and Two-Step Communication and research results on how the media operate in Vietnam during the COVID-19 pandemic, the article proposes communication model to prevent fake news with the desire to contribute to preventing fake news, misinformation and disinformation in today's cyberspace. Thereby, this study contributing to cleaning up the information space not only during the COVID-19 pandemic but also in the future.

To achieve that goal, this article is built on the following sections: (1) summary of means of communication in Vietnam, (2) an overview of the state of fake news in Vietnam during the COVID-19 pandemic, (3) research methods and data, (4) research results and finally (5) conclusions.

Means of communication in Vietnam

“Communication is the exchange of messages between members or groups of a society to achieve mutual understanding” (Ta, N. T., 2001). At the same time, in that process, knowledge about science, technology, and cultural and spiritual values are also transferred. Because of communication, “natural people have developed into social people” (Luong, K. H., 2007). Thus, communication is an important activity that has contributed to the development of human society and separates us from other animals.

In Vietnam, there are many forms of communication (Luong, K. H., 2013) such as individual communication, group communication, communication, and communication through cultural institutions. Each type is divided into many different forms. For example, there are books, printed newspapers, leaflets, radio, television, electronic newspapers, and social networks in the means of communication. However, during the COVID-19 epidemic, several channels and means with appropriate advantages and strengths were widely used to contribute to raising awareness and changing attitudes and behaviors of people in dealing with COVID-19. Among them, we can mention the following:

Firstly, the means of communication such as radio, television, and electronic newspapers. The most significant advantage is the ability to reach many people in a short time; the information is constantly updated and the official source of information. In particular, this time, the SMS brand name messaging form was used, creating a very positive effect. Information about the epidemic of the authorities is sent directly to the phone number of each citizen.

Second, group communication with activities of social organizations, socio-political organizations. In Vietnam, most people participate in activities in organizations and participate voluntarily. Therefore, the strength of this communication channel is to ensure that the message reaches the right audience and is strictly enforced and enforced.

Third, communication through socio-cultural institutions such as cultural houses, markets, and places of community activities. This communication channel is aimed at the information centers of the communities, where people can easily access information about the epidemic if there are difficulties in accessing the data. The audience of this channel is usually the retired people, the elderly.

Fourth, communicate through the direct communication team, community COVID-19 groups. This communication channel is often used in cases where a case appears at a specific location to notify relevant people. This channel is very effective in emergencies.

Fifth, communication through social networking platforms (Facebook, Gazo, Lotus, TikTok, Twitter, Youtube, and Zalo). Social media is more than just a means of communication; it is more than a social platform. Most communication in modern society is done through social networks. Its advantage is that it is easy to access and share information anytime, anywhere with anyone.

🚩 Fake news and prevent fake news in COVID-19 pandemic in Vietnam

We have different definitions of fake news. The Cambridge Dictionary defines “fake news as false stories that appear to be news, spread on the internet or using other media, usually created to influence political views or as a joke”. Meanwhile, the Oxford dictionary defines “fake news as false reports of events, written and read on websites”. In addition, each science has different perspectives and offers other concepts about fake news (Andrew P. W., Ahmed A., Eric P. G., Julieta G., 2020).

Within the framework of this research, the author considers fake news as untrue information that misrepresents the inherent nature of things, a phenomenon that is spread and can cause social unrest.

Fake news about COVID-19 is false information about an epidemic, including how to prevent and control the disease, the activities of authorities during the epidemic, and related issues. Such data can cause social unrest, anxiety, insecurity in public opinion, fear of epidemics, and wrong actions in epidemic prevention and control.

Currently, fake news is a common and painful problem for many countries worldwide. In particular, in the context of the COVID-19 epidemic, false news causes even more severe consequences. “There had been many conspiracy theories and mis/disinformation about coronavirus. And now, false and misleading information related to vaccines are also being spread on social media platforms” (Khan Y. H., Mallhi T. H., Alotaibi N. H., Alzarea A. I., Alanazi A. S., Tanveer N., et al., 2020),

With about 3 billion users, social networks are the place to share and spread fake news faster than any other platform, despite efforts to control technology firms (Communist Party Of Vietnam Internet Newspaper, 2021). In Vietnam, the number of users of social

networks is about 72 million people (Laodong Internet, 2021), equivalent to 72% of the population. During the COVID-19 pandemic, fake news, disinformation, and misinformation were common, mainly on social networks. Most of the disinformation and fake news during the COVID-19 epidemic is news about the epidemic prevention and control measures of the Government and localities, about the vaccine allocation policy; calling for self-treatment and diagnosis at home, not following the instructions of the Ministry of Health; called for hoarding food, food and medical supplies (Communist Party Of Vietnam Internet Newspaper, 2021).

However, thanks to the intervention of the Government and functional agencies, the drastic news of the means of communication, then the fake information was quickly prevented, the phony news spreader was handled according to the regulation's provisions of law. Since then, they have been increasing the community's sense of responsibility. At the same time, people also expressed their harsh attitude to false information. Therefore, Vietnam is still controlling the epidemic and developing its economy with limited resources.

Researchers believe that communication can be used in social life based on communication theories such as the Magic Bullet theory (Harold Lasswell, 1927) and Two-Step Communication (Paul Felix Lazarsfeld & Elihu Katz, 1955) to prevent fake news, false information, distortion. Prevention is understood as early detection of fake news, the source of fake news, and quickly declaring to the public that it is fake news. Thereby stopping the spread and consequences of fake news, misinformation, and distortion in social life.

2. Method

Observation

When there is a notice of a case of fake news, false information, misrepresentation on social networks, researchers will find out how long it takes for fake news to be discovered by communication and how many people it reaches. The researcher then looks at how many shares the fake news gets and the consequences. At the same time, the researcher examines how many means of communication outlets have stepped in to unmask fake news and how many people the message reaches.

The researcher will evaluate the ability to detect and remove fake communication news through observation, mainly communication and fan pages on social networks.

In-depth interview

The researcher interviewed several individuals living in different provinces and cities about the COVID-19 epidemic. Through that, the researchers check whether the information they receive has fake information or not. If so, are they aware of it, how long do they know it's fake news, and if it has any consequences? Finally, check to see from where they know it's fake news.

Through the interview, the researcher will find out the information channel for the public to confirm whether the news about the epidemic is real or fake. At the same time, it also partially assesses the public's ability to detect fake news.

Survey

The researcher conducts a nationwide online survey to determine which information channels the public is interested in following, the fastest, most reliable, and used to share the most information. At the same time, check whether the information about the epidemic that people receive through the means of communication is valuable or not. Finally, check the public's trust in epidemic prevention and control activities to know if the means of communication works effectively or not.

Through a survey to find out what information channels the public trusts and which ones contain a lot of fake news, propose a communication model during the pandemic to meet society's information needs and prevention requirements anti-epidemic.

3. Results

Observations

Regarding the detected fake news, there are many, but the researcher only mentions a few typical examples.

From the end of January 2020, when the new disease spread in some countries around the world and Vietnam also recorded the first case of COVID-19 on January 23, 2020, fake information, false information, Distortion has appeared on social networking sites. Specifically, the message: "Tomorrow 1.2.2020 the whole city. Hanoi will have a helicopter with disinfectant strips against Coronavirus. Attention: From 4:00 to 7:30 a.m. tomorrow, everyone is restricted from leaving the house" Or "tonight the news will report that tonight our government sprays vaccine against Coronavirus in the sky nationwide" (Nhat L., 2021). Health authorities later refuted these messages. The message to prevent fake news is widely communicated to the people and society by electronic newspapers and national television stations.

Then, the end of March 2020 is when Vietnam begins to increase the number of community COVID-19 cases, and public opinion is very interested in information related to the disease. A series of fake news messages were detected, handled by the authorities, and sent a warning to the community. For example, "Punish the owner of 18 Facebook accounts for spreading fake news to block the whole Ho Chi Minh City", "Punish 10 million dongs of a young man who spreads fake news about the COVID-19 epidemic", and "Find out 20 Facebook accounts that spread news blockade Hanoi, will be strictly handled" (Chi H., 2020). These powerful messages are posted on online newspapers and Facebook pages' websites.

In Hue, at 9:00 am on March 30, 2020, through the social network Zalo, fake news was spread with the content: "Hue, tonight from 11:40 pm no one should go out. Doors and windows should be closed when five helicopters spray disinfectant into the air to kill the coronavirus. Please process this information for all your contacts." In the afternoon of March 30, 2020, fake news was handled by the authorities, and at about 8 pm on the same day, many online newspapers reported that they rejected fake news and sent warnings to the people.

She was also related to the spread of “helicopter spraying disinfectant”. Accordingly, in Gia Lai, fake news was spread at 13:00 on March 31, 2020, with the content: “Tonight 11.40 pm everyone should stay at home with all windows closed because there will be five helicopters spraying insecticide for disinfection, please inform your friends” (Van N., 2021). The message carrying fake news was sent to 51 people via the social network Facebook. On April 2, 2020, the authorities detected and handled fake news. By 12:55 p.m. on April 2, 2020, Public Security News had rejected fake news and sent a warning message to the public through the newspaper's website and social media fan page.

At the end of July 2021, the COVID-19 epidemic was very stressful in Ho Chi Minh City. A series of fake news, false information, and distortions have been discovered. Messages aimed at preventing phony transmission were also quickly released. Specifically, on July 26, 2021, the statement carried fake news “Tonight from 11:40 pm, no one should go out. Doors and windows should be closed when five helicopters spray disinfectant into the air to kill Coronavirus” (Luu Q., 2021). Bewildering fake news about Covid-19 has flourished on Facebook, YouTube, and TikTok, many of which come from celebrities who claim to be doctors (The Socialist Republic Of Vietnam Government Portal, 2021).



Figure 1. Message carrying fake news about five helicopters spraying disinfectant in Ho Chi Minh City (Giadinh.net, 2021)

In addition, the researcher also found that in residential areas with outbreaks of disease, the grassroots loudspeaker system, and direct communication were promoted, sometimes 15 to 20 times a day in some places, no one is left behind. Both inform people about the epidemic situation and prevent and remove fake news about the epidemic. Therefore, people are always assured of complying with the authorities' epidemic prevention and control measures.

Above are some typical observations about the spread of fake information about COVID-19 on social networks. Also, by word, the researcher found that communication can prevent fake news about COVID-19 by quickly and promptly transmitting messages to eliminate fake news and provide warnings. Inform the community through social networks.

In-depth interviews

The researcher has randomly interviewed 12 people through social relationships and acquaintances through social networks. The selected people are active in social interaction, including men and women, living in urban and rural areas, with education levels ranging from high school to university to graduate school. The selected people include people who live or work in Bac Giang, Bac Ninh, Dong Nai, Hanoi, and Ho Chi Minh City (localities with large industrial centers, which were once the center of Vietnam COVID-19 pandemic) from January 5, 2020, to October 2021 (when the Government issued Resolution 128, marking a new turning point in epidemic prevention and control in Vietnam).

According to sociological studies, the maximum natural size of chat groups can be up to 150 people (Yuval N. H., 2019). We can infer that interviewing 13 people actively socializing can equate to data from 1950 people.

Characteristics of survey participants: mean age 38.85, of which there are 8 males (61.5%) and 5 females (38.5%), 9 people (69.2%) in urban and 4 (31.8%) in the countryside. 9 people (69.2%) have college or higher education, and 4 (31.8%) have upper secondary education. They have diverse occupations: sales, street vendors, teachers, entrepreneurs, engineers, repairers, freelancers, office workers, farmers, students, advertising.

Analysis data from the results of 13 in-depth interviews showed that: 5 people (38.5%) said that they knew information about the epidemic from the end of 2019, the rest (8 people, 61.5%) said that they knew information about COVID-19 in early 2020. In which, updating information from social networks (Facebook, Zalo) has 10 people (76.9%), from online newspapers (Baomoi, Dantri, VnExpress) (App), Web) has 9 people (69.2%), from television (current news program at 19h VTV1) has 8 people (61.5%). Besides, there are other sources of information such as live chat, commune radio, groups (Group Zalo).

When asked if they have ever received fake news related to COVID-19, 100% of respondents confirmed receiving fake news, 5 people (38.5%) said there was a lot of fake news, with contents such as disease origin, outbreak somewhere, blockade, and isolated area; the number of positive cases, the number of deaths is exaggerated; information regarding vaccines. The spread of fake news was mainly Facebook and Zalo social networks, a few through live chat.

In the early stages of the epidemic (2020), 5 people (38.5%) confirmed that they had shared information about COVID-19 and then learned it was fake news and the channels they shared were Facebook and Zalo. In particular, one case (7.7%) shared fake news on the Zalo group with about 1000 people. But now (2021), 100% of respondents said they all authenticate information about COVID-19 through official channels such as news at 7 pm on VTV1, Zalo of the Ministry of Health, the Government's fan page, and online newspapers on Facebook. Then, if necessary, they share it with their love.

Accordingly, fake news makes people (11 people, 84.6%) confused, worried, and scared. Some people are afraid of being abandoned; others are scared of death. Besides, fake news about COVID-19 also caused a particular turmoil in social life when many people (4

people, 31.8%) rushed to buy groceries, leading to food shortages in transient and high risk of disease transmission. Since then, the authorities' anti-epidemic work and vaccination activities have been affected.

When asked about dealing with fake news related to COVID-19, there were 6 people (46.2%) willing to express their attitudes, some to oppose immediately, some to ask for verification and correction, and some to report it with authorities. The rest (7 people, 53.8%) let it go because they knew it was fake news. And out of 13 respondents, there are 8 people (61.5%) who said they still share and warn their loved ones about fake news related to COVID-19.

Thus, in Vietnam, after about two years of the disease outbreak, with a lot of fake news being spread in cyberspace, mainly on social networks, people can now distinguish fake news about COVID-19. And information authentication channels are official sources of authorities, the Government, the Ministry of Health, online newspapers, commune radio.

Surveys

The nationwide survey was conducted on the Google Form platform from November 11 to December 1, 2021. After sending the survey link to about 2500 people, 382 people, averaging 29.7 years old, answered the questions. Although this percentage is not high, the active participants in social communication may represent most people who regularly participate in information flow in social life. Therefore, the data can be used in making judgments and conclusions for scientific research.

According to survey data, most people access the epidemic from two or more sources (227 people, 59.4%). Social networks (Zalo, Facebook, Youtube, TikTok, Lotus, Gapo) are the most accessible information channels (320 people, 83.8%).

In another question, when asked about the fastest news source, 242 people (63.4%) chose social networks. However, only 16 people (4%) believe that information from social networks is reliable—instead, television with 298 people (78%) was selected as the most reliable information channel.

Answering the question about the ability to distinguish fake news from official information from the authorities, 272 people (71.2%) of the respondents confirmed to determine fake news. As for assessing the usefulness of information related to the epidemic, 358 people (93.7%) said the report was helpful to them. At the same time, up to 239 people (62.6%) regularly share information related to the epidemic. And 160 people (41.9%) of them choose social networks as the main information-sharing channel besides live chat (96 people, 25.1%) and phone calls (82 people, 21.5%). Therefore, most people (372/379 people, 98.2%) affirm their belief in epidemic prevention and control in Vietnam.

4. Discussion and Conclusion

4.1. Discussion

Over the past two years, since the outbreak in Wuhan, China, around the world there have been thousands of studies related to the COVID-19 pandemic. Especially those related to the communication, means of communication and issues such as fake news,

disinformation, misinformation and their consequences. Studies have been carried out and focused on many different aspects. For example, theoretical studies on the problem of fake news such as *Inoculating Against Fake News About COVID-19* by Sander van der Linden, Jon Roozenbeek and Josh Compton (2020) or *Fighting an Infodemic: COVID-19 Fake News Dataset* by Patwa, P. et al. (2021). Studies on modeling factors to predict fake news such as *Fake news and COVID-19: modeling the predictors of fake news sharing among social media users* by Oberiri Destiny Apukeab and Bahiyah Omara (2021) and *Research Model Generalization on COVID-19 Fake News Detection* by Yejin Bang, Etsuko Ishii, Samuel Cahyawijaya, Ziwei Ji & Pascale Fung (2021). And a lot of research on the problem of fake news like *Infodemic and the spread of fake news in the COVID-19-era* (2020) and *Regulation of COVID-19 fake news infodemic in China and India* (2020). However, almost no research has proposed to build a communication model to prevent fake news based on the coordination chain of the media. In which, the role of social networks and mainstream media is emphasized.

During the COVID-19 epidemic, fake news is a common problem in many countries, including Vietnam. Insensitive times, when there is a positive case, when an area is blocked or isolated when the epidemic situation becomes stressful, there are certain confusions in the public consciousness. That was when people received a lot of information, including fake news.

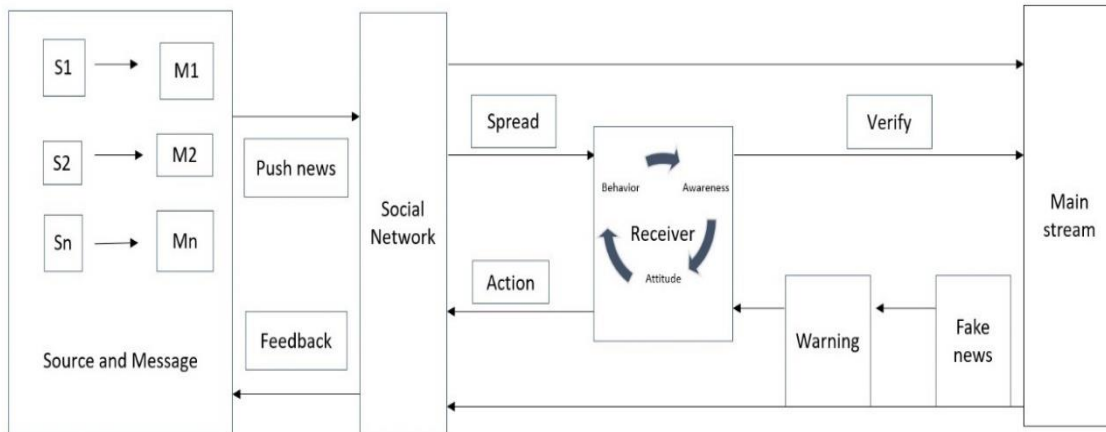
Fake news during the COVID-19 epidemic causes many consequences such as people rushing to buy food to stock up, leading to social unrest, panic, worry, fear, fear of abandonment... Therefore, it is necessary to participate and cooperate in the means of communication system to prevent and eliminate fake news.

Among those means of communication, special attention should be paid to social networks because it is a means of communication and a social platform, a virtual society. Social networks are the most popular social media today, with billions of users. And fake news also mainly follows social networks that spread to the public. According to the in-depth interviews, a case once shared fake news with a group of about 1000 people.

However, after participating in social networks, users have also realized the need to verify unofficial sources to avoid sharing fake news. This is also an opportunity for official news sources and other means of communication such as newspapers, radio, television, and personal touch to promote their roles. An essential requirement is the quick detection of fake news and the source of fake news to verify and clarify information promptly. Since then, it has become a reliable address for the public to confirm information about the disease and share when necessary.

From that practice, based on the theory of communication models such as Lasswell's one-way communication model, Claude Shannon's two-way communication model, Shannon and Weaver's communication model, David Berlo's model, communication model of Charles Osgood and Wilber Schramm, model of convergence of Kinkaid, model of social marketing (Nguyen V. D., Do T. T. H., 2012), and practical in preventing fake news in Vietnam recently, the author proposes a communication model called "communication model against fake news". The model is shown in the figure below.

Figure 2: Communication model against fake news



Inside:

- S(1-n): are sources of information
- M(1-n): are the messages of the sources from S1 to Sn, respectively.
- Push news: is the process by which news sources push information to social networks
 - Social network is the platform through which news sources carry out the communication and social communication process.
 - Spread: information spreads on social networks.
 - Receiver: the place to receive communication messages, individuals, social groups, or large or small with cognitive, attitude, and behavioral factors.
 - Verify: the receiver of communication messages authenticates the information received.
- Mainstream: official news sources will reject the public's message if it is fake news.
 - Fake news: fake news is detected after the authentication process.
 - Warning: official news sources, after detecting fake news, issue a warning message to the place that has received and wait for information verification. At the same time, social networks send warnings to the community at large.
 - Feedback: the social network has responded to the original news sources. The content is the reaction of the official news source and the attitudes and behavior of the public that have received fake information.

4.2. Conclusion

Based on communication models built from past studies and the results obtained by this study, we conclude that, through building and implementing chains of coordination between means of communication, the Vietnamese government has effectively prevented fake news about the COVID-19 epidemic. From there, we propose to build a model to prevent fake news to deal with similar problems in the future, thereby contributing to protecting the public by cleaning up the information environment on the internet. In which, social networks and mainstream media play a decisive role.

4.3. Limitations of the study

The epidemic context in Vietnam is the space in which the research was conducted. Therefore, in addition to certain advantages, the study also has limitations. Firstly, the survey implementation was carried out entirely by questionnaire online, by simple random method. Second, the number of samples was limited (382). Therefore, the generalizability of the study may not be confirmed. However, we believe that the fake news prevention model proposed by the study is the basis for the future development and improvement of the model for the sake of social progress and development.

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RESEARCH ON FACTORS AFFECTING PHUBBING OF STUDENTS IN THE CONTEXT OF COVID-19

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Abstract

This study proposes a structural model of the relationships among fear of COVID-19, FOMO and phubbing by two factors: communication disturbances and phone obsessions to explore how these factors affect each other. Students from universities in Vietnam were randomly selected to participate in the questionnaire study. In this research, Exploratory Factor Analysis was performed to test the validity of the constructs, and using AMOS with the Confirmatory Factor Analysis was used to test the significance of the proposed hypothesis model. Results about the relationships between fear of COVID-19, fear of missing out, communication disturbances and phone obsessions were revealed. Specifically, fear of COVID-19, fear of missing out were found to have a positive impact on phubbing by two factors: communication disturbances and phone obsessions. Fear of COVID-19 was found to be positively related to fear of missing out. The research reveals that fear of COVID-19 has the most impact on phubbing, followed by FOMO.

Keywords: *Fear of COVID-19, Fear of missing out, Phubbing*

1. Introduction

In recent years, people have witnessed the great innovation of information technology and means of communication (Gummesson, 2004) and smartphones were indispensable in daily life (Oulasvirta et al., 2012). Admittedly, smartphones have a lot of perks. However, it also causes users some physical or mental problems (Baron & Campbell, 2012). A new term “phubbing” was introduced and defined as a behavior in which people are so concentrated on the phone that they ignore other people in communicative situations (Haigh, A. 2015). “Phubbing” results in several detrimental effects and there are some studies about reasons for these activities in the world. For instance, “Phubbing” might originate from phone addiction (Chotpitayasunondh & Douglas, 2016) or instability in people’s character (Çikrikci et al., 2019).

According to Karadağ et al. (2015) smartphone addiction impacts phubbing. From a technological and psychological point of view by Chatterjee (2020), research has shown that

smartphone addiction is a major factor affecting phubbing. Besides, social media plays a mediating role in the relationship between the fear of missing out and phubbing in students (Fang et al., 2020). In context of the COVID-19 epidemic, there have been studies showing the relationship between the fear of COVID-19 and mobile phone addiction - one of the factors that causes phubbing. Kayis et al. (2021) investigated the relationship between COVID-19 fear and mental health, by examining the mediating role of loneliness and smartphone addiction. The results showed that fear of COVID-19 can affect mental health through loneliness and smartphone addiction, respectively. Based on the findings of the study, it can be seen that a higher fear of COVID-19 can cause higher levels of smartphone addiction. This is further proven in the study by Albursan et al. (2021) with the results showing that anxiety about COVID-19 can lead to smartphone addiction with all its negative psychological effects physically. In Vietnam, there is almost no research to find out underlying causes of phubbing and awareness about these problems is not high. Therefore, this study aims to measure the factors affecting undergraduates' phubbing and give several solutions to improve these situations. In addition, provided with fear of COVID-19, this research becomes more relevant than those before in COVID-19 context. With two factors: Communication disturbances and phone obsessions make this study clearly confirm a significant relationship between fear of COVID-19, FOMO and phubbing.

In order to meet the research goals, the quantitative method was used. Furthermore, the ANOVA and t-test approaches were also applied to investigate the differences in the phubbing between undergraduates groups, according to gender, years of undergraduate education and average phone usage time.

2. Literature Review

Phubbing can be described as an individual looking at his or her mobile phone while conversing with others, handling the mobile phone and exiting communication between other people. The term "phubbing" became known and widely used when it was included in an update of the famous Macquarie Dictionary in 2012. The update team combined the two words "phone" and "snubbing" to create "phubbing". According to Roberts & David (2016), phubbing is a social behavior related to smartphone use, in which the user ignores his or her interlocutor to use their phones. In discussions, phubbing disrupts the sense of communication (Kadylak et al., 2018), leaves an impression of impoliteness and impatience, and creates poor quality conversation (Abeele et al., 2016). To date, several studies have been conducted on the factors that impact the phubbing within a higher education institution. Some studies focused on the impact of smartphone addiction, SMS (message) addiction, social network addiction, Internet addiction and to some extent game addiction to phubbing. Davey et al. (2018) showed that Internet addiction, smartphone addiction have an effect on phubbing. In addition to addictions, Davey et al. (2018) further investigated that fear of missing out (FOMO) and self-restraint also predict phubbing. The study by Chotpitayasunondh & Douglas (2016) revealed that Internet addiction, FOMO, and self-control affected phubbing. Saggaf (2020) examined the relationship between boredom, FOMO and phubbing. According to this study, boredom also significantly predicts phubbing by mediating FOMO.

In the context of the COVID-19 pandemic, only a few studies have attempted phubbing. The study of Zhao et al. (2021) has been undertaken to investigate the factors peer phubbing on students in China. Research showed that the behavior of phubbing is positively correlated with smartphone addiction. In other words, students who were phubbing a lot were more likely to be addicted to smartphones. This is explained by Zhao et al. (2021) because during the COVID-19 pandemic, when schools are closed, interaction between students and friends becomes more important. Kayis et al. (2021) investigated the relationship between fear of COVID-19 and mental health, by examining the mediating role of loneliness and smartphone addiction. The results showed that fear of COVID-19 can affect mental health through loneliness and smartphone addiction, respectively. Based on the findings of the study, it can be found that a higher fear of COVID-19 can cause higher levels of smartphone addiction. In another aspect, in the study of the relationship between the phubbing, loneliness, self-esteem and Facebook, Błachnio & Przepiórka (2019) examined the phubbing by two factors: communication disturbance and phone obsession. Research results show a negative relationship between communication disturbance and life satisfaction. Butt & Arshad (2021) indicated that the fear of missing out predicts phubbing including communication disturbances and phone obsessions. A research of Blanca & Bendayan (2018) also found that FOMO was positively associated with both factors of phubbing by two factors: communication disturbances and phone obsessions.

The fear of COVID-19 has a direct impact on smartphone addiction. Although smartphones have many positive benefits, smartphone use problems are specifically associated with excessive and social media use problems (Kuss & Griffiths, 2017). Cell phones help people find information related to COVID-19 and communicate with others while in quarantine (Deursen, 2020). Although cell phones make life easier when used properly (Fino & Mazzetti, 2019; Gavali et al., 2017), if you use in excess, smartphone use can disrupt physical and mental health (Lapointe et al., 2013; Oh & Kim, 2020). According to Kayis (2021), one reason that fear of COVID-19 has increased smartphone addiction and negatively affected lives is that almost all people have to spend time staying home more often because of the pandemic. Research by Montag et al. (2021) observed positive associations between COVID-19 fear and smartphone addiction.

Besides, smartphone addiction is also a determining factor in phubbing. According to research by Karadag et al. (2015), phubbing is the sum total of all virtual addictions. Phubbing can be limited if phone addiction is controlled (Chatterjee, 2020). Furthermore, phubbing is considered the norm (Chotpitayasunondh & Douglas, 2016). Therefore, this research generalizes, supplements this new scale in the proposed model and examines the phubbing by two factors: communication disturbance and phone obsession. Hence, two hypothesis were proposed:

Hypothesis 1a (H1a): *There is a positive relationship between fear of COVID-19 and communication disturbance.*

Hypothesis 1b (H1b): *There is a positive relationship between fear of COVID-19 and phone obsession.*

Social networks allow us to connect with social contacts both online and offline, and this connection is equally important. As a result, not being able to contact or keep up with people online can lead to feeling out of touch with the “reality” world (Clayton et al., 2015). Fear of being socially excluded plays an important role in experiencing FOMO (Abel et al., 2016). The intense COVID-19 epidemic has completely changed academic and daily life, universities, fearing the spread of the epidemic, have turned to online teaching. Therefore, the study, work and exchange of students in particular have moved to a digital platform, which also means that they feel it is even more necessary to maintain online communication so as not to miss work or interacting with friends.

Franchina et al. (2018) showed that the FOMO has an impact on phubbing. Blanca & Bendayan (2018) have researched with Spanish adults, the study showed the relationship between FOMO and phubbing, in that phubbing is divided into two elements. The results showed that FOMO was positively associated with both elements of phubbing. A research of Butt & Arshad (2021) with university students who abused their phones in Pakistan also came to the same conclusion as previous studies. In particular, FOMO has a relationship with phubbing, including communication disturbances and phone obsessions. FOMO has also been shown to have an indirect effect on ignoring others to use the phone through smartphone addiction in an earlier study (Chotpitayasunondh & Douglas, 2016). FOMO impact on different objects and spaces, hence this study hypothesized the following:

Hypothesis 2a (H2a): *FOMO is positively related to communication disturbance.*

Hypothesis 2b (H2b): *FOMO is positively related to phone obsession.*

Many studies have shown that the COVID-19 pandemic has posed serious threats to people's physical health and life such as anxiety and stress (Dong & Zheng, 2020). And health anxiety is also one of the factors that cause fear of COVID-19 (Mertens et al., 2020; Jungmann & Witthöft, 2020). Health anxiety refers to the tendency to misinterpret normal or benign physical symptoms and believe that a person has or is suffering from a serious illness, in the absence of any actual illness (Abramowitz et al., 2007). Research by Mertens et al. (2020) has shown that health anxiety is associated with increased fear about the current COVID-19 pandemic. Particularly, in addition to concerns about their own health and safety, that of others, and related safety and prevention behaviors, respondents are also concerned about the impact of COVID-19 on the health care system, economy, society, job loss and change in daily routine...

According to Goncalves et al. (2020) and Oosterhoff et al. (2020), during the COVID-19 pandemic, a higher level of health anxiety can increase the level of social distancing and stay at home to limit prevent contact. COVID-19 precautions taken by national governments during the pandemic have also caused individuals to spend a lot of time alone because of self-isolation and limited social interaction. This promotion of social distancing, together with the decline in social activities and social capital during the epidemic, may increase the level of fear of missing out because of unmet social needs (Casale & Flett, 2020). From the above study, this research hypothesized the following:

Hypothesis 3 (H3): *There is a positive relationship between fear of COVID-19 and FOMO.*

The following figure summarizes the theoretical framework for this research with the following factors: Fear of COVID-19, FOMO and phubbing.

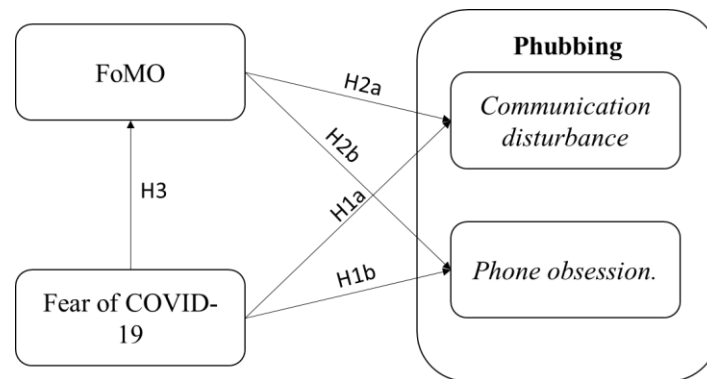


Figure 2. Proposed research model

3. Method

3.1. Research Design

A questionnaire was formed based on the literature review and was modified based on the results of interviewing with twenty undergraduates. The last questionnaire included 35 objects. 5-Point likert scales would be evaluated, whereby 1 = totally disagree, 2 = somewhat disagree, 3 = neither agree nor disagree (neutral), 4 = somewhat agree, and 5 = totally agree.

The data were gathered from November 2021 to February 2022. A non-probability sampling method was carried out in the formal survey stage, and a total of 403 responses were received from the North of Vietnam. The 95 bias observations were eliminated. Finally, there were 308 observations valid for analysis in the future, all of which were from the online survey via Google Forms. Table 1 shows the descriptive statistics of the participants' demographics.

Table 1. Descriptive statistics of participants' demographics

Variables		N	%
Gender	Female	221	71,7%
	Male	87	28,3%
Years of undergraduate education	Freshman	59	19,2%
	Sophomore	67	21,7%
	Junior	165	53,6%
	Senior	17	5,5%
Average Phone Usage Time	< 1 hour	4	1,3%
	1 - 3 hours	47	15,3%
	4 - 6 hours	133	43,2%
	> 6 hours	124	40,2%

According to Table 1, the ratio of females to males is 71,7% and 28,3% respectively. In terms of years of undergraduate education, the majority of undergraduates (53,6%) fall into the Junior group, 21,7% fall into the Sophomore group, 19,2% fall into the Freshman

group, and only 5.5% of the undergraduates are Senior. With targeted participants and research objectives, the majority of learners use phones on average over 4 hours per day (83,4%), up to 43,2% and 40,2% were the proportions of 4 - 6 hours and over 6 hours, respectively while the number of undergraduates using phones under 1 hour and from 1 to 3 hours a day only account for 1,3% and 15,3%, respectively.

3.2. Data Analysis Techniques

Firstly, the t-test and ANOVA approaches were adopted to determine the differences in “phubbing” between undergraduates groups, according to gender, years of undergraduate education and average phone usage time. Then, SPSS were applied for determining sample features consists of sex, age, sector, phone time, communication time... according to their demographic characteristics. Next, Cronbach's alpha reliability coefficient was used to analyze reliability of data and scales therefore we can remove variables with small correlation coefficients. Then, Exploratory Factor Analysis (EFA) was employed to eliminate variables with small parameters by checking factor loading and extractable variance. By using Confirmatory Factor Analysis (CFA), observed variables were tested about quality. Structural Equation Modeling (SEM) was employed to show relationships between latent variables and check research hypotheses. By regression analysis, the research can evaluate the impact of the independent variables: FOC (Fear of Covid-19), FOMO (Fear of missing out) to dependent variables: FO (Phone obsession) và CD (Communication disturbance).

4. Result

4.1. T-test and ANOVA

Table 2 presents a summary of t-test and ANOVA results to demonstrate the difference between undergraduates’ phubbing among demographic variables.

Table 2. Summary of and t-test and ANOVA results

Group	Dependent Variable	Sig. of Levene's Test	Sig. of t-test/Welch/F Test	N	Mean
Gender		0.182	Sig. of t-test 0.009		
Female	Phone obsession			221	2.353
Male				87	2.203
Years of undergraduate education	Communication disturbance	0.325	Sig. of F Test 0.018		
Freshman				59	2.192
Sophomore				67	2.497
Junior				165	2.240
Senior				17	2.765
Average Phone Usage Time	Phone obsession	0.695	Sig. of F Test 0.000		
< 1 hour				4	2.250
1 - 3 hours				47	2.759
4 - 6 hours				133	3.125
> 6 hours				124	3.368

The difference in the phubbing of undergraduate groups is summarized hereafter. Regarding gender, there is a difference in phubbing between the sexes, shown by the sig. of the t-test being <0.05 . More specifically, the mean value shows that female students are more likely to have a phone obsession than male students.

Concerning years of undergraduate education, there is difference phubbing between these year groups, shown by the sig. of the F test being <0.05 . More specifically, the mean value of the year of undergraduate education shows that communication disturbance ability increases in the order of the following groups: Freshman, Junior, Sophomore and Senior.

In terms of average phone usage time, there is a difference in the phubbing among undergraduate groups with different time spent for phone, shown by the sig. of the F test being <0.05 . More specifically, the mean value of the groups shows that phone obsession rate increases by the level of time spent on the phone.

4.2. Measurement Proposed Research Model Assessment

Firstly, to evaluate the reliability and validities of the measures, the data were examined through the exploratory factor analysis (EFA). Then, the statistics were included in the SEM model on Amos Graphic version 20. The SEM model contained four constructs, namely fear of COVID-19, FOMO, phone obsession and communication disturbance. To test measurement of this model, composite reliability, the convergent and discriminant validity were carried out.

Table 3 shows several fingers to measure convergent validity and reliability of the model, all of the quality standards were reached. In particularly, factor loadings were greater than 0.7 (Hair et al., 2010), Cronbach's alpha values were above 0.7 (Fornell et al., 1981), composite reliability (CR) values were higher than 0.7 (Hulland et al., 1999), and average variance extracted (AVE) values were upper than 0.5 (Hair et al., 2016) respectively.

Discriminant validity is the degree to which items recognize constructs. The table 3 indicated that the square root of the average variance extraction is greater than the inter-construct correlations (Fornell et al., 1981). Regarding the cross-loadings standard, to assure the discriminant validity of the construct, the factor loadings of each item have to be greater than the rest of its cross-loadings (Hair et al., 2021). Table 4 presents the square roots of AVEs which are the diagonal elements in bold (Diamantopoulos & Sigauw, 2007), and the off-diagonal elements are the bivariate correlations between two constructs. All the diagonal elements are larger than any other correlation coefficients, so discriminant validity criterion was achieved.

Table 3. Convergent validity and reliability

Onstructs	Items	Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Fear of COVID-19 (FOC)	FOC1	0.743	0.864	0.866	0.565
	FOC2	0.862			
	FOC3	0.774			
	FOC5	0.800			
	FOC6	0.784			

Onstructs	Items	Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Fear of missing out (FOMO)	FOMO1	0.843	0.775	0.781	0.544
	FOMO2	0.834			
	FOMO3	0.774			
Communication disturbance (CD)	CD1	0.792	0.777	0.777	0.539
	CD2	0.828			
	CD3	0.798			
Phone obsession (FO)	FO1	0.787	0.762	0.763	0.518
	FO2	0.749			
	FO3	0.845			

Table 4. Discriminant validity

Scales	FOC	CD	FOMO	FO
FOC	0.751			
CD	0.422	0.738		
FOMO	0.413	0.369	0.735	
FO	0.422	0.629	0.352	0.720

Table 5. Hypotheses testing

Relationship	Hypothesis	Std. Beta	Sig.	p Values	Decision
FOC->CD	H1a	0.34	0.000	0.000	supported
FOC->FO	H1b	0.35	0.000	0.000	supported
FOMO->CD	H2a	0.25	0.000	0.001	supported
FOMO->FO	H2b	0.24	0.000	0.003	supported
FOC->FOMO	H3	0.41	0.000	0.000	supported

Note: FOC: Fear of COVID-19; FO: Phone obsession; CD: Communication disturbance; FOMO: Fear of missing out.

In table 5, the outcome of hypothesis testing by SEM model and the fulfillment of this standard for all the subscales, indicating the discriminant validity of the tested

instrument. The values of sig in all hypotheses are less than 0.05. Therefore, there is linear correlation between independent variables and dependent variables.

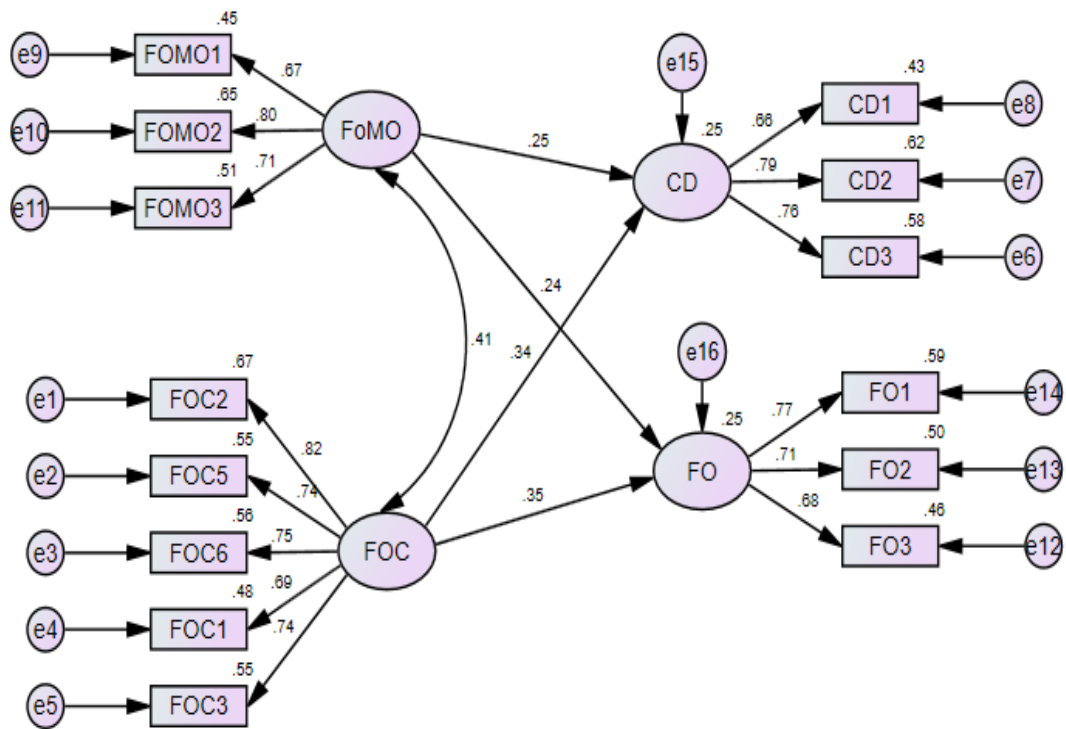


Figure 3. Confirmatory Factor Analysis Result

4.3. Testing Research Hypotheses

Table 5 and figure 3 indicate the relationships between four variables in the model. In particular, phubbing presented by phone obsession (FO) and communication disturbance (CD) shares a significant relationship with fear of COVID-19 (FOC) and fear of missing out (FOMO) ($p < 0.05$). In addition, this result illustrates the correlation between 2 independent variables which are fear of COVID-19 and fear of missing out. Therefore, all hypotheses in the research model were fully supported. Among these hypotheses, the relationship between fear of COVID-19 and fear of missing out was the most effective correlation ($\beta = 0.41$, $p = 0.000$). The second and third strongest relationships were that fear of COVID-19 had an impact on phone obsession and communication disturbance, respectively ($\beta = 0.35$, $p = 0.000$; $\beta = 0.34$, $p = 0.000$). Fear of missing out were also significant factors that affected phone obsession and communication disturbance ($\beta = 0.24$, $p = 0.001$; $\beta = 0.25$, $p = 0.003$, respectively). Therefore, Standardized Regression Equations are $Y (FO) = 0.35 FOC + 0.24 FOMO + \varepsilon$ and $Y (CD) = 0.34 FOC + 0.25 FOMO + \varepsilon$.

For the hypothesized structural model, the RMSEA is 0.065, demonstrating a “moderate fit” because 0.065 is less than 0.08 (Hu & Bentler, 1999). All other fit indices above the recommended threshold values (CFI = 0.945 > 0.09, GFI = 0.928 > 0.90; TLI = 0.929 > 0.90) (Diamantopoulos & Siguaaw, 2007), illustrating that the tested model is a sound structural Model. Table 5 and Figure 3 above represents the hypothesis test results.

5. Discussion and Conclusion

In conclusion, our analysis results have confirmed three of the proposed hypotheses in the theoretical framework regarding determinants of phubbing from the perspective of fear of COVID-19 and fear of missing out. Regarding hypothesis 1, the result indicates that fear of COVID-19 is positively related to phubbing by both two factors: communication disturbances and phone obsessions. This finding corroborates (Deursen, 2020) smartphones that provide internet access can be useful equipment for finding information related to COVID-19 and communicating with others in quarantine. Beside, the increasing trend of smartphones will form the basis of phubbing Karadag et al. (2015).

Next, the obtained results demonstrate that fear of missing out (FOMO) had a significant influence on phubbing. This finding provides a comprehensive assessment of how FOMO affects phubbing. In fact, FOMO promotes people's phone usage, social media usage so that they feel secure that they are not missing out on anything like events, life opportunities (Abel et al., 2016). In addition, people with higher levels of FOMO are more likely to abuse their phones under any circumstances to address their anxiety. This helps the person to keep up with the happenings online, but at the same time it also directly affects their actual social interactions, leading them to phubbing (Ofcom, 2018). The findings are also logical with the results of other studies in phubbing Blanca & Bendayan (2018) in that the relationships of FOMO and phubbing by two factors: communication disturbances and phone obsessions are strongly consistent with the proposed hypotheses.

The final hypothesis of this study, which states that the higher fear of COVID-19 the more positive fear of missing out is, has been validated and supported. This is also in line with previous research. The work of (Casale & Flett, 2020) demonstrated that promotion of social distancing along with the decline in social activities and social capital during the epidemic may increase the level of fear of missing out because of unmet social needs application.

The t-test and ANOVA results indicate that there is a difference between groups of students. More specifically, the phone obsession by females is more than that by males. The mean value of the groups shows that phone obsession rate increases by the level of time spent on the phone. With communication disturbance ability increases in the order of the following groups: Freshman, Junior, Sophomore and Senior.

The finding of this research is logical with the previous studies. However, provided with fear of COVID-19, this research becomes more relevant than those before in COVID-19 context. With two factors: Communication disturbances and phone obsessions make this study clearly confirm a significant relationship between fear of COVID-19, FOMO and phubbing.

In conclusion, our study has provided a theoretical model to understand the relationships between fear of COVID-19, fear of missing out and phubbing. By using the SEM method, this study adds empirical support to the literature and has tested three hypotheses related to the fear of COVID-19 and fear of missing out affecting phubbing. According to the results in this study, these results have identified several advantages that will be helpful for declining phubbing in school. Furthermore, the results also suggest that decreasing the link between fear of COVID-19 and fear of missing out is highly

recommended to reduce phubbing in students. This study recommends that the students should have more outdoor activities that help their mental health and balance life. In regard to school, the results show that the school should teach students how to use the Internet well.

Although this study contributes to the theoretical and educational implications, the model used in this study should be more developed in regard to life satisfaction in the future. Namely, a different construct could be introduced and tested as it may have a strong impact on promotional activities and expectations. In addition, future studies with larger samples could be conducted to allow for comparisons between regions' behaviors. Besides, the survey sample collected is not equal in quantity between universities and is limited to the university in the capital of Vietnam. However, the study could be further expanded when considering these factors in the future.

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ANALYSIS OF FACTORS INFLUENCING MIGRANT LABORERS' RETURN INTENTION IN THE COVID-19 PANDEMIC BASED ON THE PPM THEORETICAL FRAMEWORK

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Abstract

By applying the push - pull - mooring model (PPM) and PLS-SEM, the study aims to examine the urban-returning intention of laborers in the Covid-19 pandemic with nearly 600 laborers who came back to their hometowns due to the impact of the pandemic nationwide. Our empirical results show that personal-family characteristics act as factors pushing laborers to leave their homeland; urban attractiveness acts as a pull factor, attracting laborer to return to work. The cognition of the “Responding to the Covid-19” solutions plays a moderating role in this model and acts as a mooring factor keeping laborers in their homeland. The results of the study can be served as a basis for policymakers in implementing measures to help attract and retain migrant laborers in the Covid-19 pandemic.

Keywords: *Covid-19, migration, intention to return to urban areas.*

1. Introduction

Migration is an unavoidable trend of the labor division of the development process, which occurs frequently when there are differences in opportunity, social variables, and the network of connections between the origin and destination countries (General Statistics Office of Vietnam and United Nations Fund Population Agency, 2016). This is also an important factor contributing to socio-economic development, especially domestic migration. In the face of adversity, such as the Covid-19 pandemic, migration is not only a necessity, but also an unavoidable option for the majority of laborers. According to Mukhra

et al. (2020), in the case of a government enforcing social separation, movement restrictions result in a higher rate of job loss and the fear of an unstable future economic existence so laborers begin to return to their hometown. This causes a labor surplus in rural areas and a labor shortage in urban areas (Singh & et al., 2020).

The majority of migration studies focus solely on first-time migration, neglecting to discuss migration intentions or return migration (second-time migration). In particular, in the Covid-19 pandemic, migrant laborers from urban to rural areas account for a sizable proportion of the population, making the study of the intention to return to urban areas for work become a new urgent issue. According to the results of the quick summary of reports of provinces and municipalities, on December 15, 2021, the country had about 2.2 million migrants, including up to 80% of laborers from big cities such as Hanoi, Ho Chi Minh City,... returning to the locality due to the pandemic's impact, resulting in a huge labor shortage in urban areas and a labor surplus in rural areas (Ngan Anh, 2021). Therefore, the findings of the study can be used as a foundation for managers planning to rehabilitate the labor market in Vietnam in the backdrop of Vietnam's Covid-19 pandemic.

As a result, the authors expect to use the PPM model to propose and validate a model for examining the relationship between personal-family characteristics, urban attractiveness, the cognition of the "Responding to the Covid-19 Pandemic" solutions, and the intention of Vietnamese laborers to return to urban areas for work. The authors also hope that the findings will help policymakers implement measures to help retain and attract migrant laborers back to urban areas in the Covid-19 pandemic.

2. Literature Review

2.1. Push - pull - mooring model

The movement of people from one geographic location to another or from one territory to another over a temporary or permanent period of time is referred as migration (Mangalam & Morgan, 1968). Many studies have confirmed that migration intention plays an important role in the process of reviewing overall migration decisions and predicting future migration flows and is the main indicator of actual migration behavior (De Jong, 2000; Van Dalen & Henkens, 2007). For the reason, it is possible to deduce that the intention to return to the urban areas refers to laborers' desire to leave their hometown and return to cities where they previously lived and worked.

Lee (1966) was the first to establish a migration rule based on push-pull factors, building on Ravenstein's foundational theory of migration (1885). The pull factor at the destination is identified as the pull force that motivates people to move, while the push force at the beginning place is identified as the force that drives them to leave. However, according to Moon (1995), the push-pull hypothesis does not fully describe the factors that directly affect individual migration, but migration is also influenced by the mooring factor. This factor is determined by the following aspects: culture-society, habitat; creating favorable conditions or hinder the decision to emigrate. Therefore, this study chose to use the push-pull-mooring (PPM) model that considers the worker's intention to return to the city: the

push factor is the personal-family characteristic, the pull factor is the urban attractiveness, the mooring factor is the cognition of "Responding to the Covid-19 pandemic" solutions.

2.2. Personal-family characteristics affect the intention to return to urban areas

Rural-urban migration is generally fueled by push factors emerging from the countryside in order to against some negative effects on the quality of life in the city (Moon, 1995). Personal-family characteristics, according to Jedwab et al. (2017), are the push factor that leads farmers away from rural areas.

Personal characteristics, such as gender, age, educational level, marital status, and the occupational status of migrant workers, are important factors that directly affect the choice of destination and the intention of each person to migrate (Chen, 2011; Mao & Zhao, 2012; Hengyu et al. , 2020;...). According to Zhu and Chen (2010), younger migrants in China are more resilient and have a higher educational level, providing them with the necessary knowledge of required city job placements, so they tend to move. When considering the free flow of ethnic minorities in the Northwest provinces to border and urban areas, Tan et al. (2019) discovered personal characteristics such as gender, age, marital status, education level, and technical expertise that led to the intention to migrate. Female employees are more likely to migrate to cities and cross borders quickly, and marital status has an impact on migration because family migration is more difficult than individual migration. Finally, the authors discovered that people with higher levels of education move more in ethnic minority areas.

According to Hossain (2001), family features are the primary motivator for rural-urban migration. Li et al. (2014) demonstrated that the larger the proportion of children in a family, the less likely members of the household are to participate in non-farm activities outside of the home. Family characteristics with older generation (such as grandparents) who can take care of children, on the other hand, encourage adults of working age to relocate. The authors also discovered that children's schooling and parents' migration had the opposite effect, i.e., the more children in school, the more likely parents are to work locally.

Based on the above research, we decided to use personal-family characteristics as factors, which have a direct impact on laborers' intention to return to urban areas for work.

2.3. Cognition of "Responding to the Covid-19 pandemic" solutions

Randolph (2003) defines "cognition" as "knowledge or understanding of a specific issue or situation". More specifically, Ambali et al. (2013) suggest that "cognition" occurs when a person has a specific interest or experience and is completely aware of what is going on at the time. Based on the concepts discussed above, Ifinedo (2014) demonstrated that perception influences intent, behavior in decision-making, and policy compliance.

According to Fan and Zhang (2019), perceptions reflect personal attitudes as well as social norms in the farmer's migration decision-making process, which is examined through two lenses: understanding of housing rights as well as knowledge of relevant government policies. The authors pointed out that perception is one of the key factors in the mooring

factor, which not only works as an independent variable influencing rural people's decision to leave the farm, but also has a regulatory impact on the model's remaining relationships. In the context of the Covid-19 pandemic in Vietnam, understanding and complying with the government's epidemic preventive efforts has a substantial impact on migrant laborers' decision-making and behavior. As a result, we used cognition of "Responding to the Covid-19 pandemic" solution as a mooring factor in this study to consider the impact on laborers' intention to return for work.

2.4. Urban Attractiveness

The attractiveness of a location is that it has its own unique pull and attraction due to both material and spiritual aspects (Hidalgo & Hernandez, 2001). According to Rodriguez & Ketterer (2012), the ability to attract residents plays a key role in the development prospects of cities. This possibility becomes even more important when there are demographic changes (population decline and aging - a problem that most developing and developing countries face). As a result, data on the factors that influence the attractiveness of urban areas to migrants is critical for local governments and urban planners (Royuela et al., 2010). According to Nguyen Thu Thuy (2020), a migrant's attraction to a location is frequently based on three factors: (1) work possibilities, (2) attachment to housing, and (3) quality of life.

In Vietnam, the process of industrialization and urbanization has resulted in significant increases in population in urban areas, including: family size in small urban areas; married late and had few children; better housing conditions; and many opportunities to access the comforts of life and learning conditions, as well as to work in an environment that requires professional training. These benefits are seen in places with high levels of urbanization, enhancing the attractiveness of large cities and encouraging considerable migration flows to these areas (Nguyen Viet Dinh, 2020). Especially in the context of the Covid-19 pandemic, laborers who lost their jobs had to return to their hometowns but many still hoped to return to the city to work in order to diversify their earnings and live a better life. Therefore, the authors decided to use urban attractiveness as a pull factor, attracting laborers back to work in the urban areas.

3. Method

3.1. Research models and research hypotheses

The research model of the factors influencing laborers' intentions to return to urban areas for work in the context of the Covid-19 pandemic is based on the PPM model (Moon, 1995) with the following hypotheses:

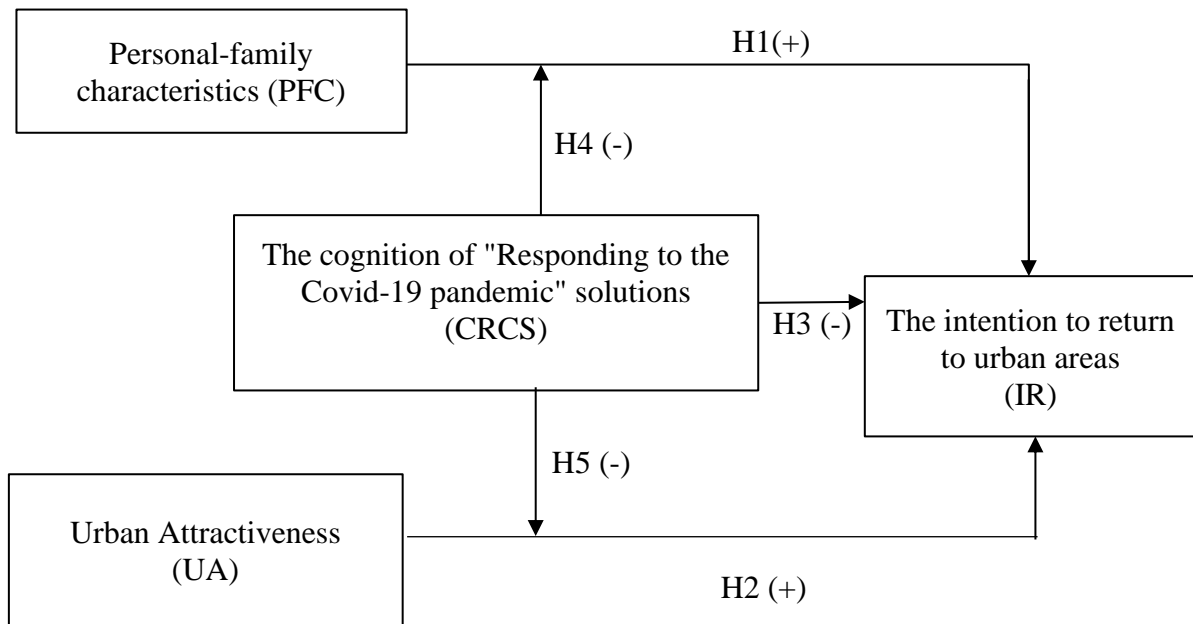
Hypothesis 1 (H1): The personal-family characteristics positively affect the intentions to return to urban areas for work.

Hypothesis 2 (H2): The urban attractiveness positively affects the intentions to return to urban areas for work.

Hypothesis 3 (H3): Cognition of "Responding to the Covid-19 pandemic" solutions negatively affects the intention to return to urban areas for work.

Hypothesis 4 (H4): Cognition of "Responding to the Covid-19 pandemic" solutions has a moderating role that reduces the influence of the personal-family characteristics on the intention to return to urban areas for work.

Hypothesis 5 (H5): Cognition of "Responding to the Covid-19 pandemic" solutions has a moderating role that reduces the influence of the urban attractiveness on the intention to return to urban areas for work.



Source: The research model

3.2. Method of data collection.

Between November and December 2021, we performed a study of over 600 laborers who had relocated to the city for employment but now returned to their hometown due to the impact of the Covid-19 outbreak in Vietnam. Direct interviews and Google Forms placed on job groups such as National Employment in General Labor, Ho Chi Minh City Job Recruitment, Compatriots' Association Nghe An - Ha Tinh are used to collect data. After removing invalid responses, we gathered a sample of 498 observations for study. The survey questionnaire is divided into four pieces. Except for the first section, the rest used a five-point Likert scale ranging from 1 to 5, with 1 representing "completely disagree" and 5 representing "completely agree".

The first section comprises questions concerning personal-family characteristics. The second section focuses on survey subjects' cognition of the government's solutions to the Covid-19 pandemic, which are based on measuring scale of Wang et al. (2021). The third section of the study focused on the level of laborers' assessment of urban attractiveness using the scale of Kourtit et al. (2021). The last component, which examines laborers' intention to return to urban areas in the future, draws on the scale of intents developed by Sandu & De Jong (1998), Van Dalen & Henkens (2008), and Tam & Khuong (2015).

3.3. Data processing method

In the structural equation model (SEM), there are two main approaches to estimating relationships: CB-SEM and PLS-SEM (Hair et al., 2011). CB-SEM is also known as variance structural analysis or causality model, and it is primarily used to prove (or disprove) theories. PLS-SEM, on the other hand, is also known as the path model and is primarily used in discovery research for theoretical development (Hair et al., 2017). PLS-SEM is a better fit for research that focuses on theoretical discovery rather than assertion. PLS-SEM also has the advantage of being able to handle not only complex model with multiple relationships, but also causal or structural measurement model (Hair & et al., 2014). For the reasons described above, the authors decide to use the PLS-SEM model, process on SmartPLS software to test the hypotheses in order to predict the willingness of people to leave their homeland and return intention to urban areas for work in the Covid-19 pandemic.

4. Results

4.1. Descriptive statistics

Table 1. Characteristics of the survey sample

		Frequency (people)	Percentage (%)			Frequency (people)	Percentage (%)
Age	Under 15	12	2.4	Marital status	Married	168	33.7
	15 - 19	50	10		Unmarried	228	45.8
	20 - 24	79	15.9		Widow	32	6.4
	25 - 29	106	21.3		Divorce	52	10.4
	30 - 34	88	17.7		Separation	18	3.6
	35 - 39	52	10.4	Total number of family members	Less than 3 people.	57	11.4
	40 - 44	49	9.8		3 people	64	12.8
	45 - 49	29	5.8		4 people	208	41.8
	50 - 54	20	4		5 people	111	22.3
	55 - 59	8	1.6		More than 5 people.	58	11.6
60 +	5	1.1	Number of people between the ages of 15 and 60 in the family	Less than 2 people	68	13.7	
Gender	Male	295		59.2	2 people	145	29.1
	Female	203		40.8	3 people	146	29.3
Educational level	Not yet graduated from elementary school	17	3.4	4 people	98	19.7	

		Frequency (people)	Percentage (%)			Frequency (people)	Percentage (%)
	Elementary school graduation	29	5.8	Number of children under the age of 15 in the family	More than 4 people.	41	8.2
	Secondary school graduation	41	8.2		Less than 2 people	165	33.1
	High school graduation	135	27.1		2 people	221	44.4
	Vocational elementary graduation	55	11		3 people	79	15.9
	Vocational intermediate graduation	51	10.2		4 people	28	5.6
	Vocational college graduation	83	16.7		More than 4 people	5	1
	Graduated from University and Postgraduate	87	17.5		Number of people over the age of 60 in the family	Less than 2 people	180
Current employment status	Have a full-time job	190	38.1	2 people		284	57.1
	Have a part-time job	168	33.7	3 people		34	6.8
	No job	140	28.2	4 people		0	0
					More than 4 people	0	0

Source: The author group's calculations

Males account for 59.2% of the 498 valid observations, while females account for 40.8%. The most common ages are 25-29, 30-34, and 20-24, with rate of 21.3%, 17.7%, and 15.9% respectively. In terms of marital status, unmarried people made up 45.8% of observations, while married people made up 33.7%. Besides, 27.1% of those who responded were high school graduates, 17.5% were university and postgraduate graduates, and 16.7% were vocational college graduates. The average number of family members of survey subjects is four, accounting for 41.8% of the total. Furthermore, when asked how many laborers the family has between the ages of 15 and 60, the majority of the responses were two or three people, accounting for 58.4% of the total.

4.2. Test the reliability of the scale

For the following reasons, we used Cronbach's Alpha (α) and Fornell's Composite Reliability (ρ) to assess the reliability of the PLS-SEM model (table 2): Cronbach's Alpha is sensitive to the amount of variables seen in the measuring scale, and it frequently underestimates internal consistency. Composite Reliability, on the other hand, has a tendency to overestimate internal consistency, resulting in a greater reliability estimate than Cronbach's Alpha. When analyzing and evaluating the internal reliability of the scales, the true reliability usually lies between Cronbach's Alpha (which represents the lower limit) and Composite Reliability (which represents the upper limit).

Table 2. Reliability's results of the scale

	Cronbach's Alpha (α)	Composite Reliability (ρ)	Average Variance Extracted (AVE)
IR	0.897	0.918	0.617
PFC	0.791	0.848	0.455
UA	0.922	0.933	0.521
CRCS	0.856	0.881	0.555

Source: The author group's calculations

The higher the Cronbach's Alpha coefficient, the more reliable the scale; a value of 0.7 or higher is considered good (Peterson, 1995). As a result, our Cronbach's Alpha test results show that the scale's reliability has met the standard. Many researchers, including Bagozzi & Yi (1988), Henseler & Sarstedt (2013), and Hair et al. (2014), recommend a rating threshold of 0.7 for composite reliability values. In general, all the structures in table 2 have a value of ρ greater than 0.7, indicating that they meet the structural value requirement. Therefore, it can be affirmed that the results of the test of the reliability of the scale are excellent and the observation variables that measure the factor is appropriate.

The Average Variance Extracted (AVE) is used to assess the convergence of the scale. Hock & Ringle (2010) states that a scale reaches a convergence value if the AVE reaches 0.5 or higher. This level of 0.5 (50%) means that the average maternal latent variable will explain at least 50% of the variation of each child observation variable. So, according to table 2, the AVE derivative variance index in all structural groups in our model is qualified, except for personal-family characteristics variables (AVE = 0.451).

This is because this factor is a demographic variable that consists of nominal scales of personal and family characteristics of the survey subjects, so the evaluation of AVE in this factor is not necessary.

Table 3. Results of regression model inspection

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values (p)
PFC-> IR	0.155***	0.157	0.043	3.614	0.000
UA-> IR	0.201***	0.211	0.043	4.700	0.000
CRCS-> IR	-0.255***	-0.262	0.045	5.682	0.000
CRCS*PFC -> IR	-0.007	-0.004	0.049	0.146	0.884
CRCS*UA -> IR	-0.183***	-0.180	0.035	5.158	0.000

*Note: Significant level: ** $p < 0.05$; *** $p < 0,01$*

Table 3 shows the results of the PLS-SEM model obtained through the bootstrapping technique. We investigate three major factors (personal-family characteristics, urban attractiveness, and the cognition of "Responding to the Covid-19 pandemic" solutions) that influence the intention to return to urban areas for work, as well as the moderating effect of cognition of "Responding to the Covid-19 pandemic" solutions on the relationship between personal - family characteristics, urban attractiveness, and the intention to return. The study's findings revealed fresh information about labor migration in Vietnam during the Covid-19 outbreak, including the following:

First: Personal-family characteristics positively affect the laborers' willingness to return to urban areas ($\beta = 0.155$; $p < 0.01$). This finding is in line with Zhu & Chen's (2010) study, which found that young, well-educated migrants are more likely to return to urban areas for work. Meanwhile, people who are over 40 or have low educational level or have a large number of children in need of care are less likely to return to the urban areas for work.

Second: Urban attractiveness significantly positively affects the return intention for work ($\beta = 0.201$; $p < 0.01$). This finding is consistent with Fan and Zhang's (2019) study, which claims that urban attractiveness has a strong impact on the intention to return to work.

Third: The cognition of "Responding to the Covid-19 pandemic" solutions negatively affects the willingness to return to urban areas ($\beta = -0.255$; $p < 0.01$). As a result, this study examines the relationship between cognition of Covid-19 measures and a return intention to urban areas which has not been mentioned in previous Vietnamese studies.

Fourth: The role of cognition of "Responding to the Covid-19 pandemic" solutions in the relationship between personal-family characteristics and laborers' intention to return to urban areas for work has yet to be demonstrated.

Fifth: The cognition of "Responding to the Covid-19 pandemic" solutions that plays a moderating role in reducing the influence of factors leading to laborers' intentions to return to urban areas ($\beta = -0.183$; $p < 0.01$). According to Fan and Zhang, this finding clarifies the

impact trend in cognition's moderating role as a mooring factor (2019). Following that, this finding expands on Moon's PPM model and aids researchers in gaining a more comprehensive understanding of it (1995).

5. Discussion and Conclusion

Through the PPM model, this study further examines and explains the impact of personal-family characteristics - urban attractiveness - cognition of "Responding to the Covid-19 pandemic" solutions to laborers' intentions to return to the urban areas for work in the context of the Covid-19 pandemic. The results show that personal-family characteristics and urban attractiveness have a positive impact on intentions motivating laborers to return to the city; while cognition of "Responding to the Covid-19 pandemic" solutions has the opposite effect, obstructs the intention, moderates to reduce the impact of attractiveness. Our empirical results give us some theoretical and practical implications.

Theoretically, this research varies the present labor mobility paradigm. In Vietnam, as well as around the world, studies on migration bases on the impact of the mooring factor, instead focusing on the two push-pull variables is very rare. Furthermore, other studies are usually focused on migration or repatriation, while the intention of returning to urban areas being overlooked. Therefore, testing the effects of the above factors is necessary to clarify the substance of this issue, especially in the context of the Covid-19 pandemic. Furthermore, a piece of evidence from a developing country will yield a meaningful comparison to previous studies which were primarily conducted in developed countries.

In practice, this research shows that individual-family factors has a beneficial impact on the desire to return. Young laborers (aged from 15 to 40) with a high level of education would be more likely to return to urban areas, whereas laborers who are over the age of 40 or have a large number of children in need of care or have low educational levels would be less likely to return.

The study's finding also reveals that the urban attractiveness has a positively effect on laborers' intentions to return to the urban areas if the government and businesses have solutions and policies in place to assure social security and health for workers in a "new normal" state. Therefore, businesses should take actions to retain laborers, such as proactively keeping information, communicating through groups on social media, implementing procedures to seek compensated employment, or suspending or departing without pay instead of terminating the employment contract,... Additionally, in the "new normal," businesses and governments must plan to create occupational safety method to protect employees, as well as strategies for remote work and automation.

The results also show that the cognition of "Responding to the Covid-19 pandemic" solutions has the effect of keeping laborers in their hometown, reducing the impact of urban attractiveness, especially laborers over the age of 40 who would be less likely to return to the urban areas for work if the locality in which they live is strictly implemented responding solutions to pandemics. Therefore, to take advantage of this workforce, localities must conduct statistics and reviews of unemployed laborers' employment needs, the ability of each person, create on-site jobs by creating conditions for capital, technology, breeding breeds and cultivation; conduct new vocational training, foreign language training so that they can get used to economics restructuring.

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FACTORS AFFECTING THE BEHAVIOR OF MEDICAL WASTE LITTERING IN PUBLIC PLACES DURING THE COVID-19 PANDEMIC OF HANOI RESIDENTS

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Abstract

The topic explores and evaluates the factors affecting the behavior of citizens in Hanoi during the Covid-19 pandemic. Through systematic surveys and research, there are scientific and practical assessments that help people have a certain understanding of the harmful effects of discharging medical waste on the community in the current pandemic situation. As a result, we want to raise the awareness of protecting the community and the environment of people in Hanoi city. Thereby, the research team proposed solutions to limit this behavior of the people of Hanoi city. Specific objectives include: (1) Presenting the theoretical basis of the behavior of medical waste littering during the pandemic; (2) Proposing theoretical models, testing research hypotheses on factors affecting the behavior of medical waste littering in public places of Hanoi people; (3) Proposing orientations and solutions to limit the situation of people dumping medical waste in public places in Hanoi city.

Keywords: *medical waste, environment, COVID-19, behavior, littering*

1. Introduction

COVID-19 is the pandemic that has affected all areas of activity. The most devastating effects were on health, the environment, and education. Medical waste has exploded in terms of quantity and influenced the reorganization of their management in hospitals, the public domain, and the environmental approach.

Medical waste remains a complicated issue for human society due to its health and environmental, economic, and social impacts. In particular, medical waste negatively

influences the health of the population and the environment, so it must be managed with great care and the right behavior.

The purpose of the study is to find out and evaluate the factors affecting the behavior of citizens in Hanoi from the analysis of the literature on medical waste from the beginning of the COVID-19 pandemic. This paper is divided into the following sections, which have been considered key to achieving the proposed objectives. Section 1 is the introduction; Section 2 defines the research method; Section 3 is results analysis and Section 4 is about discussion and conclusion.

2. Method

2.1. Research questions

A scientometric study was performed. The research was conducted based on the following three research questions were defined:

RQ1: During the Covid-19 pandemic, what factors affect the behavior of Hanoi residents to litter medical waste?

RQ2: What is the impact of the factors on this medical waste littering behavior?

RQ3: What will be the trend of the behavior of people in Hanoi in the next periods of the Covid-19 pandemic?

RQ4: While the Covid-19 epidemic is still extremely complicated, what is the solution to reduce the littering of medical waste in public?

2.2. Related theoretical models

2.2.1. Theory of rational action

Ajzen and Fishbein jointly developed the Theory of Reasoned Action in the late 1960s and then revised it extensively in the 1970s. This is considered a leading theory in the field of psychosocial research (Eagly & Chaiken, 1993; Olson & Zanna, 1993; Sheppard, Hartwick & Warshaw, 1998, quoted in Mark, C. & Christopher J.A, 1998, page 1430).

The TRA model shows that behavior is determined by the intention to perform that behavior. This relationship has been established and empirically verified in multiple studies in multiple disciplines (Ajzen, 1998; Ajzen & Fishbein, 1980; Canary & Seibold, 1984; Sheppard, Hartwick & Warshaw, 1988, cited in Ajzen, 1991 page 186), according to which the intention to perform the behavior is demonstrated and expressed through the tendency to perform the behavior. Intention is the state of awareness immediately prior to performing the behavior. It's a factor that leads to behavior.

According to the TRA theory of Ajzen and Fishbein, in predicting behavior, behavioral intention (BI) is one of the most important factors. Behavioral intention is affected by two factors: Attitude Toward Behavior (AB) and Subjective Norm (SN).

According to Gordon Allport (1970): "Attitude is a general tendency towards a person or thing". For Turnstone: "Attitude is an emotional measure of one's approval or disapproval of a certain externality".

Schiffman & Kanuk (1987) suggest that attitudes are illustrated through three factors: perception, emotion (favorite) and behavioral intention. Perception is related to knowledge about an object through the information received related to that object and the experience gained after performing that behavior to form their beliefs about that object behavior. Emotion (favorite) represents a general feeling of liking or disliking that object. Factors that show general liking about the object without separating each object's characteristics. Emotions are often mentioned as an important component of attitude while other components have a supporting effect.

Attitudes in the Rational Action Theory model demonstrate the correlation between perception and liking. Utility and importance are two characteristics used to make choices. These important attributes are the key to being able to predict the closest answer. Subjective normative factors can be measured directly by measuring how the emotions from the stakeholders think about their intentions and the intentions of the intended people to follow the wishes of the people involved (Nguyen Van Phu, 2011).

2.2.2. The Theory of Planning Behavior

The Theory of Planning Behavior (TPB) of Ajzen (1991) is built on the theory of rational action of two authors Ajzen & Fishbein (1975), hypothesizing that a behavior can be predicted or be justified by the intention to perform the behavior. According to the theory of intended behavior, intention is assumed to include motivational factors and is viewed as the degree of individual effort to perform the behavior; Intention is the closest basis of behavior and is predicted by Attitude Toward Behavior (AB), Subjective Norm (SN) and Perceived Behavioral Control (PBC) respectively. TPB further hypothesizes that the components are in turn determined by the most prominent expectation and estimate the expectations for each of those components: behavioral expectations with attitudes towards a given behavior; specific expectations about the outcome of performing the behavior. Subjective norm expectations about perceived agreement or disagreement with the behavior of other indispensable subjects. Expectations of control refer to factors that favor or inhibit the performance of a behavior. In short, according to TPB, the intention to perform the behavior is a function of three factors.

Firstly, the Attitude Toward Behavior (AB) factor is considered as a positive or negative assessment of the behavior. The author argues that a positive or negative personal emotion, namely an attitude that embodies a behavior influenced by psychological factors and the situations currently facing.

Next, the subjective norm (SN) or social influence is “perceived social pressure to perform or not perform the behavior” (Ajzen, 1991). Social influence refers to the influences and influences of important and close people that can influence the individual performing the behavior.

The last-mentioned motivating factor here is Perceived Behavioral Control (PBC). This factor indicates whether performing the behavior is difficult or easy and whether the performance of the behavior is controlled or restricted (Ajzen, 1991, p. 183). Ajzen (1991).

Ajzen (1988) firmly asserts that these underlying information are expectations of behavior and that the cause of behavior is primarily because of these expectations. Therefore, it is the change in expectations that leads to the change in behavior. Based on this explanation, some researchers have intervened with the purpose of changing expectations and determining whether the observed subjects change their behavior. In addition, other researchers find out the influence of the intervention policy by examining the change in expectations after using the policy. An accessible example here is: Bamberg and Schmidt estimate the impact of the Universal bus Pass (U-pass) program in Germany and show that people use a lot of buses. and less car use, partly explained by a change in bus usage expectations.

2.2.3. Rational Choice Theory

Rational choice theory is based on the premise that people always act in a purposeful, thoughtful way to make decisions and use rational resources to achieve the maximum at the minimum cost. Homans interpreted the basic postulate of the theory in a mathematical theorem as follows: “When choosing among possible actions, individuals will choose what they consider to be the product (C) of the probability of succeeding. of that action (P) with the value where the reward for that action (V) is the maximum $C = P \times V = \text{Maximum}$. In addition, John Elster said: “When faced with certain actions, people often do what they believe is most likely to achieve the 'best' end result (Le Ngoc Hung, 2009).

Rational choice theory requires an analysis of the individual's choice action in relation to its whole social system including other individuals with their needs and expectations, their choices and the outputs of each choice and other characteristics.

Kotler and Fox proposed a general model that represents the steps involved in making a complex decision, which is summarized graphically.

2.2.4. Procedural Fairness Theory

Penal and criminal policies have always reflected the contrast between simple and complex models of violation control. Key elements of these simple breach control models:

- People always evaluate the benefits that the violation brings to make a decision whether to perform that behavior or not.
- The containment of threats is a key tool of criminal justice.
- Feature and danger of behavior: The number of violators and the crime rate depends mainly on the ability to be punished. That likelihood can vary based on the certainty, severity, and quickness of the breach.
- Increasing penalties and expanding the scope of enforcement are seen as forms of response to violations.
- Violators' rights are seen as a limitation of this model.
- More sophisticated models of violation control suggest that formal criminal justice is just one of many systems of social control, most of which have a dense set of standards.

With respect to people's compliance with authority, the theory of normative equity proposes the relationships between the following factors:

- The treatment people receive from the police and justice agencies.
- The trust that the people have from the justice agency.
- The legitimacy that the people give to the justice agency, as a result of that trust.
- The authority that this agency has is sometimes considered legitimacy.
- Citizens' preparedness to obey the police, obey the law, and cooperate with justice.

Legitimacy is a central concept in the theory of procedural justice and there are two uses for the term. Political philosophers often argue that the political system derives from the fact that people legitimately agree on many objective criteria. But there are still questions about the legitimacy of the criminal justice system in the eyes of the public – whether supervisors see the legitimacy of the police. These questions are open-ended and answered based on experience. Regardless of whether the justice system achieves any of the above-mentioned objective factors or not, we should focus on studying it through survey and quantitative methods to gain insight into community attitudes, values, behaviors and beliefs (Mike Hough, Jonathan Jackson, 2012).

Supervisors can perceive legitimacy when they see authority as something they deserve and it's obligatory for them to obey. If people voluntarily submit to a system of authority that controls legitimacy, questions about who governs legitimacy will become a political concern. The theory of procedural justice is based on legitimacy and normative motivation. Based on the procedural justice and compliance model (Tyler, 2008), the nature of institutions can influence ethics. When people believe that morality is simply obeying the law, that law essentially forces every individual to perform appropriate behavior, in accordance with the law. From this compulsion, they will recognize their particular actions as illegal or immoral.

According to Tyler's "process-based policing" model (Sunshine & Tyler, 2003), legitimacy must then conform to the first law in society (and its judicial system) and have the power to dictate how appropriate conduct: although we may disagree with some points of these laws, we must follow them because we think it is the right thing to do with the authorities that make the laws. And second, if individuals see the police as lacking in 'moral fiber' - most importantly of behaving in a way that is clearly unfair - it can make the public skeptical of the law.

According to Sampson & Bartusch (1998: 786), legal skepticism is the consciousness, that '...laws or regulations are not considered to be 'constrained in the present existence or life of the respondent', and '...approval of acting in ways that are 'outside' of laws and social norms'.

Police legitimacy is represented by a single latent variable construct as measured by a series of questions about the obligation to follow. While believing in the effectiveness of the police by their own perception or the risks and risks of being caught, the research results show that the perceived risks of punishment are not a factor that cannot be ignored. lack of predicting the behavior of violators. The National Policing Improvement Agency (NPIA) data do not provide the desired results for this model but suggest that at least within the

confines of survey data and The model only stops at reporting the views, beliefs, calculations and behavior of the violator (The results coincide with the study of Pratt, 2006). The results suggest that deterrence is not an effective route to ensuring compliance.

3. Results

3.1. *Inspect Reliability coefficient*

All scales have Cronbach's Alpha coefficient greater than 0.7 and the total correlation greater than 0.4; Therefore, no variables have been removed, and the scale has ensured reliability.

Table 1. Results of the inspect reliability coefficient

Factor	Number of variables	Cronbach's Alpha	Minimum Corrected Item - Total Correlation
Influence of attitude	4	0,899	0,721
Influence of subject norm	4	0,870	0,582
Environmental awareness	4	0,936	0,821
Information awareness	3	0,858	0,661
Influence of penal risk	4	0,774	0,496
Medical waste littering behavior	5	0,912	0,712

3.2. *Analyze EFA component*

3.2.1. *Analyze EFA component for independent variables*

The results of the EFA component showed that 5 factors were extracted at the eigenvalue of 1,093 and the variance explained was 75.976%. KMO coefficient = 0.864 > 0.5 so EFA fits the data. Besides, the factor loading is above 0.5, so the observed variables are important among the factors and have practical significance. Sig (Bartlett's Test) = 0.000 < 0.05, showing that the observed variables are correlated with each other in the population.

Table 2. Results of KMO and independent variables' Bartlett

Evaluated item	Result	Comparison
KMO	0,864	0,5 < 0,864 < 1
Sig.	0,000	0,000 < 0,05
Cumulative	75,976%	75,976% > 50%
Eigenvalue	1,093	1,093 > 1

3.2.2. *Analyze EFA component for littering behavior scale*

Medical waste littering behavior includes 5 scales for measurement. EFA component analysis results show that 5 scales converge on one factor. KMO coefficient = 0.849 > 0.5 so EFA fits the data. Besides, the factor loading is all above 0.5, so the observed variables are important in the factor and have practical significance. Sig (Bartlett's Test) = 0.000 < 0.05, showing that the observed variables are correlated with each other in the population.

Table 3. Results of KMO and dependent variable Bartlett

Evaluated item	Result	Comparison
KMO	0,849	$0,5 < 0,849 < 1$
Sig.	0,000	$0,000 < 0,05$

3.2.3. Adjusted Research Model

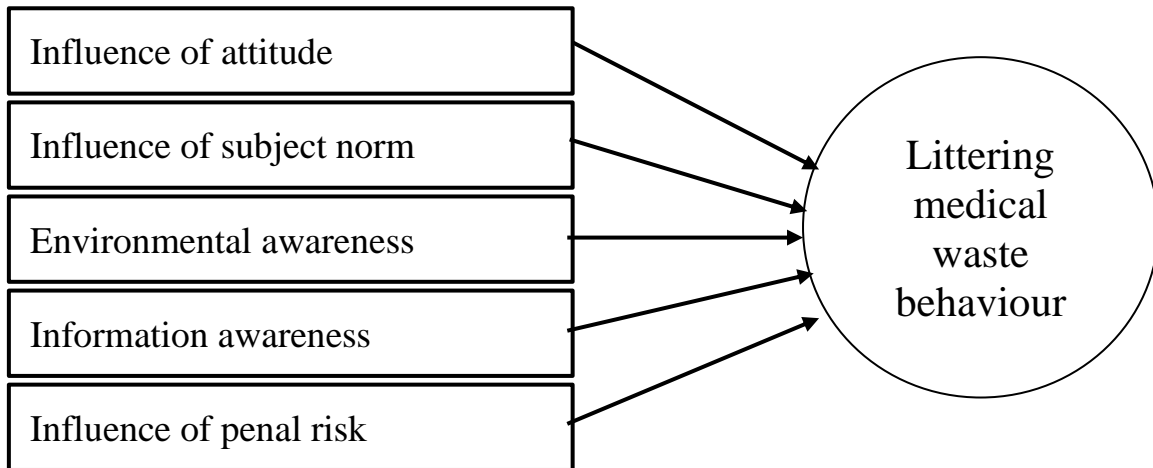


Figure 1. Adjusted research model

3.3. Analyze Pearson Correlation

We use the Pearson coefficient to analyze the correlation between quantitative variables. All correlation coefficients between variables ranged from -0.286 to 0.593. That proves the discriminant value has been achieved, showing that the relationship between the dependent variable (Medical waste littering behavior) and the independent variables is statistically significant (Sig. < 0.05). On the other hand, the dependent variable Medical waste littering behavior is also significantly negatively correlated with the variables Influence of attitude, Influence of subject norm and Information awareness, and influence of penal risk. At the same time, there is a positive correlation with environmental awareness. Furthermore, the magnitude of the correlation coefficients ensures that there is no collinearity.

Table 4. Results of correlation

	Behavior	Attitude	Subject norm	Environment	Information	Penal
Behavior	1					
Attitude	-0,281**	1				
Subject norm	-0,202**	0,593**	1			
Environment	0,672**	-0,286**	-0,286**	1		
Information	-0,229**	0,519**	0,425**	-0,238**	1	
Penal	-0,008	0,422**	0,285**	-0,066**	0,529**	1

3.4. Analyze Regression

Based on the standardized Beta coefficient, it was found that Environmental awareness has the strongest impact on Medical waste littering behavior (Beta = 0.636). In addition, the influence of attitude has the weakest effect (Beta = -0.142), the two factors that influence the attitude and the perception of information negatively affect the behavior of medical waste littering. (Beta < 0). Where the value Sig. All factors are less than 0.05, except for 2 factors. Influence of subject norm and Information awareness, so all 3 factors are accepted in this research model.

Table 5. Results of the factors affecting to the medical waste littering behavior

Independent variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinetary Statistics	
	B	Std. Error	Beta			Tolerance	VIF
Constants	1,447	0,427		3,389	0,001		
X1	-0,210	0,105	-0,142	-2,005	0,46	0,533	1,878
X2	0,080	0,074	0,071	1,077	0,283	0,618	0,618
X3	0,594	0,051	0,636	11,563	0,000	0,879	1,138
X4	-0,130	0,086	-0,101	-1,506	0,134	0,587	1,702
X5	0,149	0,074	0,127	2,028	0,044	0,680	1,470

F = 35,715, significance of F = 0,000
R square = 0,475, Adjusted R square = 0,462
Dependent variable Medical waste littering behavior (Y)

4. Discussion and Conclusion

The originally proposed model had five elements. After being tested, all factors are consistent with the scope of the study, and research hypotheses are accepted. The measurement results show that the scales are built and inspected all over the world and in Vietnam in the field of researching the intentions or behaviors of littering in the public area that can be used in Hanoi. Particularly, factors related to each individual in the littering of medical waste: Influence of attitudes (-0.142), Influence of Subject norm (0.071), Environmental awareness (0.636), Information awareness (-0.101) and Influence of penal risk (0.127). Besides, Environmental awareness (0.636) had the strongest impact and the Influence of attitudes (-0.142) had the weakest impact. The measurement results show that these variables help companies selling medical products and enterprises that have been and

will participate in environmental-related activities by offering a number of solutions and proposals to the Vietnamese government and companies in the treatment of medical waste and environmental protection.

The research model is based on Ajzen's Combination of Planned Behavior Theory (TPB) (1991), Ajzen's Theory of Planned Behavior (TPB) (1991), Rational Choice Theory, and finally procedural fairness theory. The group of authors inherited from the models that preceded the variables in accordance with the scope of the study of the topic: The influence of attitudes; The Influence of Subject norm; Environmental awareness; Information awareness and the Influence of penal risk. This topic focuses on the study of the behavior of discharging medical waste in public areas in the context of the COVID-19 pandemic and the factors that affect the behavior of medical waste in public places.

Stemming from the results of the study, the authors offered a number of solutions and proposals for hospitals and medical facilities, as well as state management agencies and market management agencies to manage people and solve the problem of medical waste treatment in Hanoi city.

In order to limit the indiscriminate littering of medical waste in public places, the city government needs to take many measures. For a waste collection agency, it is essential to set up an inspection team to monitor the situation of waste collection and treatment at the point of COVID-19 isolation. Besides, they should coordinate the monitoring and timely detection of the point of congestion and overload of medical waste with epidemiological elements to compile reports on the board of directors of companies and the Department of Natural Resources and Environment; quickly transport and handle, meet the requirements of epidemic prevention and control. In case of problems arising, the agencies jointly research and propose solutions, ensuring that there is no backlog of garbage polluting the environment and limiting the spread of pathogens.

COVID-19 that related to waste in quarantine zones, temporary quarantine zones, health facilities, etc. should be collected, transported and handled by environmental agencies with strict procedures, contributing to ensuring safety, avoiding the spread and spread of epidemics to the community. To ensure absolute safety, the collection team needs to disinfect the waste storage areas and the transport vehicles before moving them out of the waste receiving point. Returning to the treatment area, the waste will be treated with disinfection spray again, then treated with a high-temperature incinerator on the same day. At the end of the transportation process, the trash cans continue to be sprayed with disinfection, sprayed and exposed to the sun to continue for the next time.

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FACTORS AFFECTING THE DECISION TO PARTICIPATE IN LIFE INSURANCE OF VIETNAMESE PEOPLE IN THE CONTEXT OF BEING AFFECTED BY THE COVID-19 PANDEMIC

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Abstract

This study focuses on understanding the factors affecting the decision to participate in life insurance for Vietnamese people in the context of being affected by the COVID-19 pandemic. In the context of the raging COVID-19 pandemic, the insurance market in general and the life insurance market, in particular, are facing many serious challenges. Because the COVID-19 pandemic has fundamentally changed people's perception of the role and value of life insurance and disrupted the people's supply chain of life insurance consumption. By the method of actual survey combined with the method of investigating secondary documents, the study analyzes: 1) Factors affecting consumers' perception and decision to participate in life insurance in the context of impacted by the COVID-19 pandemic; 2) Issues raised in promoting people's decision to participate in life insurance in the context of being affected by the COVID-19 pandemic. On that basis, the article proposes solutions to raise consumer awareness about the role and value of life insurance in the COVID-19 pandemic.

Keywords: *Participating Decisions, Customers, Life Insurance, COVID-19*

1. Introduction

From March to June 2020, a series of surveys were conducted with the public in the United Kingdom, the United States, and the United Kingdom. The United States and Spain found that 30% of respondents said COVID-19 made them more likely to consider buying life insurance (Descombes, 2021). The Swiss Re Institute (2021b) estimates that global insurance demand will grow at above-trend rates of 3.3% in 2021 and 3.9% in 2022, a recovery significantly faster than the global financial crisis (GFC) 2008–09. Therefore, the epidemic has opened up favorable insurance model adjustments. One key demand driver is the dramatic increase in risk perception. Consumers feel they are being insured and are asking for more comprehensive life insurance. Consumers in China, the first market to face the pandemic and recover from a health disaster, are more likely to purchase new insurance when their lives return to normal in 2021 than a year ago. (Swiss Re Institute, 2021b). According to surveys conducted

by Swiss Re Institute (2021a) in Asia Pacific markets in 2021, during the pandemic, 30-40% of respondents have purchased complementary health and life insurance. supplement and 25% to 50% of people still have a new insurance plan. The demand for online life insurance transactions is also a growing trend. Consumers have quickly adapted to internet channels and increasingly prefer digital transactions at all touchpoints with insurance companies. This is especially important in developing economies, where public health care systems lack the infrastructure to provide free public health care unlike in developed economies. Economic growth has resulted in many people purchasing individual life insurance policies to cover themselves and their family members during medical emergencies, to finance medical expenses. private hospital. This study explores the demand for life insurance participation in a rapidly growing economy impacted by the covid-19 pandemic in Asia, Vietnam.

In the long term, low life insurance penetration, customer risk aversion and a better understanding of insurance as a means of mitigating life's unpredictable events, transformation trends strong digitalization, favorable demographic factors (e.g. golden population structure, rapid urbanization rate, growing middle class and growing per capita income, etc.) as well as the post-COVID economic recovery is expected to continue to drive the positive growth of the industry in Vietnam in the coming time. However, in the short term, the prolonged COVID and its wave of variations in the second half of 2021 that we are observing across Vietnam now will negatively impact customers who may lose their jobs. and/or reduced income during the pandemic. This will reduce their purchasing power to continue existing policies and/or purchase new ones. Low-interest rates and falling government and corporate bond yields due to the strong liquidity of the banking system and the supportive monetary policy of the State Bank of Vietnam during the current pandemic are challenges to improving. improving investment income, which is the main source of income for life insurance businesses, in 2021.

Although always considered one of the most humane and meaningful industries in the world, in Vietnam, The keyword "life insurance" is still frequently associated with mixed comments and reactions. With the current population of approximately 98.1 million people in Vietnam, but as of 2021, 18 life insurance companies are expected, the percentage of people participating in life insurance in Vietnam is only at the level of 9% of the population (while in Japan, the percentage of people participating in life insurance is 90%, the US 90%, Singapore 50%, ...) and the savings people buy life insurance. New life expectancy accounts for 3.45% of total savings in the residential sector. This is a very modest number. The current life insurance participation rate of Vietnamese people is low compared to many countries in the region and the world. The pandemic has been a major catalyst for increasing consumer health awareness, mortality, and financial concerns, driving awareness of insurance as a means of mitigating adverse events. measure in life. This contributed to the positive growth of the GWP as more and more people became risk-averse and bought new policies in the wake of the COVID-19 outbreak. Facing the heavy impact of the covid-19 pandemic on the economy, people's income and jobs are also significantly affected. Besides, people's awareness of life insurance is still limited, along with the spending habits of Vietnamese people, which are the main reasons affecting the demand for life insurance. Life insurance

companies all want to better understand the needs and spending psychology of customers in order to improve service quality. Therefore, studying the factors affecting the decision to participate in life insurance in the context of the impact of the covid-19 pandemic is an important issue that is of great interest to insurers and the State.

2. Method

The research method is carried out on the basis of qualitative research methods on the basis of descriptive statistics, analysis, comparison, interpretation, induction, synthesis of data from the Insurance Supervision Department, Ministry of Finance and Insurance Association to conduct research, achieve the objectives of the article. In addition, the research team also conducted a field survey in Hanoi, and an online survey in the provinces/cities of Hai Duong, Quang Ninh, and Ho Chi Minh City. Ho Chi Minh City ... is greatly affected by the Covid-19 epidemic in 2021, the total number of questionnaires is 339, with the content of factors affecting people's decision to participate in life insurance. Vietnam in the context of being affected by the Covid-19 pandemic. At the same time, combined with the method of investigating secondary documents, the article analyzes the current state of people's perception of the role and value of life insurance before the impact of the Covid-19 epidemic.

3. Results

3.1. Factors affecting customers' perception and decision to participate in life insurance in the context of being affected by the COVID-19 pandemic

In order to be able to collect information about the people's need to participate in life insurance in this context. Affected by the Covid-19 epidemic, the research team distributed questionnaires and obtained 339 online surveys. During the information filtering process, the team removed 35 invalid votes because they found that the answers were "proportional" and there was a lot of information in the questions that did not match. After removing the noise information, the group collected 304 valid questionnaires and started to process the data.

- Income affected by the Covid-19 pandemic

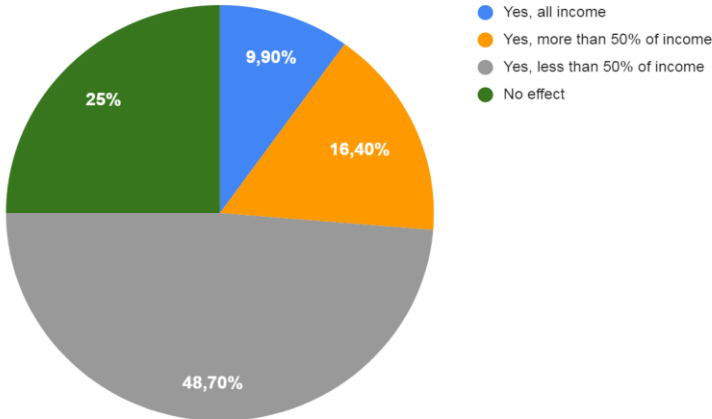


Figure 1. Structure by the degree of impact of the Covid-19 pandemic on the income of the survey sample

Source: Compiled from the research team's survey results

Look at Figure 1 shows that in the context of being affected by the covid-19 pandemic, the income of Vietnamese people has been affected. The majority of people's incomes are most affected at less than 50%, accounting for 48.7% of the total vote. In the second place, there is a small number of workers unaffected by the pandemic, accounting for 25.0% of the total vote. Most affected, almost all income, accounting for 9.9% of total votes and 16.4% of total votes for those affected with more than 50% of income. Thus, the pandemic took place, causing many impacts on the market and the economy of the country, along with the consequences affecting the income and life of Vietnamese people.

The team's research shows a high rate of household income loss as well as a decline in quality of life in several sectors of the general population in Vietnam due to the impact of the COVID-19 pandemic. The research team also found a number of potential factors related to changes in family income of Vietnamese citizens, with implications for future programs and interventions aimed at improving the socioeconomic status and well-being of people affected by the epidemic in resource-limited settings and promoting the intention to participate in life insurance.

- Information related to the use of life insurance of the sample

+ *Level of understanding about life insurance in the context of the covid-19 pandemic:*

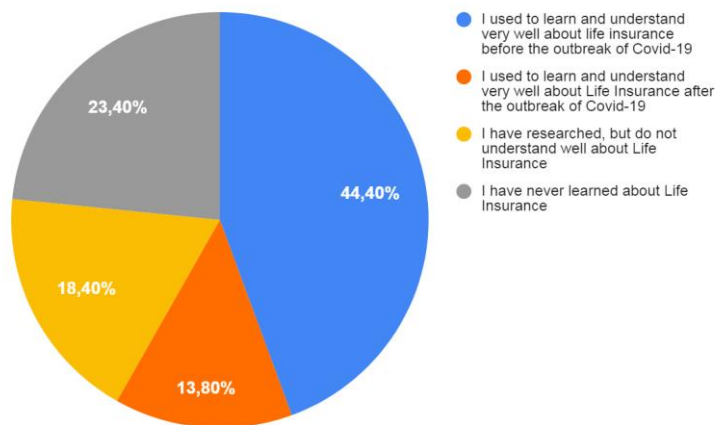


Figure 2. Structure by the level of learning about life insurance survey

Source: Compiled from the research team's survey results

According to the results from the above survey, the group found that 135 people had studied and understood life insurance well before the Covid-19 epidemic. boom, accounting for 44.4% of the total votes; 42 people have studied and understood life insurance well after the outbreak of the Covid-19 epidemic, accounting for 13.8% of the total; There are 56 people who have studied but do not understand well about life insurance and there are 71 people who have never learned about life insurance, corresponding to 18.4% and 23.4% of the total.

- Understanding of life insurance

According to the survey data collected, out of 304 answers about the impact of the Covid-19 epidemic on the perception of life insurance consumers, up to 81.9% assessed at the level of "changes" to create peace of mind for health and 73.5% rated "changes" about life stability and also at this level, 63.7% rated "changes" on the implementation of future plans.

Unit: %

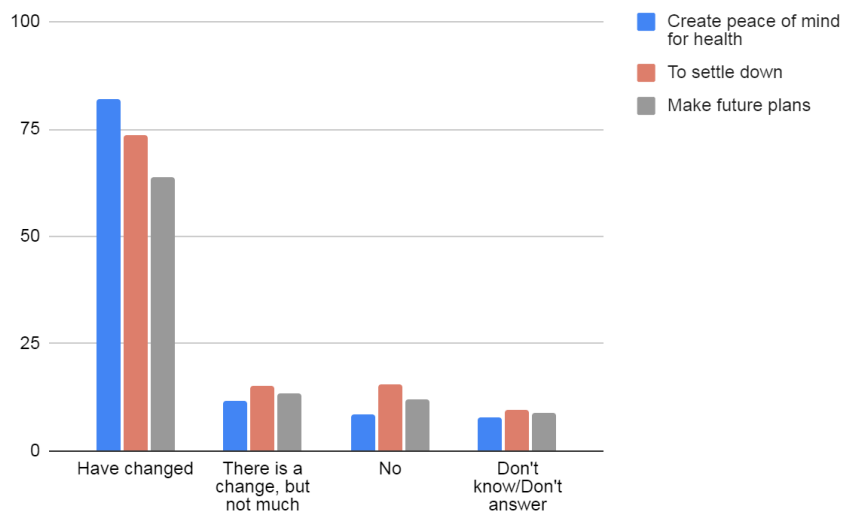


Figure 3. Graph of the impact of the Covid-19 epidemic on the perception of life insurance consumers

Source: Synthesized from the survey results of the research team

Thus, in the context of being affected by the Covid-19 pandemic, awareness of consumers about the role and value of life insurance is increasingly enhanced. Life insurance has created peace of mind for participants' health, brought stability to their lives, and helped consumers make future plans, so many people have been interested in this field. According to statistics of the Vietnam Insurance Association, only in 2020, the number of new insurance policies of major insurance products reached 3,180,110 contracts, an increase of 16.51% compared to 2019. However, a billion rates of not knowing/not responding about the content of stabilizing life and implementing future plans remain high. Specifically, the number of respondents was not stable (47 votes, reached 15.5%) and did not know/do not answer (29 votes, reached 9.5%) while the number of respondents did not implement future plans. hybrid (36 votes, reaching 11.9%) and do not know/do not answer (27 votes, reaching 8.9%). Thus, it can be affirmed that, in the context of being affected by the covid-19 pandemic, there are still a large number of consumers who are not properly aware of the role and value of life insurance. Insurance coverage is still low. In fact, according to statistics from the Vietnam Insurance Association, the Vietnamese market is close to 100 million people, but only 8.5 people have insurance, of which many customers own more than two life insurance policies.

- Knowledge of life insurance through information channels

Table 1. Consumer awareness of life insurance through information channels under the impact of the covid-19 pandemic

Awareness of life insurance	Know	Know but not related	No	Don't know/ Don't answer
TV/radio	73 %	4.7 %	17.1%	2.9 %
Books, newspapers, magazines	67.9 %	17.3%	13.4 %	7.2 %
Sales consultant	79.9 %	14.8 %	4.4 %	2.7 %
Workshop	83.3 %	13.9 %	5.7 %	4.1 %
Internet	89 %	9,1 %	3.9 %	3.7 %

Source: Synthesized from the survey results of the research team

Among 304 survey questionnaires, 73 % of respondents are aware of the role and value of life insurance via TV/radio; 67.9% of the respondents are aware of the role and value of life insurance through books, newspapers, and magazines; 79.9% of the respondents are aware of the role and value of life insurance through sales consultants; 83.3% of the respondents were aware of the role and value of life insurance through the workshop; 89% of the respondents are aware of the role and value of life insurance via the internet. However, 17.1% of the respondents did not know the role and value of life insurance via TV/radio; 13.4% of the respondents did not know the role and value of life insurance through books, newspapers, and magazines; 4.4% of the respondents did not know through the consultant; 5.7% of the respondents did not know through the Workshop, and 3.9% of the respondents did not know the role and value of life insurance via the Internet. The reason is due to the context affected by the covid-19 pandemic, some provinces such as Hanoi, Hai Duong, Quang Ninh, and Ho Chi Minh City. Ho Chi Minh City... implementing social distancing, so few seminars or face-to-face consultations are held, so consumers have the opportunity to contact and update information about life insurance on TV/radio, books, newspapers, and magazines. significantly reduced.

- Purpose when participating in life insurance:

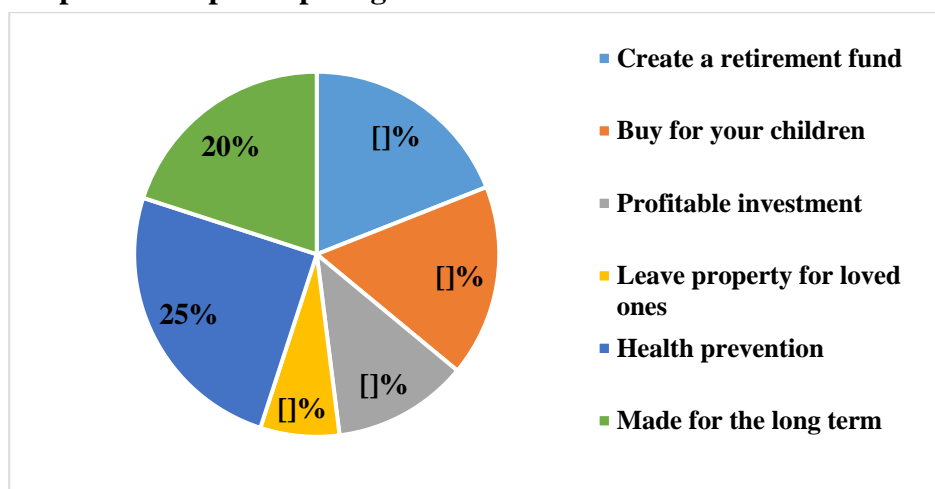


Figure 4. Purpose of people participating in life insurance

Source: Summarized from the survey results of the research team

From the results of the above chart, the group The study found that the people's purpose of participating in life insurance was the most from health prevention, accounting for 25% of the total. It can be seen that awareness of protecting themselves and their families against risks in life such as illness, disease, accident, etc. has motivated people to own at least one life insurance policy, in order to ensure the health of themselves and their loved ones in the best way. After the purpose of health prevention, the percentage of people participating in life insurance for other purposes is 20% for the purpose of achieving long-term goals, 19% for the purpose of creating a retirement fund, 17% of people People buy for their children, 12% use it for profitable investment and finally, for the purpose of leaving assets for relatives with 7% of the total. These ratios do not differ too much, but these numbers clearly show the purpose of customers when choosing life insurance as a companion for themselves and their families in life. living. In addition to the purpose of coming to life insurance for health protection, the implementation of long-term future goals, preparing a retirement fund and worrying about the lives of children are also issues that people are very interested in. . The other two purposes, which are a profitable investment and leave the property for relatives, are less concerned, partly because the benefits it brings to customers are not as many as other factors.

3.2. The exploitation of new insurance

policies Despite the negative impacts of COVID-19, in 2020, the life sector will achieve double-digit growth of 21% in total abbreviated premiums (GWP). Although the growth rate is lower than the corresponding average in the period 2016 - 2019 (about 24% - 30% / year), the operating results are still superior to other markets around the world. (e.g. emerging markets up only 0.3%; developed markets down 5.7% Source: Swiss Re Institute Sigma Report) in 2020.

In the first half of 2021, thanks to the Vietnamese government effectively controlling COVID-19, the industry has seen a stronger recovery with year-over-year growth of 17% year-on-year.



Figure 5. Total insurance premiums and life insurance premium growth in Vietnam (VND billion and %)

Source: FiinResearch, Ministry of Finance

During the pandemic, the top 5 enterprises (such as Bao Viet Life, Manulife, Prudential, Dai Ichi, AIA) continued to maintain strong growth momentum and market share.

For the first 4 months of 2021, the Big 5 holds a 78.5% market share by total written premium. In terms of product segments, the top 3 products (i.e. investment links, incentives, and customer support) continue to account for about 98% of total GWP in the first 4 months of 2021.

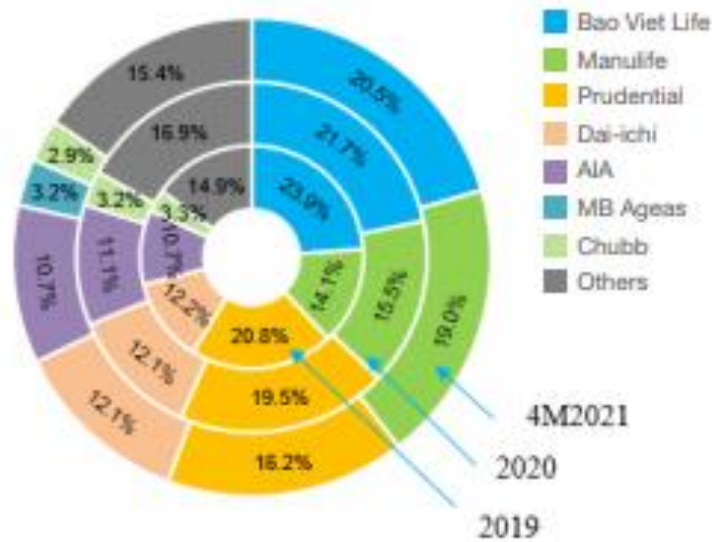


Figure 6. Market share of leading key life insurance companies (%)

Source: FiinResearch, Ministry of Finance

Life insurance usage rate in Vietnam is low compared to other peers

Life insurance penetration rate in Vietnam South is relatively low compared to other Asian neighbors, both in terms of GWP per capita and GWP as a percentage of GDP, showing great room for growth potential now as well as in the years to come. next.

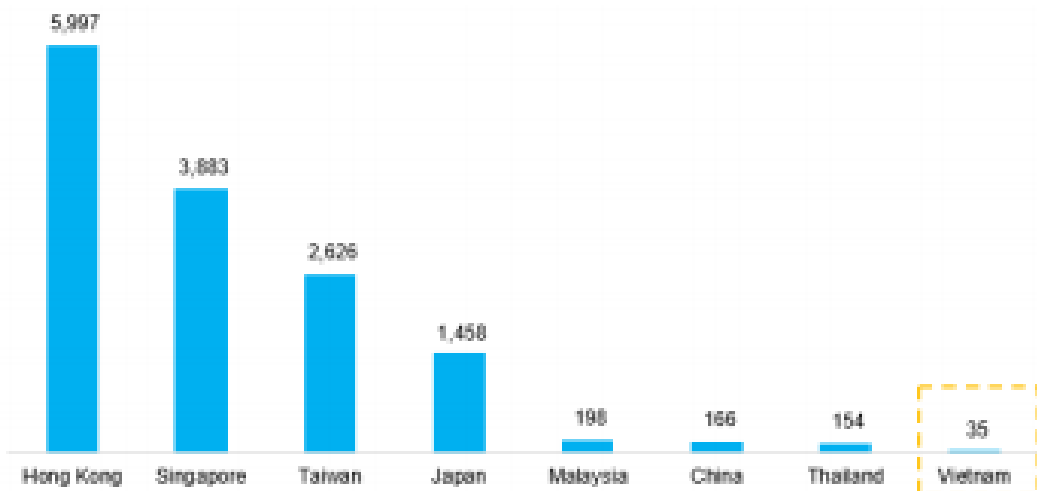


Figure 7. Life insurance penetration rate by GDP per capita in USD, 2020

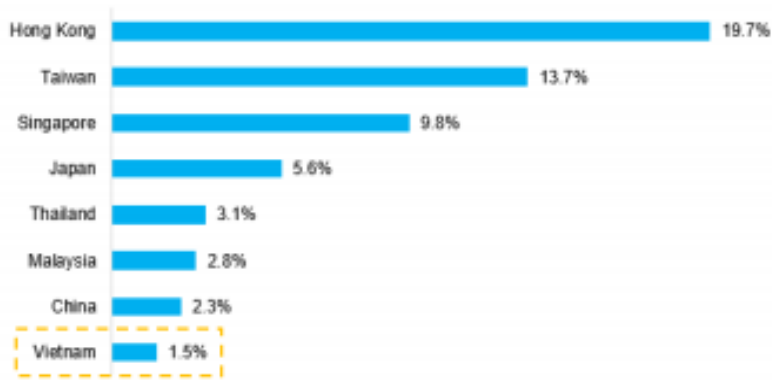


Figure 8. Life insurance penetration as a percentage of GDP (%) of GDP, in 2020

Source: FiinResearch, Ministry of Finance

Against the backdrop of the covid-19 pandemic, in the first 11 months of 2021, the situation The new life insurance policy has achieved total revenue of VND 43,998 billion, a growth rate of 21.5% over the same period last year. The market share of new insurance premiums is as follows: Manulife (23.6%), Prudential (12.9%), Bao Viet life (12.6%), Dai-ichi (12.3%), AIA (8.3%), MB Ageas (7.4%), Sun Life (4.7%), FWD (4.4%), Generali (3.3%), Chubb (2.5%), Cathay (2.1%), Hanwha (2%), Aviva (1.4%), and the remaining 5 businesses accounted for 2.5% market share.

The investment-linked insurance business has the largest proportion of new exploitation fees, reaching 83.8%. Followed by mixed insurance accounted for 2.7%, term life insurance accounted for 1.9%, the remaining main business lines (*life insurance, periodic payment insurance, retirement insurance, etc.*), *health insurance (main product)*) accounted for 1.4%. Supplemental insurance has premium revenue accounting for 10.2%. Compared to the same period last year, new revenue of investment-linked insurance business increased by 31.3%, mixed insurance business decreased by 53.6%, life insurance business increased by 6.3%.

Unit: million VND

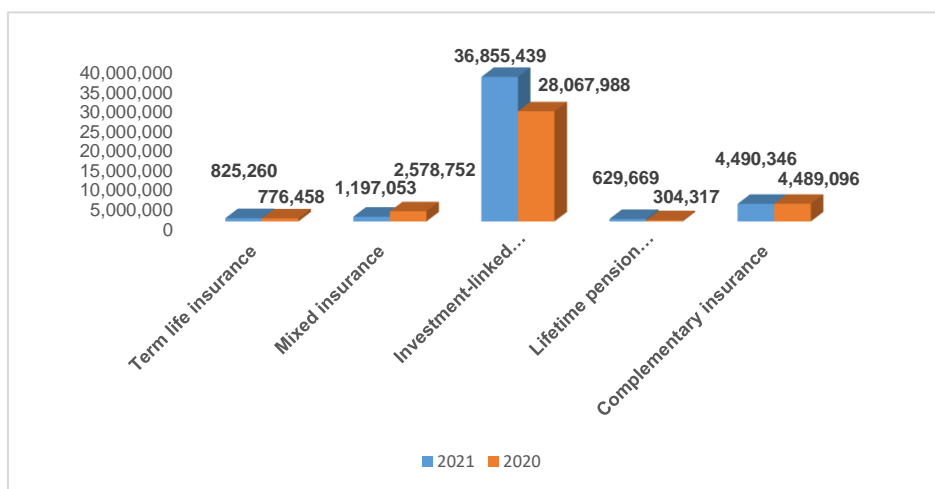


Figure 9. Graph of new exploitation revenue by operations in the first 11 months of 2021

Source: Hiep hoi Bao hiem Viet Nam

In the first 11 months of 2021, Life Insurance has a new contract with the number of insurance policies reached 3,302,316, led by investment-linked insurance with 1,786,921 policies of individual and group members (accounting for 54.1%, up 4.2% compared to compared with the same period in 2020), followed by term life insurance products with 1,129,773 policies (accounting for 34.2%, up 35.5% over the same period in 2020), mixed insurance was 90,378 contracts (accounting for 2.7%, down 56.7% over the same period in 2020). The number of new mining contracts for the remaining main operations accounted for 8.9%, an increase of 197% over the same period in 2020.

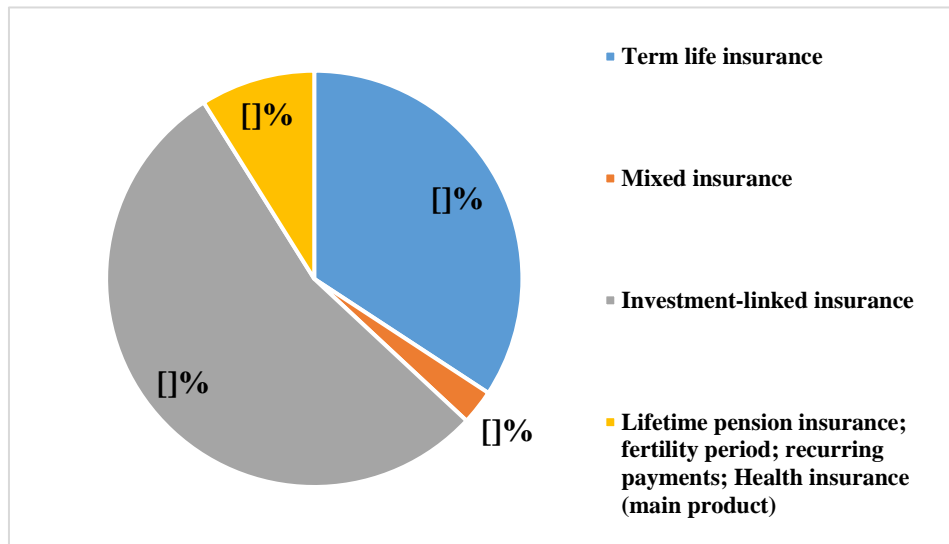


Figure 10. Chart of the proportion of new mining contracts by operation in the first 11 months of 2021

Source: Hiep hoi Bao hiem Viet Nam

Total life insurance premium revenue reached VND 138,643 billion, up 22.1% over the same period of 2020. Calculating premium revenue by each operation, investment-linked insurance accounted for the largest proportion. with 67.6%, followed by mixed insurance business with 20.3%, the remaining main business lines accounted for 1.9%. Supplemental insurance premium revenue contributes 10.2% of the total market premium.

The specific market share of total premium revenue is as follows: Bao Viet Life (19.7%), Manulife (18.9%), Prudential (16.8%), Dai-ichi (11.8%), AIA (10.7%), MB Ageas (3.7%), Chubb (2.7%), Generali (2.7%), FWD (2.5%), Hanwha (2.5%), Aviva (2.1%), Sun Life (2.1%), Cathay (1.5%), BIDV MetLife (1%), the remaining businesses accounted for a small market share of less than 1%.

The above result has a significant contribution because the fee revenue of big companies like Manulife accounts for 19.71%; Bao Viet life accounts for 15.09%; Prudential accounted for 14.06%; Dai-ichi accounted for 12.53%; AIA accounts for 10.58%; MB Ageas accounted for 4.9%; Generali accounted for 4.83%; The remaining 11 life insurers accounted for a market share of 18.29%. It can be seen that Manulife has always led the life market in the proportion of fee revenue, and Bao Viet is not the enterprise with the highest proportion of new exploitation, but the proportion of fee revenue has always grown high. As can be

seen, for the big players in the industry, the trust of customers is still an advantage to help businesses sign large contracts to ensure that the total revenue of new mining is always good.

4. Discussion and Conclusion

4.1. Discussion and solution

Research shows that in the context of the impact of the Covid-19 epidemic, consumers' perceptions have changed and are properly aware of the benefits of life insurance in three areas: stabilizing life, creating peace of mind. health, contributing to life insurance. make future plans. However, many consumers are still not properly aware of the role and value of life insurance, so the percentage of population participating in insurance is still low.

Research results show that the impact of the Covid-19 pandemic on the perception of life insurance consumers is consistent with the research hypothesis. This shows that consumers are not fully aware of the importance of life insurance in the context of the impact of the Covid-19 pandemic. In the coming time, life insurance businesses must come up with appropriate business policies to develop the life insurance market in Hanoi, Hai Duong, Quang Ninh and Ho Chi Minh City. Ho Chi Minh City...

Research results also show that consumer awareness has an important impact on intention to take up life insurance. This has a positive impact on the development of consulting programs in life insurance businesses... Therefore, raising awareness of life insurance consumers amid the impact of covid-19 is an urgent and challenging issue.-19 epidemic on the life insurance market and must implement the following solutions:

- The research organization assesses the actual impact of the Covid-19 epidemic on the life insurance market to come up with a good idea, make effective use of modern technology applications such as developing an online sales network, through social networks, using artificial intelligence to appraise and pay insurance benefits ... so that consumers understand the benefits of life insurance, there will be thousands and millions of customers.

- After isolation and social distancing, continue to communicate in diverse and flexible forms to raise awareness of life insurance consumers after the impact of Covid-19. At the same time, organize seminars and consultation programs for consumers to grasp the benefits of life insurance.

- Life insurance enterprises must have legal policies to support consumers to develop production and business before the impact of the Covid-19 epidemic so as not to disrupt the supply chain of life insurance consumers.

- To do well in forecasting the negative effects of the Covid-19 epidemic on the life insurance market, in order to make appropriate and flexible decisions to deal with and adapt to the Covid-19 epidemic. Only then, will life insurance consumers fully feel the benefits of life insurance in the context of the impact of the Covid-19 pandemic.... /.

- Promote the development of the Bancassurance distribution channel system

- Create a direct distribution platform for life insurance

- Promote the application of information technology in the life insurance business

4.2. Conclusion

The study has systematized domestic and foreign research results on the decision and intention to buy life insurance products in the context of being affected by the covid-19 pandemic in Vietnam. Nam meticulously and meaningfully based on the above analysis and research results. In addition, the study has proposed a research model suitable for the socio-economic situation of Vietnam before the impact of the covid-19 epidemic on the basis of a survey of theoretical bases.

In addition, the paper can address these challenges by examining the potential and needs of existing life insurance consumers as well as conducting in-depth interviews with industry experts. . The question is what factors have influenced the decision of Vietnamese people to participate in life insurance in the context of being affected by the covid-19 pandemic, and why the rate of life insurance participation in our country? still quite low compared to the potential ground. This has been detailed in five chapters of the research paper by looking at the impact of a number of factors on the decision to participate in life insurance, which can be summarized as follows:

- The average income of Vietnamese households are still low compared to the affordable cost of life insurance. In particular, the Covid-19 pandemic has increased unemployment, reduced wages, and reduced people's disposable income. Moreover, Vietnamese people's confidence in insurance companies is very low.

- Domestic enterprises are under pressure to narrow the market due to the expansion of the government's compulsory health insurance program as well as competitive pressure and the risk of being acquired or merged when the EVFTA comes into effect. While the Covid-19 pandemic is complicated and has not been effectively controlled, they need to find solutions to reduce costs to maintain profit margins.

- Most of the large and effective domestic insurance companies have completed their search for foreign strategic partners. Therefore, opportunities for new FDI sources may be limited. Likewise, falling interest rates and capital market volatility can affect investment returns.

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THE EFFECT OF PERCEIVED SCARCITY OF ESSENTIAL GOODS ON CUSTOMERS' PANIC BUYING IN THE COVID-19 CONTEXT IN HANOI

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Abstract

The study was conducted to investigate the impact of perceived scarcity of essential goods on customers' panic buying in the Covid-19 pandemic context in Hanoi. The study first reviewed previous research and developed hypotheses related to the research objectives. Structural equation modeling (SEM) was conducted to test the hypotheses with the survey data of 508 individuals living and working in Hanoi, Vietnam. The findings indicated that there are four factors affecting consumers' perceived scarcity of essential goods. Besides, the result also reveals that perceived scarcity of essential goods has an indirect effect on panic buying through anticipated regret and attitude to panic buying. The study's empirical analysis carries implications for Policymakers.

Keywords: *Perceived scarcity, panic buying, COVID-19, essential goods*

1. Introduction

The COVID-19 pandemic has several negative influences on society. Thanks to many policies from the government, the 4th epidemic (starting from April 2021) witnessed a tedious decrease in the number of people buying uncontrollably (panic purchase, in-store hoarding), compared to 3 previous epidemics. However, this issue hasn't tended to disappear. It could lead to serious consequences, such as the quick spread of COVID - 19, rising prices of essential goods, social insecurity, or stocking out at supermarkets. It can be seen that the policies set by the government have some limitations due to policymakers' lacking information about factors causing customers' perceived scarcity of essential goods - one of the most significant reasons engendering panic buying behavior.

For giving recommendations to policymakers, this study set three main purposes: 1) Clarifying the rationale, concepts of panic buying and perceived scarcity of essential goods;

(2) Building a model describing the impact of perceived scarcity of essential goods on panic buying behavior in two directions: Direct and indirect, in which adding an intermediate variable suitable to elucidate the indirect impact of perceived scarcity on panic buying; (3) Suggesting some recommendations for the government in planning programs and policies to minimize the impact of factors affecting the panic purchase.

2. Literature Review

2.1. Health Belief Model

The Health Belief Model (HBM) is an empirically supported model of health behavior that provides a framework for understanding the adoption of public health measures driven by perceived risk from COVID-19, the benefits, and barriers; therefore, it recommends health-related behaviors to minimize COVID-19 transmission (Rosenstock, 1974; Janz and Becker, 1984). HBM includes six core elements: Perception of susceptibility and severity to a condition, perceived benefits and perceived barriers to recommended health-related behaviors, cues to action, and self-efficacy (Champion and Skinner, 2008). The HBM also considers factors that may moderate the relationship between six key components, such as age group (Jones et al., 2014).

This is a widely accepted model in the health behavior field to justify changing and sustaining health-related interventions (Mohammed Qussay Al-Sabbagh et al., 2021). In the present study's context, panic buying behavior can be considered as a preventive health behavior that helps to limit the likelihood of contracting COVID - 19 (Marcelo Fernandes Costa et al., 2020) and the possibility of being affected by an out-stock due to supply chain disruption.

Perceived susceptibility: Perceived susceptibility in the Health Belief Model (Irwin M. Rosenstock et al.) refers to “individuals that feel they are susceptible to a health problem will engage in behaviors to reduce the risk of developing such problems”. In the context of the COVID-19 pandemic, perceived susceptibility is an individual's perception of the risk or the chance of getting COVID-19.

Perceived severity: Perceived severity in the Health Belief Model refers to “the subjective assessment of the severity of a health problem and its potential consequences”. In relation to Covid 19, the perceived severity of an individual is the impact level of being infected with Covid 19 on his health and life.

Outcome Expectation: Outcome expectation is defined as “a person's estimate that a certain behavior will lead to a certain outcome” (Bandura, 1977). Kum Fai Yuen et al (2021) consider outcome expectation including perceived benefits and perceived barriers. It will be positive if perceived benefits compensate for perceived barriers of panic buying. Outcome expectation, by contrast, will be negative if the perceived barriers outweigh the perceived benefits.

Cues to action: The Health Belief Model (HBM) suggests that “a cue is necessary to promote engagement in health-protecting behaviors” (Rosenstock, 1974; Janz and Becker, 1984; Carpenter and Christopher J.; 2010). The cues that lead to action can be internal or external. Physiological signs (eg, pain, symptoms) are an example of internal cues

(Rosenstock, 1974; Barbara K. Rimer and K. Viswanath, 2008). External cues include events or information from close people, media, etc.

Self-efficacy: Self-efficacy refers to “an individual's perception of her/his capacity to successfully perform a behavior”. “Self-efficacy was added to the HBM in an attempt to better explain individual differences in health behaviors”. The model developers recognized that confidence in one's ability to effect change in outcomes (i.e., self-efficacy) was a key component of health behavior change.

2.2. Definition of panic buying

According to Oxford (2020), panic buying is “the act of buying large quantities of everyday items such as food, fuel, etc. because of concerns about them running out or prices rising”. Panic buying behavior is common consumers’ response to disasters and it often occurs when consumers anticipate and perceive disasters. Sheu and Kuo (2020) suggest that hoarding before or during a disaster can be understood as a form of self-protective behavior.

Panic buying is considered a common phenomenon; however, it has received little attention from researchers, and lots of topic research results over the world are inconclusive. According to the team’s knowledge, in Vietnam, there are limited scientific research reports on the panic buying behavior of consumers.

With months of social distancing in place due to the effects of COVID-19, panic buying has become not only a necessary action but also a psychological coping mechanism (Tahir Islam et al. 2021). Specifically, as reported by Tahir Islam et al. (2021), in the context of distancing grocery stores to close or shorten store opening hours, experts advise people not to go shopping unless necessary, and stores should keep indoor social distancing. All of these have increased consumers’ anxiety levels. This increase has the potential to stimulate consumers to buy products that they don't need or buy more than they would use. The distrust in governments' situation control and fear of store closure has also caused panic buying.

2.3. The effect of perceived susceptibility on perceived scarcity of essential goods

Perceived susceptibility to contracting COVID-19 refers to consumers' perceptions of the chance of illness related to their psychological and physiological health conditions, along with their confidence in the future management of the pandemic. According to Kum Fai Yuen et al. (2021), consumers will perceive scarcity if they feel the risk of contracting COVID-19 is high. They are concerned that the high risk of community spread of the disease will lead to movement restrictions which affect the transportation, supply, and goods replenishment. This leads to shortages and out-of-stock situations occurring more often, hence, it creates perceived scarcity. “What influences panic buying behaviour? A model based on dual-system theory and stimulus-organism-response framework" research (Xue Li et al, 2021) also shows that the perceived susceptibility factor has a positive effect on consumers’ perception of scarcity.

H1. Perceived susceptibility positively affects customers’ perceived scarcity of essential goods

2.4. The effect of perceived severity on perceived scarcity of essential goods

Perceived severity reflects how an individual feels the effects of being infected with COVID-19. It could be the impact on the person's job, health, relationships, or future. Pandemic-related problems such as movement restrictions, economic recession, unemployment, poverty, etc. have led to psychological problems, including anger, fear, frustration, and even suicide (Ahorsu et al., 2020; Pakpour & Griffiths, 2020; Sakib et al., 2020; M.A.Mamun & IrfanUllah, 2020). These negative effects can cause consumers to become distrustful and think of bad scenarios such as believing that the supply chain is broken, thereby engaging in selfish behaviors to protect themselves (panic buying, hoarding), causing perceived scarcity. The result of "What influences panic buying behaviour? A model based on dual-system theory and stimulus-organism-response framework" research by Xue Li et al (2021) has shown that perceived severity has a positive effect on the consumer's *perception* of scarcity. Therefore, our team hypothesized:

H2. Perceived severity positively affects customers' perceived scarcity of essential goods

2.5. The effect of outcome expectation on perceived scarcity of essential goods

In this study context, outcome expectation can be understood as the expected benefit from hoarding or from panic buying. It is the benefits that consumers expect themselves to gain (perceived benefits) from panic buying outweigh the loss they anticipate they will lose (perceived barriers). According to Kum Fai Yeun et al. (2021), the perceived benefits of panic buying include the protection of buyers from out-of-stock situations, a low chance of COVID-19 infection, and a sense of security.

Perceived benefits can be classified into four main categories as economic benefits, hedonistic benefits, functional benefits, and social benefits (Xuequin Wang et al., 2019). These types of benefits direct consumers to buy more than necessary to maximize the expected outcome. Perceived barriers are obstacles that consumers think might prevent them from making panic buying. It is a barrier to time, health, social, money, and negative social utility (the opinion that panic buying is a socially undesirable action). Research results of Kum Fai Yuen et al (2021) have confirmed that the expected benefit is one of the factors affecting the consumer's perception of scarcity of essential goods.

H3. Outcome expectation positively affects customers' perceived scarcity of essential goods

2.6. The effect of cues to action on perceived scarcity of essential goods

This study considers cues to action such as past experiences, mass media, and social influence (family, friends, neighbors, and co-workers) as triggers for readiness to panic buy consumer goods. Therefore, these cues will affect consumers' perception of the scarcity of goods (Rosenstock et al., 1974). Cues to action include external and internal stimuli. External stimuli such as broadcasting networks (online news, social networking services, and television) can provide significant predictors of perceived risk around health-related food risks (Moon et al., 2019). In addition, sociological theory indicates that consumers tend to follow herd instincts (Arafat et al., 2020). Internal cues such as past experience with the relevant goods can lead to a clearer perception of scarcity for that good (Baldini et al., 2020). Fragkou et al (2016) showed that

past experiences of water scarcity and profound distrust of water security (internal cues) can lead to water perceived scarcity. The results of “Panic Buying During the COVID 19 Pandemic: A Cross Country Test” found that excessive use of social media (external cues) increases messages about scarcity and perceived scarcity in all countries except India (Tahir Islam et al., 2021).

H4. *Cues to action positively affect customers' perceived scarcity of essential goods*

2.7. The effect of self-efficacy on perceived scarcity of essential goods

Self-efficacy in this study is called consumers' perceived ability to protect themselves from COVID-19 and respond to the pandemic. It fully regulates the consumer's self-regulatory mechanisms and the ability to protect themselves from failure events (Błażuchnio et al., 2018; Atroszko et al., 2016). In particular, people with less self-efficacy have an impaired ability to manage a variety of problems such as managing their anxiety and social stress (Wegmann et al., 2016). An increase in self-protection in response to the pandemic will make consumers more inclined to manage their stress and anxiety by proactively taking precautions to protect themselves from the virus epidemic. The study "Factors affecting panic buying behavior during the COVID-19 pandemic" by Kum Fai Yuen et al (2021) showed that self-efficacy is one of the factors leading to perceived scarcity. From the above theoretical bases and evidence, our team has a hypothesis:

H5. *Self-efficacy positively affects customers' perceived scarcity of essential goods*

2.8. The direct effect of perceived scarcity of essential goods on panic buying

This study considers scarcity as an individual's perception of the limited availability of essential goods, leading to the prediction that the product will soon become inaccessible due to the COVID-19 pandemic crisis.

According to Reactance theory, the perceived scarcity of a product implies a threat to personal freedom that induces a psychological response, which in turn increases the consumer's incentive to obtain substitutes, when this type of substitute product may soon become unavailable (Ditto et al., 1989; Worchel et al., 1971). Perceived scarcity is attributed to the effects of loss of freedom (i.e., banning or reducing access to products) (Sheu et al., 2020; Maghsoudi et al., 2018). Perceived loss of freedom increases the perceived attractiveness of restricted goods and services (Brehm et al., 2013), leading to an increased desire to engage in prohibited actions (panic buying with limited purchases of goods and services).

In addition, in situations where they perceive themselves to have and suffer the consequences of COVID-19, the greater the perceived scarcity, the more unprotected and vulnerable they are, and the more likely they are to participate. protective measures to avoid danger (Razmara et al., 2018).

As a result, they are more likely to panic buying to reduce the frequency of shopping and the risk of getting COVID-19. This psychological response leads to an increase in consumer panic buying for goods that are perceived to be scarce (Serman et al., 2015; Pan et al., 2020).

H6. *Perceived scarcity of essential goods positively affects panic buying*

2.9. The indirect effect of perceived scarcity of essential goods on panic buying

The study also suggests that perceived scarcity of essential goods will have an indirect effect on panic buying through anticipated regret. Regret is the negative feeling we experience when we think about past actions (or inactions) that we wish we had chosen differently. Anticipated regret is the present experience of regret we think we might feel in the future, often about decisions we are currently considering making. This feeling can influence our decisions a lot, sometimes more wisely and sometimes less.

In the context of this pandemic outbreak, perceived scarcity can be a concept of quantity scarcity due to increased demand. Thus, perceived scarcity of essential goods can lead to increased consumer perception of competition and perceived price insecurity for readily available goods. This increased perception of competition and price insecurity is likely to increase anticipated regret for consumers because they will foresee themselves regretting it if they fail to compete with others to buy goods for the purpose of hoarding (Breffni M. Noone et al., 2020). From a price uncertainty perspective, they can foresee that they will regret it if they don't purchase at a lower price than they are now before the price spikes (James Lemieux et al., 2011). Overall, the risk of not being able to buy products with limited supply and missing out on products sold at lower prices has caused this predictable regret.

H7. Perceived scarcity of essential goods positively affects anticipated regret

In times of low certainty, consumers predict that they will regret not making a panic buying (Shipra Gupta et al., 2017). This anticipated emotion develops from an unexercised option (i.e. panic buy option). They feel regret if the choice (panic buying) leads to a better outcome (Kum Fai Yuen et al., 2020). This may be because consumers regret paying a higher price on a later purchase than they would have paid if they bought it earlier as a panic purchase. In addition, consumers may regret encountering out-of-stock situations because they did not panic buy earlier when given the choice of buying behavior.

Resonating with Prospect theory, which describes decision-making behaviors under uncertain circumstances such as loss prevention, consumers are likely to feel more regret than joy for not panic buying due to receiving see scarcity (Zhiying Wang et al., 2019). With the anticipation of an uncertain future, consumers want to take precautionary action and buy panic to avoid future regrets such as paying higher prices or experiencing out-of-stock situations. Research by Charles Abraham et al., 2010 mentions that predicted regret has the effect of enhancing the intention to perform the current behavior.

H8. Anticipated regret positively affects panic buying

The context in Vietnam, specifically in this study, is Hanoi, which is one of the factors for the research team to consider adding an intermediary variable when thinking, reacting, and evaluating Vietnamese consumers. There are many points to note about panic buying and the term Panic buying is still quite new to Vietnamese consumers. According to the results of in-depth interviews, consumers who perceived scarcity of essential goods have some evaluations/attitudes toward panic buying behavior. These

consumers claim that the greater the perceived scarcity of essential goods, the stronger their attitudes towards panic buying.

H9. *Perceived scarcity of essential goods positively affects attitude to panic buying*

According to the Theory of Planned Behavior (TPB), the intention to perform a behavior is determined by three central constructs: subjective standard, attitude, and perceived control. “Attitude” is a behavioral assessment, favorable or unfavorable. In principle, the more favorable the attitudes and subjective norms, and the greater the cognitive control, the stronger the individual's intention to perform the behavior in question. Besides, the research results of Mira Lehberger and Anne-Katrin Kleih (2021) also show that the attitudinal variable has a significant influence on the consumer's hoarding behavior.

H10. *Attitude to panic buying positively affects panic buying*

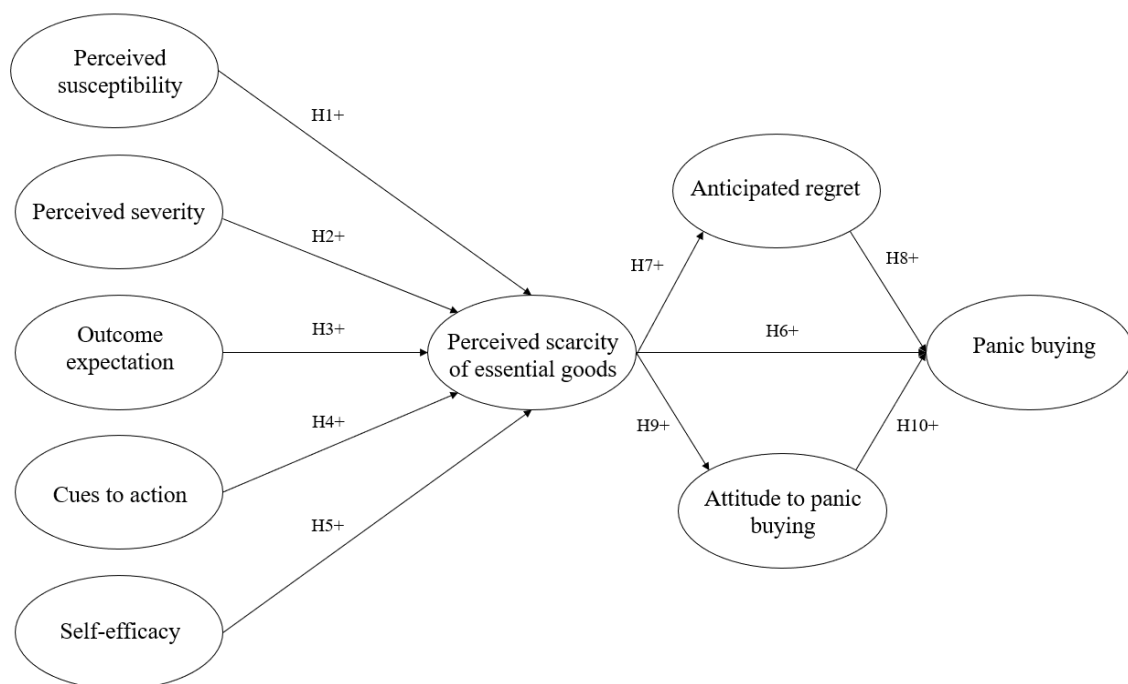


Figure 1. Proposed research model

3. Method

The research method was carried out in two stages. The first stage focuses on developing scales based on the definitions of each factor, this stage mainly adjusts the scales identified in previous studies. Content values were evaluated to ensure consistency of the scales. The second one involves testing the research hypotheses, using data collected from people living and working in the districts of Hanoi (Hai Ba Trung, Hoang Mai, Dong Da, Ha Dong, Hoan Kiem, Thanh Xuan,...) during the period affected by the COVID-19 pandemic from September 2021 to February 2022.

The observed variables of each factor in this study were adjusted from previous studies. The author has made small adjustments to the wording of previously observed variables to suit the research context. Since this research was conducted in the Vietnamese market, the observed variables were translated from English to Vietnamese and then back to

English to check the accuracy. If necessary, the Vietnamese translation can be adjusted.

A 5-point Likert scale from 1 = “strongly disagree” to 5 “Strongly agree” was used to measure the observed variables in the study. Perceived susceptibility was measured by three items proposed by Kum Fai Yuen (2021), Perceived severity was measured with four items developed by Huang (2016) and Kum Fai Yuen (2021); Self-efficacy was measured by three items by Kum Fai Yuen (2021); Outcome expectation, Cues to action, Attitude to panic buying was in turn measured by four items for each factor by Kum Fai Yuen (2021); Perceived scarcity of essential goods, Anticipated regret, Panic buying was in turn measured by three items for each factor by Kum Fai Yuen (2021).

With 586 survey votes collected, after screening and removing invalid votes, the author uses 508 valid votes to use in the official analysis. Of the respondents, 48 (9.4%) were male, and 460 (90.6%) were female. In addition, the majority of respondents shop at least twice a month (57.1%).

SPSS 22.0 and Amos 24.0 were used for data analysis. The author uses the two-step approach of Anderson and Gerbing (1988). First, Confirmatory Factor Analysis (CFA) to check the appropriateness of each scale and the structure of each factor. Second, the linear structural model (SEM) was used to test the research hypotheses.

Table 1. Analysis of demographic data (N=508)

Characteritics		Frequence	Percent (%)
Sex	Female	460	90.6
	Male	48	9.4
Monthly Income	< 5 millions VND	148	29.1
	From 5 – under 10 millions VND	110	21.7
	From 10 – under 15 millions VND	91	17.9
	From 15 – under 20 millions VND	72	14.2
	From 20 million VND	87	17.1
Age	18 – 26	463	91.1
	27 – 49	38	7.5
	> 50	7	1.4
Education level	Lower secondary school	3	0.6
	Upper secondary school	48	9.4
	High school, college, university	422	83.1
	Postgraduate (Master, Doctor...)	35	6.9
Online shopping frequency	Almost none (1 - 3 times/year)	29	5.7
	Several times per year (4 - 10 times/year)	114	22.4
	Several times per month	290	57.1
	Several times per week	61	12
	Daily	14	2.8

4. Results

4.1. Measurement model

Confirmatory Factor Analysis (CFA) was used to determine the unidirectionality, reliability, and validity of the scale after the initial stages of descriptive analysis. All index scale test results are accepted. Based on the indicators, the CFA results show that the compatibility with the model is feasible: evaluation index of CMIN/df is $2.024 < 5$: very good; GFI is $0.904 > 0.9$: good; CFI is $0.924 > 0.9$: very good and RMSEA is $0.045 < 0.05$: very good.

All normalized factor loading coefficients of the scales are greater than 0.6 ($P < 0.001$). Furthermore, the composite reliability (CR) of the seven factors is greater than 0.7 and all Average Variance Extracted (AVE) values are greater than 0.5, showing that the concepts are unidirectional and convergent. The scales are all unitary and have discriminable values because the correlation coefficients between the concepts on the overall scale are all different from 1, statistically significant $P < 0.05$ and the square root value. Two of the A.V.E of each concept is larger than the correlation coefficients between these concepts with other concepts. In addition, the calculated Cronbach's alpha coefficient for each scale ranges from 0.608 to 0.844. The results are detailed in Table 2.

Table 2. Total coefficient Cronbach's alpha, CR and AVE's of official scale

Factor	Number of items	Cronbach's Alpha	CR	AVE	Variable label
Perceived susceptibility	3	0.608	.711	.551	RR
Perceived severity	4	0.740	.834	.560	CN
Self-efficacy	3	0.610	.789	.596	NL
Outcome expectation	4	0.786	.865	.616	LI
Cues to action	4	0.759	.841	.572	TH
Perceived scarcity of essential goods	3	0.790	.898	.691	KH
Anticipated regret	3	0.810	.906	.707	HT
Panic buying	3	0.737	.905	.704	HV
Attitude to panic buying	4	0.844	.898	.690	TD

4.2. Structural model

The Structural Equation Modelling (SEM) was used to evaluate the proposed study model and test the study hypotheses. The fit of the model was accepted: Chi-square = 1148.844; Chi-square/df = 2.775; $p = 0.000$; GFI = 0.862; TLI = 0.845; CFI = 0.862; RMSEA = 0.059. Also, from SEM analysis, hypothetical relationships were tested. Perceived susceptibility has a positive impact on consumers' perceived scarcity of essential goods ($\beta = 0.121$, $t = 1.985$, $p = 0.047$). Perceived severity has a positive impact on consumers' perceived scarcity of essential goods ($\beta = 0.211$, $t = 3.661$, $p < 0.001$). Outcome expectation has a positive impact on consumers' perceived scarcity of essential goods ($\beta = 0.420$, $t = 6.869$, $p < 0.001$). Cues to action have a positive impact on consumers' perceived

scarcity of essential goods ($\beta = 0.116, t = 2.12, p = 0.036$). Perceived scarcity of essential goods had a positive effect on anticipated regret ($\beta = 0.659, t = 11.791, p < 0.001$). Anticipated regret for not purchasing goods during panic has a positive effect on panic buying ($\beta = 0.346, t = 4.495, p < 0.001$). Perceived scarcity has a positive effect on attitude to panic buying ($\beta = 0.387, t = 7.071, p < 0.001$). Attitude to panic buying has a positive impact on panic buying ($\beta = 0.390, t = 6.624, p < 0.001$).

Table 3 results show that there is no basis to confirm that self-efficacy has an impact on consumers' perceived scarcity of essential goods ($\beta = 0.098, t = 1.815, p = 0.070$); Perceived scarcity of essential goods has a direct effect on panic buying ($\beta = 0.053, t = 0.675, p = 0.5$).

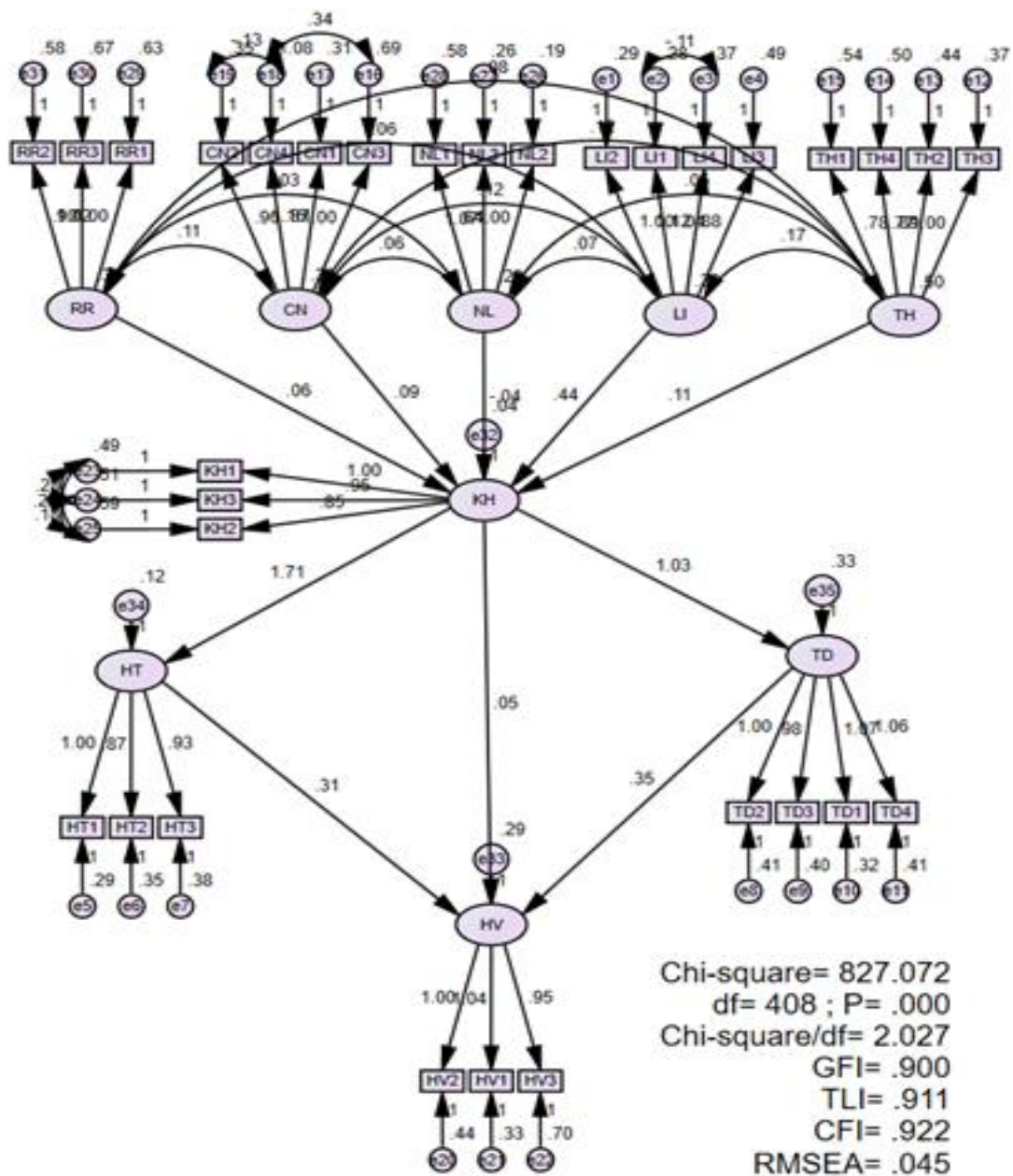


Figure 2. The results of testing the linear structural model

Table 3. The results of model testing do not have the effect of the moderator variable

			Estimates		SE	C.R.	P Value	Results
			Unstandardized	Standardized				
KH	<---	RR	.132	.121	.067	1.985	.047	H1: Accepted
KH	<---	CN	.184	.211	.050	3.661	***	H2: Accepted
KH	<---	LI	.127	.420	.062	6.869	***	H3: Accepted
KH	<---	TH	.424	.116	.050	2.102	.036	H4: Accepted
KH	<---	NL	.105	.098	.070	1.815	.070	H5: Not accepted
HV	<---	KH	.782	.053	.084	.675	.500	H6: Not accepted
HT	<---	KH	.428	.659	.066	11.791	***	H7: Accepted
HV	<---	HT	.057	.346	.069	4.495	***	H8: Accepted
TD	<---	KH	.310	.387	.060	7.071	***	H9: Accepted
HV	<---	TD	.375	.390	.057	6.624	***	H10: Accepted

Note: *** = $p < 0,001$.

4.3. Tests of mediation effects

To further the analyses, the mediating effects of anticipated regret, attitude to panic buying were investigated. A bias-corrected bootstrap-function with 1000 samples (Baron and Kenny, 1986) was used to investigate mediating effects. The research team proposed two intermediate variables in the impact of perceived scarcity of essential goods on panic buying, Anticipated regret and Attitude to panic buying. In which, the variable HT plays an intermediary role in the indirect relationship from KH to HV with a standardized impact coefficient of 0.228 and the variable TD plays an intermediary role in the indirect relationship from KH to HV with the coefficient the normalized effect is 0.151. Thus, the total standardized indirect effect coefficient in the intermediate relationship from KH to HV is 0.379.

5. Discussion and Conclusion

5.1. Policy Implications

To address policy limitations, this paper provides more information about the effect of perceived scarcity of essential goods on panic buying and proposes to policymakers and customers some following solutions:

For policymakers: It is necessary to introduce policies to minimize customer's outcome expectation in panic buying of essential goods, as well as anticipated regrets if consumers don't purchase panic these items (recommendations are made based on the factors that have a strong impact on the relationships in the model). Besides, the government should ensure the number of necessities in the market, stabilize prices and prevent acts of speculation and hoarding from some retailers. Furthermore, promoting the role of the mainstream media such as VTV, Thong tin Chinh Phu fan page.... in the COVID-19 context is needed because these channels have an influence on people's perception scarcity of essential products.

For customers: The first priority customers can consider is increasing self-protection measures during the pandemic to reduce the perceived risk of contracting COVID-19, or perception of damage in case contracted with COVID-19. This solution can minimize the perceived scarcity of essential goods and limit panic buying behavior. Besides, consumers should follow mainstream media channels. With an information source that accurately reflects the social reality and quickly updates the policies of the government, official communication channels play a crucial role in orientating consumers to reasonable buying behavior.

5.2. Limitations and future research

This research study has three main limitations to consider. Firstly, the survey time isn't suitable. The survey was conducted around December 2021 when the COVID-19 became a relatively familiar social issue for people after three previous phases of the pandemic. In addition, the policy of universal vaccination has contributed to reducing people's negative thoughts about the epidemic. Therefore, consumers' attitudes to the scarcity of essential goods have changed, especially compared to the period when the pandemic broke out in Vietnam (2020). Secondly, the research scope and research participants have limited. Authors have reached very few groups of over 50-year-old participants and 27 - 49-year-old participants. Besides, this study was only carried out in Hanoi. Future studies may expand the study scope to examine the difference in panic buying behavior between different regions. Thirdly, the authors haven't been able to turn occupational factor, which influences consumers' panic buying behavior according to Kum Fai Yuen et al (2021), into a control variable and consider its impact.

5.3. Conclusion

In general, except self-efficacy (standardized effects of 0.098), four-fifths of independent variables impacting perceived scarcity of essential goods (outcome expectation, perceived severity, perceived susceptibility and cues to action) are accepted with standardized effects of 0.420, 0.211, 0.121, 0.116 respectively.

Outcome expectation has the highest impact on perceived scarcity of essential goods (the highest standardized impact coefficient of 0.420). This result is similar to the research results of Kum Fai Yuen et al (2021). The majority of consumers perceive a shortage of essential goods because they perceive many expected benefits that panic buying behavior can bring in the COVID-19 context, especially before the social distancing order is implemented, which can be mentioned as protecting consumers from out of stock and high price of goods, reducing the risk of COVID-19 due to avoid going to crowded places.

Cues to action has the lowest impact on perceived scarcity of essential goods (standardized impact coefficient of 0.116). This is also similar to the research results of Kum Fai Yuen et al (2021). It can be seen that, in the context of COVID-19, the perceived scarcity of customers in Hanoi and Viet Nam is heavily influenced by subjective factors such as the expected benefits of hoarding, perception of damage if infected with COVID-19, perception of risk of contracting COVID-19. Objective factors such as family, friends and communication channels have a lower impact on perceived scarcity of essential goods.

The research results of the group show that perceived scarcity of essential goods has no direct impact on panic buying, but has an indirect effect through a few other intermediate variables. The authors believe that this result occurs because the survey time in December 2021 is quite late when people are familiar with COVID-19 and panic buying is a behavior that is not encouraged by the majority. Therefore, some participants may have given answers different from their actual behavior and perception. Perceived scarcity of essential goods indirectly affects behavior through two variables, namely anticipated regret and attitude to panic buying, in which the standardized effect of anticipated regret is higher ($0.228 > 0.151$). Many consumers purchase panic because they think about some regrets that may appear in the future if they don't buy panic, including not choosing the desired product and not preparing well enough for COVID-19.

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AWARENESS OF HO CHI MINH CITY URBAN RESIDENTS ABOUT SOLUTIONS TO PREVENTION OF THE DISEASE OF COVID-19

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Abstract

The COVID-19 pandemic has affected people's health, physically and mentally. The epidemic has changed the way of working, lost jobs, financial deprivation and the living habits of residents were turned upside down. In addition, psychosocial stress, panic anxiety, depression, trauma due to infection, because a loved one is infected or lost due to COVID-19. Ho Chi Minh City has drastically prevented and controlled the COVID-19 epidemic and achieved many positive results such as: people's awareness of epidemic prevention and control has been improved; social security, the supply of necessities is guaranteed; partly help people feel secure, optimistic, confident in the city's epidemic prevention work. In that context, the author conducted a public opinion poll to find out people's opinions and assessments about epidemic control solutions in the city. From there, timely provide information, help city leaders implement epidemic prevention and control with good results.

Keywords: *COVID-19, awareness, Ho Chi Minh City.*

1. Introduction

The impact of the COVID-19 pandemic has affected people's health, physical and mental health, such as increasing anxiety, stress, and confusion. In the context of the complicated development of the epidemic, all people are interested in news related to the pandemic such as the number of cases, the number of deaths; measures to prevent and control the epidemic in the community, ... cause many people to panic and worry. The epidemic has changed working forms, the rate of job loss, job relaxation, increasing financial and economic worries, making socio-psychology also severely affected; prolonged epidemic affects all aspects of social life and upsets all daily routines, people become tired, bored, slow and sluggish; Pandemic increases the risk of anxiety, depressive disorders, trauma from infection, infection or death of a loved one from COVID-19²²⁷.

Over the past time, the City has drastically implemented solutions to prevent and control the COVID-19 epidemic and achieved many very important results; the health system is strengthened and consolidated; the number of hospitalizations, severe transfers and deaths continuously decreased; the vaccination rate for people aged 18 and over reached

²²⁷ Plan No. 3066/KH-UBND dated September 15, 2021 of the Ho Chi Minh City People's Committee on the prevention and control of COVID-19 and economic recovery in Ho Chi Minh City from the 15th of May. 9 year 2021.

98% who received the 1st dose and over 75% received the 2nd dose; people's awareness of epidemic prevention and control is enhanced; social security work, food supply, food is guaranteed. However, the epidemic situation in the city is still complicated, the number of new cases, the number of infections being treated at home and at medical facilities, and the death rate are still high. On the other hand, the vaccination rate in the provinces in the southern key economic region is still very low, the rate of vaccination with the second dose of the city is not high, which requires decisions and policies on economic recovery and prevention. The city's anti-epidemic must be carefully and carefully considered, suitable for the whole region²²⁸.

Therefore, the topic needs to objectively view and evaluate the city's solutions to prevent the COVID-19 epidemic in recent years under the perception of urban residents, as one of the ways help the city government have more useful information channels to perfect policies to help city people return to normal life soon.

In that context, the author conducted a public opinion poll to find out people's opinions and assessments about epidemic control solutions in the city. From there, timely provide information, help city leaders implement epidemic prevention and control with good results.

2. Method

Qualitative data is used and analyzed by the author from documents of the City's agencies and organizations; Quantitative data were collected in August 2021 through a pre-designed questionnaire with answer options, sent to respondents through OTT applications (Zalo, Viber, Messenger), fanpages and websites handled by the docs.google application for surveys, quick polls over the internet.

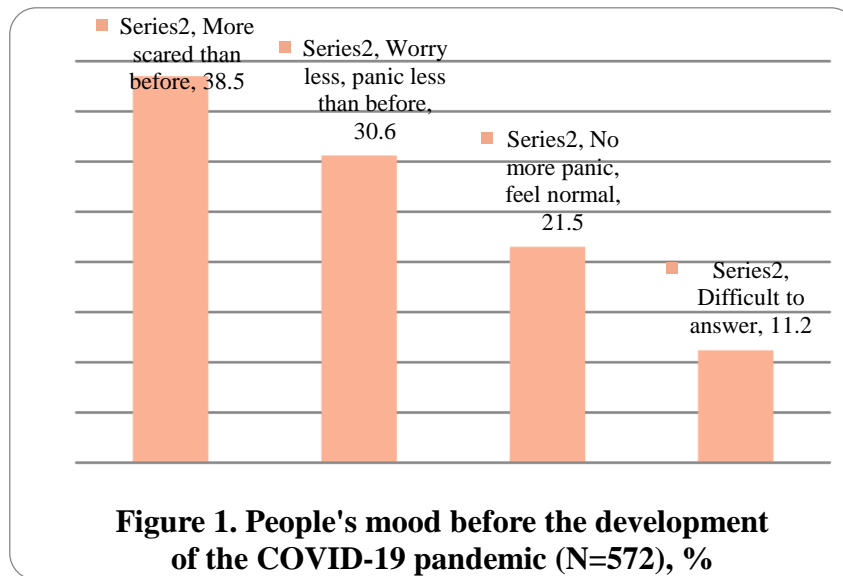
The survey results have 572 respondents with the following characteristics: the rate of male is 37.8% and female is 62.2%; Youth (from 18-30) accounted for 30.8%, middle age (31-60) accounted for 66.6%; occupation as cadres, civil servants and public employees accounts for 30.6%; Self-employed is 13.6%, office workers is 21.2%, is temporarily absent/lost job due to epidemic is 19.9%; The living area of the surveyed people is 20.1% in Thu Duc city, 55.8% in the district and 17.3% in the district. Thus, there are nearly two-thirds of women participating in the survey, most of them are middle-aged, the main occupations are cadres - civil servants - employees, office workers, freelance workers and are taking a break from work /lost their jobs due to the epidemic and most of them live mainly in the inner city districts of the City. The number of survey samples was randomly selected for convenience, ensuring representativeness of the population.

²²⁸ Directive No. 18/CT-UBND dated September 30, 2021 on continuing to control and adjust measures to prevent and control the COVID-19 epidemic and gradually recover and develop socio-economic in Ho Chi Minh City. Chi Minh.

3. Results

3.1. People's mood before the development of the COVID-19 pandemic

From 2020 until now, the city has been facing many COVID-19 outbreaks. In particular, the 4th epidemic outbreak in recent months has seriously affected all aspects of socio-economic life. In the context of the complicated development of the epidemic situation, people's moods have also changed a lot.



Source: Survey data of the author conducted in August 2021

The survey results in Figure 1 show that people in the city have different moods. In which, the mood "more fearful than before" (38.5%) has the highest percentage of people agreeing, accounting for more than one third of the respondents. That shows, feelings of anxiety, fear and insecurity than before have appeared in the minds of a segment of urban residents in the city. It is this same mood that has influenced and made people express many different emotions through the actions of hoarding essential goods, or strictly implementing the city's policy of "whoever stays where he is" to keep your family safe...

As for both, the moods "are less anxious than before" (30.6%) and "no longer panic, feel normal" (21.5%) accounted for more than half of the respondents. This result helps the city government feel confident and excited because most residents have a stable mood and trust in the government's epidemic prevention work. At the same time, the author also recognizes the positive change in people's awareness about the COVID-19 epidemic situation in recent times by the solutions that the government has taken such as: social distancing, Vaccination, community testing, treatment of F0 patients, F0 medical care at home and implementation of social security packages,... have helped people feel secure and adapt to the situation. current epidemic. In addition, in society, there is still a part of people who are "indifferent", not interested in the ongoing epidemic situation and have a "difficult to answer" mood (11.2%) accounting for more than 1/10 people asked.

Thanks to the solutions that the government has taken, people have peace of mind and are more comfortable with the current epidemic situation.

3.2. Information channels people use to learn about the situation of the COVID-19 epidemic

To find out the perception of urban residents about the COVID-19 epidemic situation in the past time. We need to clearly define the channel and the level of people's access to information.

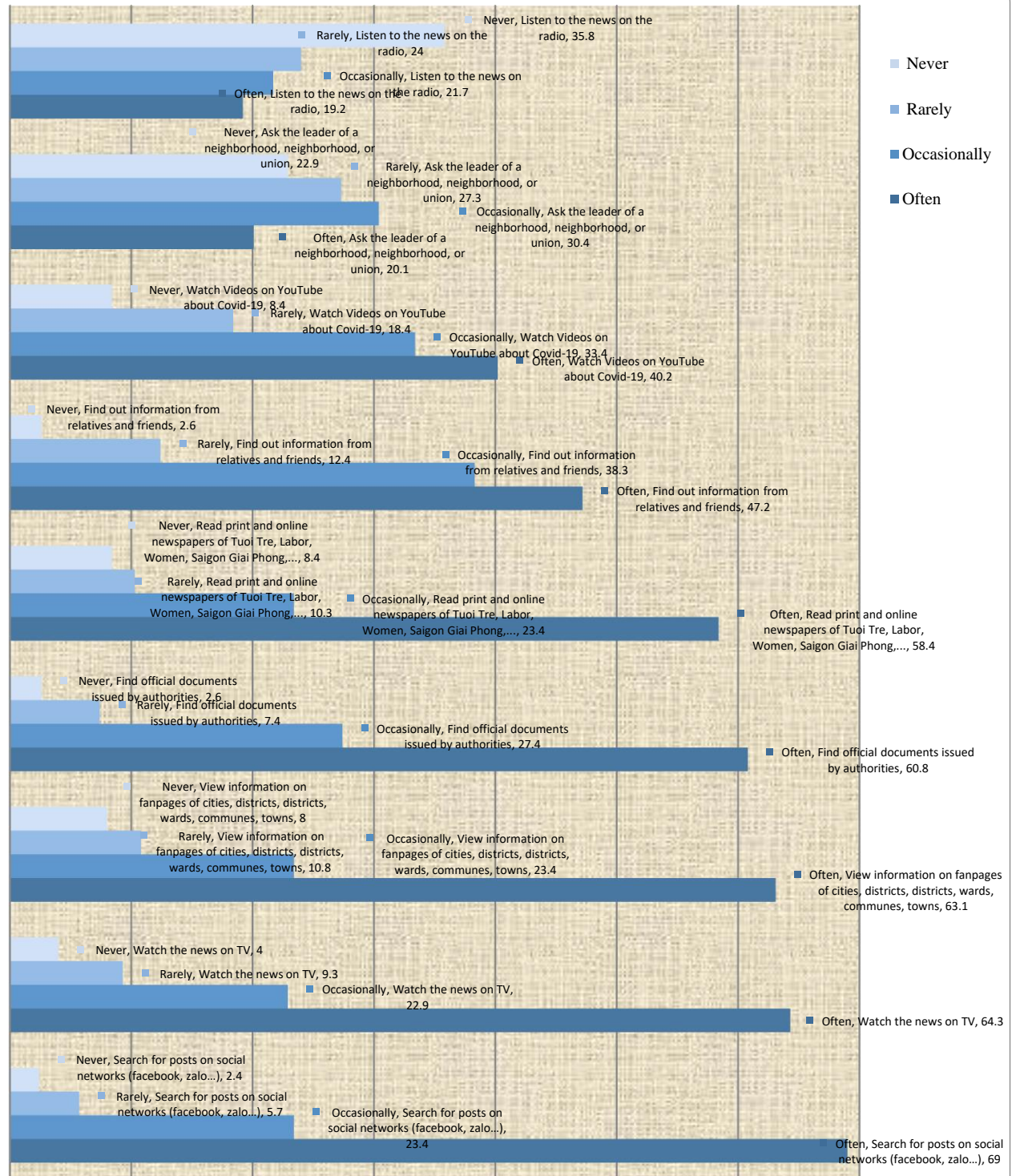


Figure 2. Information channels people use to learn about the COVID-19 epidemic situation (N=572), %

Source: Survey data of the author conducted in August 2021

The survey results in Figure 2 show that city dwellers can learn about the epidemic situation through many different information channels. At "regular" usage:

- People "Searching for posts on social networks (facebook, zalo,...) (69%) accounted for the highest proportion compared to other information sources (more than 2/3 of respondents). Thus, it can be affirmed that the majority of people in the city have the habit of regularly using social networks to update news about the COVID-19 epidemic situation in recent times. However, the reality shows that the birth and development of social networks has brought many positives to people's lives, but besides that, there are also many consequences, as a place to spread fake information jamming information;

- For activities: "Watching news on television" (64.3%), "Viewing information on fanpages of cities, districts, wards, communes and towns" (63.1%)), "Find official documents issued by competent authorities" (60.8%). We see that these 3 information channels from the government that people use have a lower rate (about 6%) than the channel "Searching for posts on social networks (facebook, zalo,...) but there are nearly two thirds of respondents, accounting for the vast majority of people interested in and understanding the situation of the COVID-19 epidemic in recent times. In which, television channel is still an important information channel that people follow, so it is necessary to focus on news quality, appropriate time frame and broadcasting time; The information on the government's fanpage shows that the flexible application and adaptation to the change of the digital society helps the government promptly inform and transmit messages to the people in the fastest way, bringing high efficiency in disease prevention; On the other hand, people are also aware of the duality of using social networks, so they tend to "Find official documents issued by authorities" to research and avoid fake news, untrue.

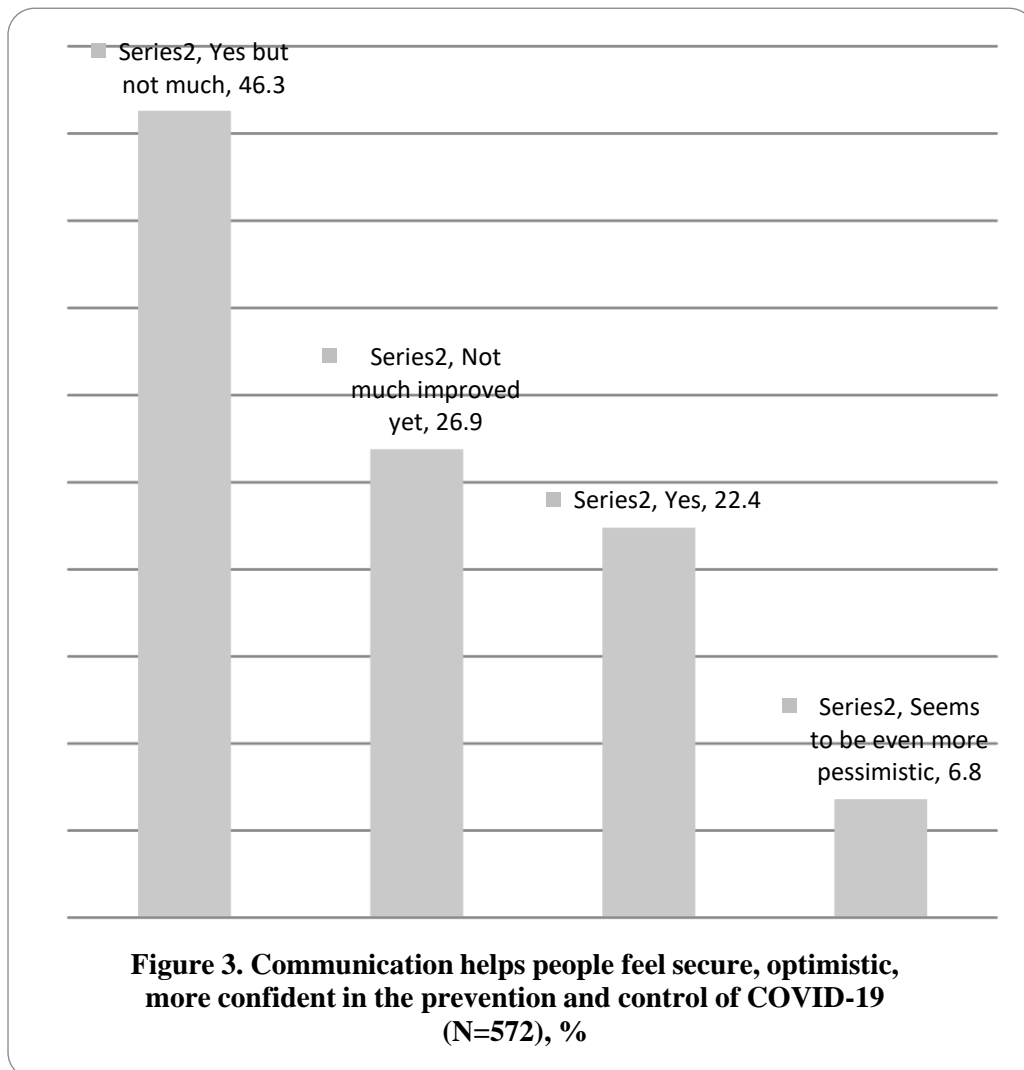
- For the information channel "Reading printed and online newspapers of Tuoi Tre, Labor, Women, Saigon Giai Phong,..." (58.4%) accounts for more than half of the respondents, showing that Most people in the city still regularly watch and think that this is a useful information channel, an indispensable spiritual food of the people.

There are two information channels that people "occasionally" access: "Getting information from relatives and friends" (38.3%) and "Watching videos on You Tube about COVID-19" (33.4. %), accounting for more than 1/3 of the respondents, is the option most people are interested in. It can be said that these two information channels are not fully trusted by the people in terms of accuracy, so they are only used for reference; and for 2 information channels "rarely" used by people: "Ask the leader of the neighborhood, neighborhood, mass organization" (27.3%), "listen to the news on the radio" (24%), accounting for approx. 1/4 of the respondents.

Based on the above analysis, the author can confirm that the people in the city grasp the epidemic situation regularly through social networks, on television, on the government's fan pages, in print and online newspapers...; a few have information from relatives and friends; It is rare for people to get information from the head of the neighborhood, the neighborhood, the union, and the radio channel.

3.3. Communication helps people feel secure, optimistic, more confident in the prevention and control of COVID-19

One of the important orientations of the media during the epidemic season is to help people feel secure, optimistic, more confident in the government's epidemic prevention and control work, and to reflect in a general and honest manner the situation of the epidemic. epidemic patterns outside the society for people to monitor so that they can respond appropriately to changes in society.



Source: Survey data of the author conducted in August 2021

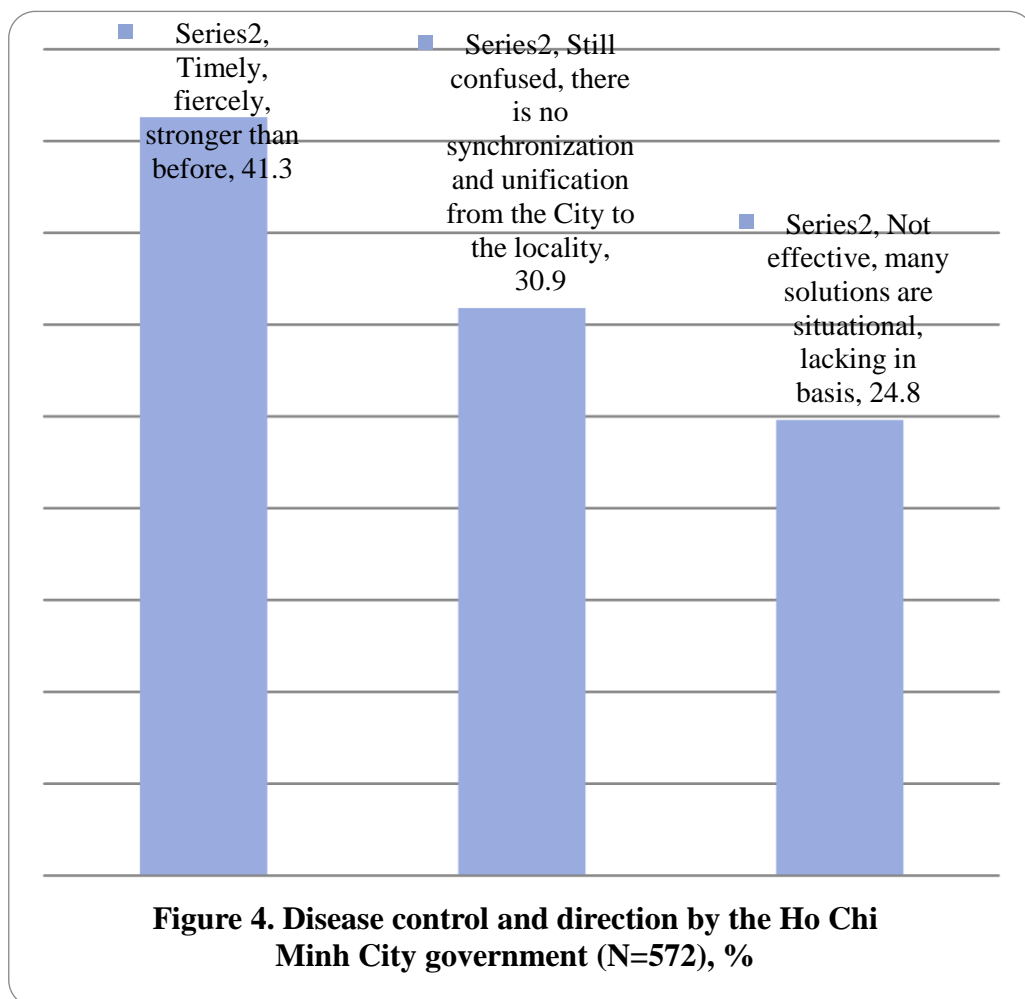
It can be seen that the survey results in Figure 3 objectively reflect people's feelings about whether the media has helped people feel secure, optimistic and more confident in the prevention and control of the Covid-19 epidemic. The survey results recorded: “Yes but not much” (46.3%) + “Yes” (22.4%) accounted for more than 2/3 of the respondents and the rate “Not much improved” (26, 9%) accounts for more than a quarter of the respondents. That shows us that the media in recent times has had a positive impact on the vast majority of people. They feel secure, optimistic and believe in the city's epidemic prevention work, but

not much. The rate of improvement has not been much, accounting for more than a quarter of the respondents. Besides, the opinion of the people said that: *"Supporting the people is to do exactly as said on the radio. On the radio, they say one thing, but when they return to the nest, the hamlet says another. The government has not reviewed all the workers unemployed due to the epidemic who are eligible for support and people receive unfair support because there are no houses, many houses are few, and it is uneven"* (Male, 40 years old).

This reflection of the people shows the inconsistency between media information and actual support policies of the government. In addition, the organization and implementation of policies still have many shortcomings, there is no fairness, so public opinion believes that there is still a part of the people who do not feel really secure and optimistic. This is also consistent with the quick survey data that the author has made.

3.4. Directing and controlling epidemics of the city government

In order to control the epidemic situation in the past time, the direction of the city government plays an important role, a decisive factor for the success in disease prevention.



Source: Survey data of the author conducted in August 2021

The results of the actual survey of people's opinions on the direction and control of the disease of the city government in Figure 4 show that: "Timely, decisively, stronger than before" (41.3%) accounting for more than one third of respondents confirmed, showing that the government's approach to the problem has changed in terms of thinking "Fighting the epidemic is like fighting the enemy" is the guiding ideology and action motto to ensure "The battle" against COVID-19 epidemic in the city achieved the fastest victory, "leaving no one behind".

In addition, there are still opinions that the direction of the government: "Still confused, there is no synchronization and unity from the city to the locality" (30.9%) and "Not effective, many solutions are still situational and lack foundation" (24.8%), both of these opinions account for more than half of the respondents. The survey results of the people also said that: *"It is necessary to strictly handle the cases of driving motorbikes to sell street goods, opening doors to sell secretly in people's houses. Go to the street to avoid the checkpoints by taking shortcuts"* (Female, 55 years old) and *"There are solutions to keep people apart in dense areas to avoid an increase in infections in neighborhoods and alleys in the city"* (Male), 45 years old).

From practice, in the last 4th epidemic, with the Delta variable, the spread rate is fast, the development is very complicated, making it difficult to forecast. In addition, the direction in some localities according to people's opinions is still in a hurry, handling is not strict, and timely solutions are not available to suit each time and each epidemic situation. cover all situations to deal with epidemics. In another aspect, it shows that the government is busy, both developing, implementing, and evaluating and drawing lessons in epidemic prevention, so the solutions and implementation stages are not really complete. Defects are inevitable. One of those issues was shared by people as follows: *"Implement social distancing to reduce infection, but let shippers operate again to ensure the supply of goods. The government needs to take measures to strictly control shippers to avoid causing infection and residential areas need to have latches so that goods are disinfected before reaching people"* (Male, 25 years old).

According to the suggestions of the people, in the solution at the stage of social distancing, the city government needs to allow the "Shipper" to work again but with conditions to ensure the prevention work. fight the epidemic according to regulations, ensure the supply of goods for the people, and meet the essential needs of society. At the same time, it is also one of the solutions to limit people going out.

3.5. Effective implementation of epidemic prevention goals

The epidemic prevention and control targets set by the government are orientations that are often attached to plans and are implemented in phases, with regular evaluation and control.

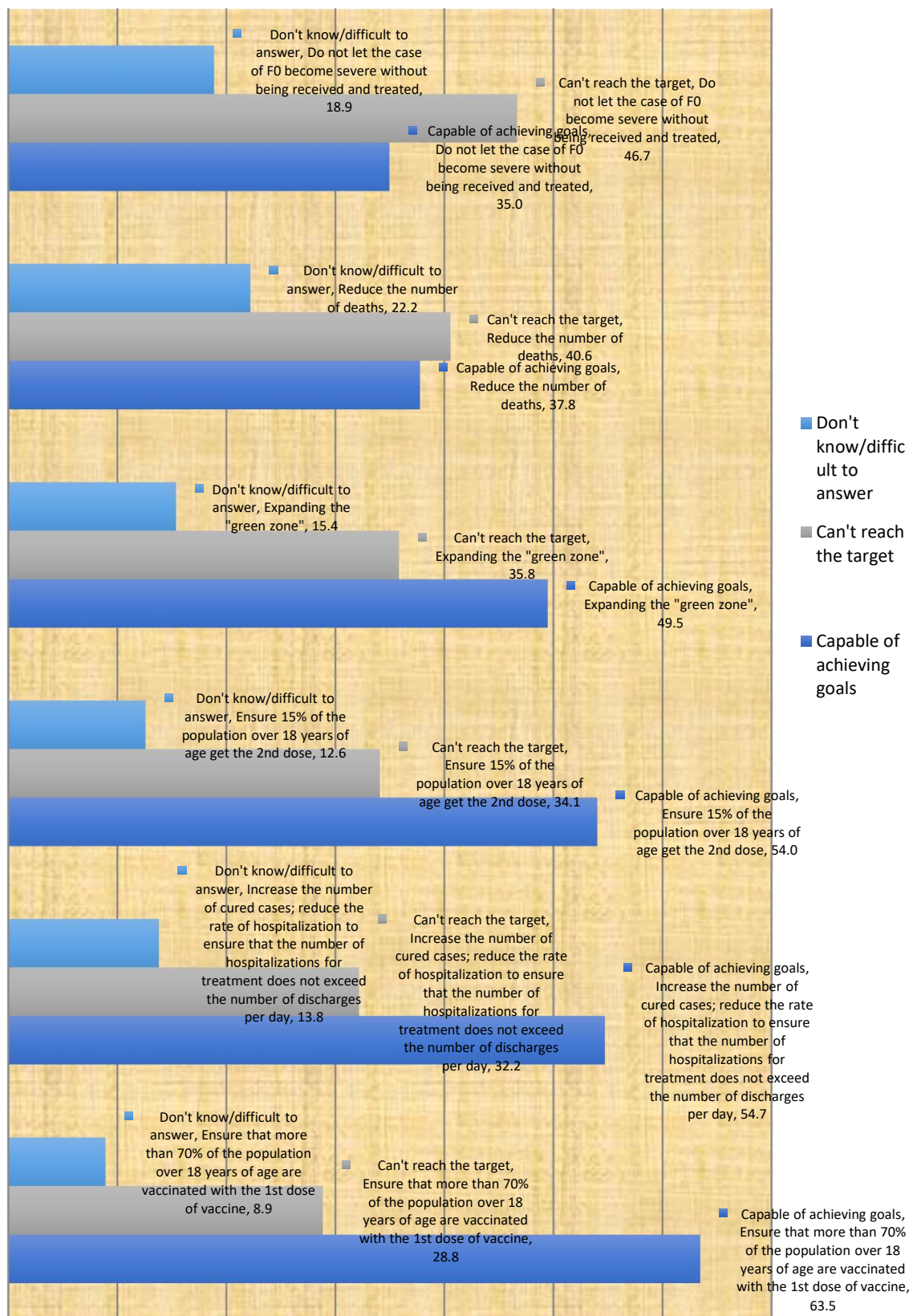


Figure 5. Implementation of COVID-19 prevention goals (N=572), %

Source: Survey data of the author conducted in August 2021

However, the effectiveness of implementing these goals is measured by people's trust according to the survey results in Figure 5, showing that:

- The targets are likely to be achieved such as: “Ensure that more than 70% of the population over 18 years old receive the first dose of vaccine” (63.5%), “Increase the number of cured cases; reduce the rate of hospitalizations to ensure that the number of hospitalizations for treatment does not exceed the number of hospital discharges per day” (54.7%), “Ensure 15% of the population over 18 years of age get the second injection” (54%) , Expand the "green zone" (49.5%). Thus, the majority of people believe that the effective implementation of the goals set by the city until September 15 can be achieved. In fact, one of the strategies to protect people's health and safety is to vaccinate on a large scale, and this work has been put in great effort by the government to organize and implement. Although the organization and implementation in the early stages are sometimes not thoughtful and rigorous, in general, it meets the expectations of the people, and the people see the practical care from the government. In addition, under the drastic direction of the government along with solutions to maintain the "green zone", which is a safe area without disease spreading in the community, and gradually expand the "green zone" according to the oil spill. This helps to increase people's confidence in the government. Besides, people also shared: *“Combining testing and vaccination, if the area is thorough in that area, if you want to expand the green area, you don't have to test and screen for F0, but also vaccinate the same way, saving time. Limit the number of times of mass gathering. Hit any point is to finish that place. But after testing, filter a few F0, then test another F0 protrusion, so when the red zone becomes green”* (Male, 39 years old).

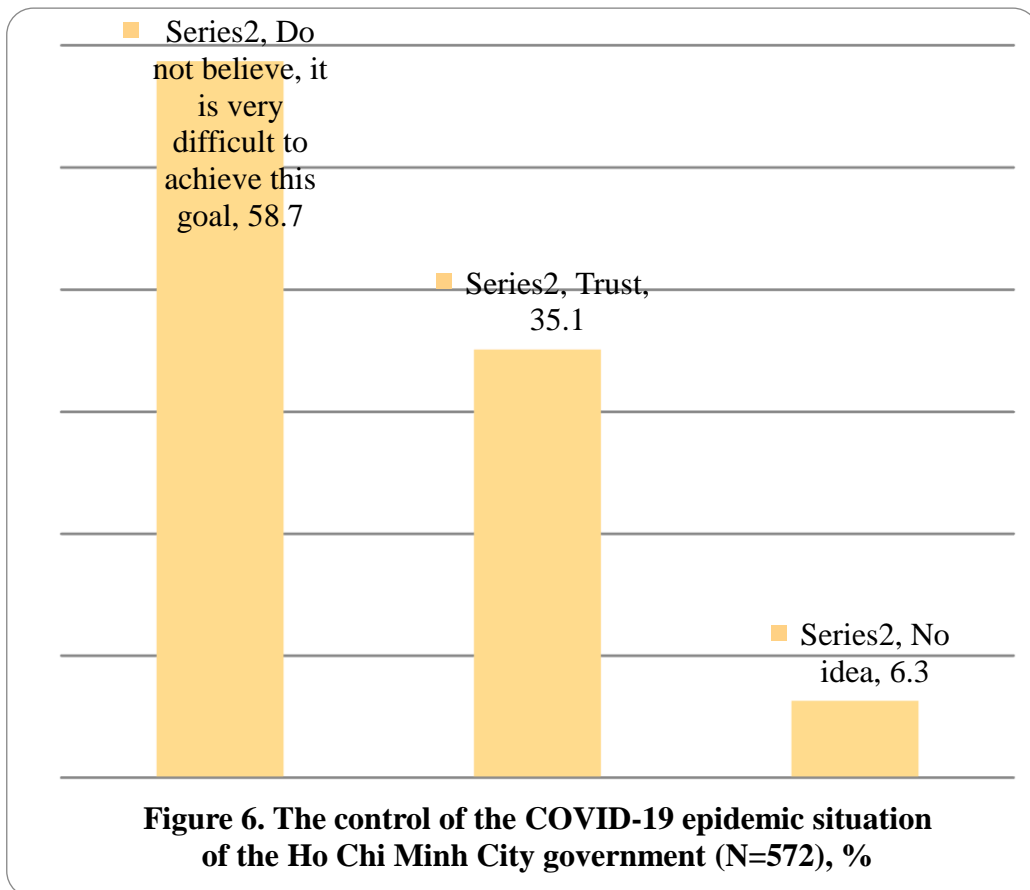
In fact, the government has good guidelines and policies, but the method of implementation and implementation in some places is still unscientific, so the possibility of very high cross-contamination from these activities makes people worried and not assured, affecting the effectiveness of the city's implementation of epidemic prevention and control goals.

- Unattainable targets such as: “Reducing the number of deaths” (40.6%), “Do not let the case of F0 become severe without receiving and receiving treatment” (46.7%)), the survey results show that more than 1/3 - 1/2 of the respondents think that these two goals cannot be achieved. However, compared with the percentage of people who think that the target can be achieved (accounting for more than one third of respondents), it is lower than the target that cannot be achieved (about 7.2%). That shows us, the large-scale vaccine coverage also helps to reduce the number of deaths and disease progression, although the effectiveness is not high, it also partly eases the pressure of COVID-19 treatment in hospitals hospital.

3.6. The city government's COVID-19 disease control work

Viewed objectively in the context of complicated developments of the epidemic, people realized that the stage of organizing the implementation of disease prevention and control in some localities was still not strict and comprehensive, in some places currently confused, not guaranteed to follow the instructions of the superior authorities. The health

system also reveals a number of limitations, especially at the grassroots level, and preventive medicine has not been able to meet the needs of the fast-moving epidemic prevention with Delta strain. It is very difficult for people to access health services when the outbreak is widespread, leading to overcrowding and increasing the risk of death. Most of the medical equipment, biological products, medicines, and vaccines are imported, so initially they are still passive, not ensuring the motto 4 in place in the localities. Communication work is sometimes not well prepared and timely, so it is still awkward at first. The application of information technology in the early stages has not been integrated into a unified platform.



Source: Survey data of the author conducted in August 2021

It is these subjective and objective issues that affect people's perception when asked "About the belief that the city will control the epidemic situation before September 15". The results of the survey on people's opinions in Figure 6 show that: "Do not believe, it is difficult to achieve this goal" (58.7%) accounting for more than half of the respondents, "Confidence" (35.1). %) accounted for just over one third of the respondents. Thus, most people do not have trust and find it very difficult for the city to control the epidemic situation before September 15, 2021. In addition, people also suggested: "Speed up the vaccination process for people, ensure that 2 doses are given so that the city can reopen. Leaders need to pay more attention to motels and make sure that 70% of people over 18 years old get 2 injections before the city decides to relax social distancing, because when loosening, the above two things cannot be guaranteed. very easy to flare up again and lead to terrible breakdowns such as: Indonesia and India" (Male, 59 years old).

Compared with reality, it is not until October 1, 2021 that the city basically controls the epidemic situation and begins to relax social distancing in a new normal. That shows that the majority of the city's people have a fairly comprehensive awareness, care, and fairly accurate assessment of the city's disease control situation.

3.7. Support policies of the government when implementing social distancing

Since the City strictly implemented social distancing according to the directives of the Government and the City People's Committee to prevent the COVID-19 epidemic, people have faced many difficulties in all aspects. In that context, the city government has issued policies to support people to ensure social security and stabilize the situation of social order. The process of implementing support policies from the city to the grassroots and deploying to each household in many different ways. However, in order to better understand the level of people's access to these policies, it is necessary to analyze through the survey results.

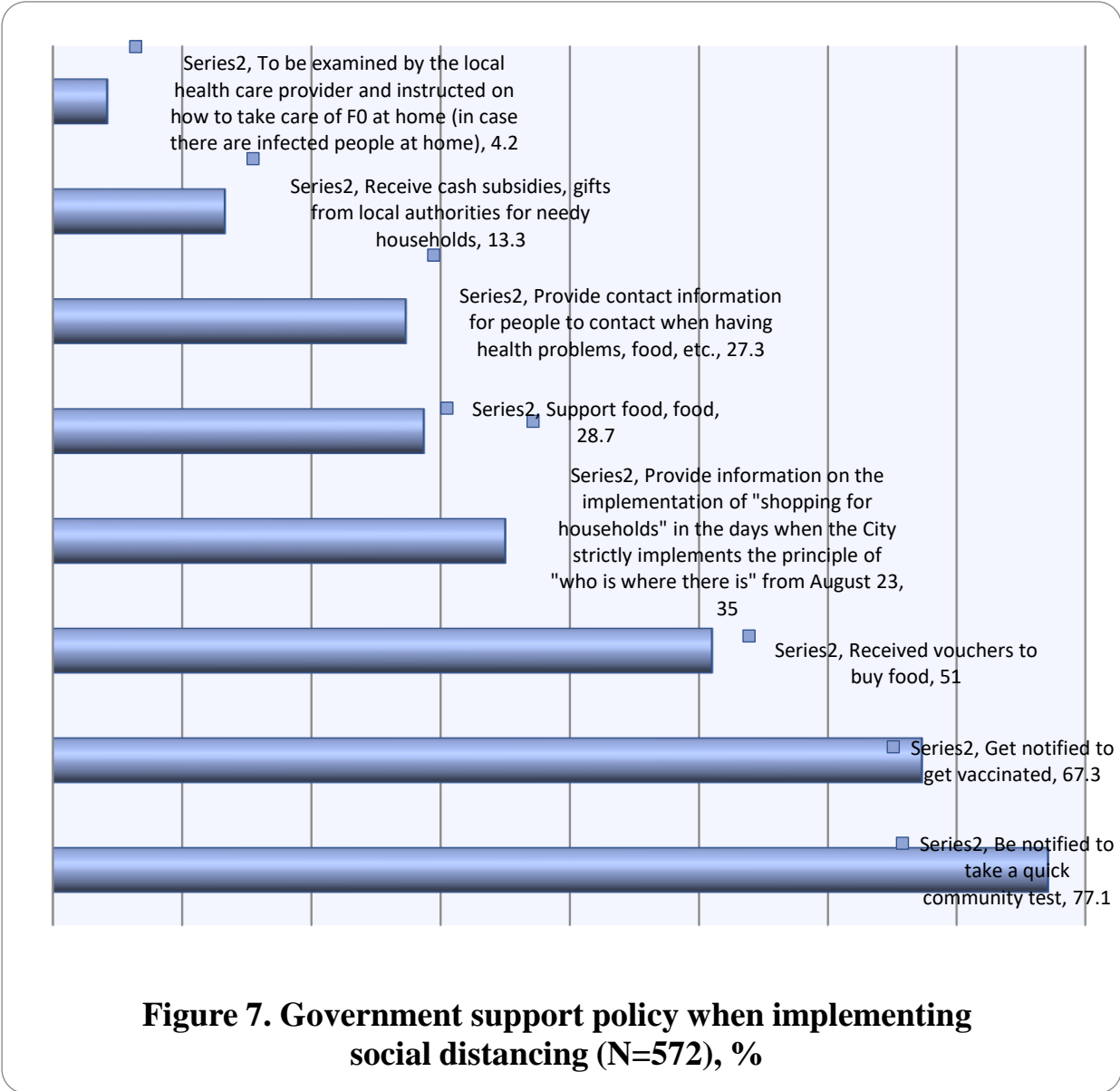


Figure 7. Government support policy when implementing social distancing (N=572), %

Source: Survey data of the author conducted in August 2021

The results of the survey on people's opinions in Figure 7 show that: "Informed to take the community rapid test" (77.1%) accounted for more than 3/4 of the respondents, "Informed to go for vaccination" (67.3%) more than 2/3 of the respondents confirmed. Thus, the vast majority of people believe that the government has done a good job of screening to promptly detect F0 in the community in order to provide appropriate treatment solutions towards the goal of controlling the epidemic situation in the near future. at the earliest, widely deployed by local authorities. At the same time, the majority of people were also informed by the government to get vaccinated against the goal of herd immunity so that the city could have a basis to relax social distancing and return to the "new normal" state. These are the two policies that have been strongly directed by the city during the past time and are most clearly felt by the people. To see the companionship of the government and the people of the city to overcome the unprecedented difficulties and challenges, it is also an opportunity for this relationship to be firmly established, the people have trust and confidence. believe in better government. However, in the process of implementation by local authorities, there are many issues that people are concerned about, specifically as follows:

“Organize injection sites in residential areas, especially apartment buildings. This was done quite well in the past, but recently, the organization of centralized injections has caused a very high level of cross-infection, so people are afraid when they have to go to the centralized injection points. This will slow down the rate of vaccination” (Male, 45 years old); “The testing or vaccination organization should go to each nest and alley for injection to avoid crowding at the injection point, crowding each other, leading to cross-infection” (Female, 35 years old); “People are still afraid of the origin of some vaccines, although propaganda has been carried out, the results are still not high, the city should diversify vaccine sources so that people can feel secure and actively participate in vaccination race” (Male, 55 years old).

The comments reflected people's concerns about cross-contamination when gathering in large numbers but not being arranged and arranged for distance.

Regarding the issue of “Giving vouchers to buy food and food” (51%) accounted for more than half of the respondents. The nature of this solution of the government is to limit the concentration of people and meet the essential needs of each family, but practice shows that this has not been implemented synchronously and closely between the private sector and the private sector. individual and state, leading to inefficiency and formality. Therefore, in the process of policy implementation, the city government needs to have tougher solutions to the private sector to ensure the effectiveness and efficiency in state management. People's opinions will further clarify this situation: *“The leader does not give out vouchers to go to the market, the house is running out of food and needs milk for the children. Suggest the government loosen the distance as soon as possible. If there is, then the distance is only according to the directive of 15, so that the workers can make a living before they die from illness” (Female, 32 years old).*

Regarding the issue of "Provide information on implementing "shopping for households" in the days when the City strictly implements the principle of "who is there where"

from August 23rd, (35%) accounts for more than one third of people. asked to agree. According to people's assessment, this solution only meets the needs of a part of the people, the vast majority of people do not have access to registration information from the government and this solution is not really convenient for people. the needs of the people, so the participation of the people is still limited. The following comments from the people will further clarify what we are concerned about: *"I have yet to see any support from the village chief and the head of the hamlet in terms of going to the market and buying medicine for the people"* (man, 36). age); *"I consider it very difficult to do household shopping at the moment without using resources from service companies such as: Grab, Now, Beamin, Gojek"* (Male, 34 years old);

And from another perspective, people also sympathize, share and propose to the government the following contents: *"Reduce the burden on the military forces, ward officials, and their volunteers. don't have the expertise to manually assemble orders like we're doing. Only use these human resources for those who really need the support of the government, instead of as now everyone is passive, waiting for help from this force like now"* (Nam , 44 years old).

In fact, the government's policy of "go to the market" has not brought practical results to the people because the government has not met the great needs of the people, so spontaneous activities appeared in the society. In addition, the people also asked the government to use professional resources in society operating under the market mechanism under the management of the state on epidemic prevention and control. This is an effective solution to reduce the burden on the frontline core of the local government, to focus resources on other activities of epidemic prevention and control.

In addition, the policy "Support for food and food" (28.7%) and "Provide contact information for people to contact when having problems with health, food, etc..." (27.3%) nearly one third of the respondents affirmed. We see that the purpose and content of the government's policies are very humane, but only a part of the people are supported, the rest of the people have not been able to access these policies, leading to lameness policies compared with the original goal, creating conflicting public opinion among the people. On the other hand, when people have health problems, but the majority of people do not have access to medical communication, it makes people have to fend for themselves, feel more confused, leading to lack of confidence in the management capacity of local authorities. To better understand this policy, one resident shared his opinion: *"People in the alley only live by begging for donors. The ward's food supplies had not yet reached my family's alley. People in the alley have not received any welfare support package or money. The locality has facilitated registration to go to the market at supermarkets and shops in the ward by link, but it was overloaded, I registered but only 6 days later, the goods were not available and it was incomplete according to the combo. Many families in the alley cannot register to go to the market"* (Male, 39 years old).

As for the policy "Receiving cash subsidies and gifts from local authorities for disadvantaged households" (13,3) accounts for more than 1/10 of the respondents. Although the subsidy rate for disadvantaged households is still modest, this policy is like a sharing of difficulties of the local government with the people in the spirit of "Good

leaves protect torn leaves". We know that the government's resources for care are limited, there are many households facing difficulties during the pandemic, so the selection of the most difficult households belonging to the disadvantaged and vulnerable groups needs more attention. policy to reach these audiences is appropriate. However, the government also needs to have appropriate solutions to make the list and organize the implementation of the policy openly and transparently like the opinions of the people: *"The work of distributing support packages need to be transparent, avoid the situation where there is no place, the money does not go to the right people to support"* (Male, 45 years old); *"I am also poor, rent a boarding house and am unemployed, have 2 young children , now there is no money to buy milk, diapers and no one to help. Many co-workers received 1.5 million VND, but I did not"* (Male, 42 years old).

During the time when the City strictly implemented social distancing, policies aimed at herd immunity were focused and effectively implemented by the government participate in these activities. However, for the policy on social security, in the initial stage of implementation, there are still many shortcomings, only a part of the people are supported, the rest of the people have to manage to stabilize their lives living.

4. Conclusion

Thanks to the solutions that the government has taken, people have peace of mind and are more comfortable with the current epidemic situation; people regularly grasp the epidemic situation through social networks, on television, fan pages of the city, district, district and ward/commune,...; a few have information from relatives and friends.

People realize that the media has a positive impact on the majority of people, and partly helps them feel secure, optimistic, and confident in the city's epidemic prevention and control; more than half of the respondents found that the direction of the city to control the epidemic was still confusing, lacking in synchronization, uniformity, and efficiency was not high, many solutions were still situational; the majority of people believe that the effective implementation of the goals set by the city can be achieved.

In fact, people still do not have absolute confidence in the government's anti-epidemic solutions because the disease prevention work in many localities in the early stages revealed many limitations when the epidemic situation developed. disease change; Most of the city's people have a fairly comprehensive awareness, care, and fairly accurate assessment of the city's disease control situation. Compared to reality, it was shown that until October 1, 2021, the city had basically controlled the epidemic situation and began to relax social distancing in the new normal state until now.

Most of the work to ensure food and food for the people is done quite well by the localities, but there are still a few localities that do not perform well, so the government's social security support packages have not been able to arrive. All subjects need care. Therefore, the government needs to have an implementation control mechanism from the stage of advising and promulgating policies to organizing the implementation and evaluating the results of policy implementation to ensure that the guidelines and policies of the government are guaranteed. rights are exercised synchronously and effectively./.

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THE IMPACT OF THE COVID-19 PANDEMIC ON THE MENTAL HEALTH OF THE GENERAL PUBLIC IN VIETNAM DURING LOCKDOWN

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Abstract

This study aimed to examine aspects of mental health affected during COVID-19 lockdown, while also assessing differences in mental strength among demographic groups. The study used survey data sets collected through quantitative research with questionnaires answered by 1150 Vietnamese who have been or are going through a period of social distancing. The findings from the study indicate that the majority of the community have moderate to severe levels of depression, stress and procrastination, in which, women, young people from 15 to 24, students, and people with a history of mental disorders are more affected during social distancing. Based on the study's empirical analysis, a number of recommendations are proposed to help the government, health facilities and related organizations take timely measures to improve and enhance the mental health of the population.

Key words: *Mental health, depression, general anxiety disorders, stress, insomnia, eating disorders*

1. Introduction

The COVID-19 pandemic has caused a global crisis and has affected politics, the economic situation, social security, foreign affairs, and international relations. In Viet Nam, the fourth wave of the pandemic and a new variant – Delta has a serious impact on the national economy. The downfall of the economic activities was caused by the strict social distancing on local key economic regions, industrial areas, export processing zones, large enterprises, and populated areas, which led to the broken circulation of commodities and the supply-chain corruption. Furthermore, this decline in economic activities also severely affected the manufacturing business of small companies, which has brought detrimental effects on people's lives. Specifically, according to the labor and employment situation in the third quarter and 9 months of 2021 announced by the General Statistics Office of Vietnam, the number of employed people decreased by 2.6 million people compared to the

second quarter and by 2.7 million people compared to the third quarter last year. The underemployment rate of the working age increased by 1.86 percent compared to the second quarter and by 1.74 percent compared to the third quarter previous year. The unemployment rate among the working-age rose to its highest level, increasing to 1.36 percent compared to the second quarter and 1.25 percent compared to the third quarter last year. Average monthly income of employees was reduced by 877,000 VND compared to the second quarter and by 603,000 VND compared to the third quarter of the previous year. The pandemic has also caused a disruption of the education system, prolonging the education and training process, which has led to the risk of supply shortage for enterprises, especially in the period of reproduction and economic recovery.

In addition to the negative impact on the global economy and financial markets, the COVID-19 has also generated a public health disaster. WHO (2020) published mental health and psychosocial considerations regarding the general public, acknowledging that the Public Health Emergency of International Concern (PHEIC) of the pandemic had the potential to impact the mental health of the community. In China and Europe, numerous studies have pointed out the popularity of depression, anxiety, and sleeping disorders (Wang et al., 2020; Rossi et al., 2020; Pieh et al., 2020). According to Hawryluck et al. (2004) and Reynold et al. (2008), the long isolation period would critically impact mental health. Furthermore, facing economic downturn, unstable jobs, frequent exposure to news about the epidemiologic situation,... are all hazards that negatively cause mental illnesses. COVID-19, along with the uncertainty, lack of understanding of the disease, and the rapidity of infection, have posed a serious threat to life safety and triggered panic attacks among communities, pushing them into states of extreme stress and anxiety, affecting human physiology, psychology, and behavior, and causing corresponding reactions (Wang et al., 2021). In conclusion, changes in social conditions and economic conditions affect mental health and the risk of mental disorders among the community.

Labor Newspaper (2021) stated that mental health is also harmful to personal life and sustainable socio-economic development. Without mental health, people are not able to actively maintain a healthy life and contribute to nation-building. The director of the National Institute of Mental Health emphasized that mental disorders has different levels of profound impact on the patients: reducing work and study performance, decreasing opportunities for career advancement, and leading to job loss, risk of marital breakdown, discrimination, and reduced quality of life, etc. Moreover, family, society, and the community are also heavily affected by the increasing costs of direct and indirect treatment of people with mental disorders. While most people believe that medication, clinic visits, and hospitalization are the genuine expenses of disease, in reality, the burden of disease, particularly mental disorders, extends far beyond these "direct" diagnostic and treatment costs (Trautmann, 2016). Most of the economic burden of mental disorders are not the cost of care, but the loss of income due to unemployment, expenses for social supports, incarceration, and a variety of indirect costs due to a chronic disability that begins early in

life (Tacoma-Pierce Department of Health, 2006). In the 2012 report of the global economic burden of non-communicable disease, Bloom et al. not only acknowledged the “indirect” costs of diseases but also their impact on economic growth at the macroeconomic level. According to Trautmann (2016), from a macroeconomic perspective, the cost of mental disorders could be determined as lost economic output by estimating the expected impact of mental disorders on the gross domestic product (GDP). From 2011 to 2030, the cumulative economic loss associated with mental disorders has been expected to amount to US\$16.3 trillion worldwide, making for the economic loss related to the mental disorder equivalent to the economic loss of cardiovascular disease, higher than cancer, chronic respiratory diseases, and diabetes.

Will the COVID-19 pandemic affect different aspects of Vietnamese people? What aspects of mental health will the COVID-19 have moderate to severe effects on? This study was conducted with an aim at answering those questions.

2. Literature Review

2.1. Mental health

Mental health is a state of well-being in which an individual is able to cope with normal stresses in life, work efficiently and contribute to society (WHO, 2014). The Centers for Disease Control and Prevention of America (2021) admitted that mental health consists of emotional, psychological and social well-being. Mental health affects the way people think, feel and behave in daily life. In particular, according to the British Mental Health Foundation (2021), sleep and mental health are closely related: mental health affects sleep and poor sleep quality causes mental diseases. Hepsomali and Groeger (2021) interpreted the relationship between mental health, eating behavior and sleep as bidirectional. In addition, mental health has an impact on people's productivity and morale (Lagerveld et al., 2010). Corresponding to those factors, the following 6 aspects are closely related to state and extent of mental health: depression, anxiety, stress, sleeping disorders, eating disorders, and procrastination. Positive thinking increases the ability to cope with stressors and promotes people's health (Nseem and Khalid, 2010). Berking and Wupperman (2012) suggested that emotions are related to mental states and are considered as a diagnostic factor in relation to the development and treatment of certain types of mental disorders. Besides, a healthy diet helps to strengthen sleep quality and mental health (Phillips et al., 2018). Furthermore, getting enough sleep reduces the incidence of mental disorders (Orzech et al., 2011). In addition, the Mental Health Foundation UK (2015) pointed out that mental health problems in the workplace cause serious consequences for individuals and corporate productivity. Performance of the employment, sickness absence rates, absenteeism, accidents and employee turnover are all affected by the employee's mental health.

2.2. Depression

Depression or major depressive disorder is a common mental syndrome, characterized by a state of sadness and lack of interest in daily activities (The National Institute of Mental Health, 2016). Iyer and Khan (2012) concluded that depression

manifested by symptoms interfering with the individual's ability to work, sleep, eat, and enjoy favorite activities. Depression causes people to feel sad, anxious, hopeless, guilty, irritable and intolerant to others, lose interests, have difficulty making decisions, have thoughts of suicide or harm themselves (National Health Service UK, 2019). Besides, Trivedi (2004) interpreted that there is a deep biological connection between depression and physical conditions, such as back pain, joint pain, fatigue, lack of sleep, etc. In general, depression can affect any age, even when living circumstances are relatively ideal (America Mental Health Association, 2013).

2.3. Generalized anxiety disorders

Anxiety is an emotion specialized by a state of inner turmoil consisting of fear and discomfort about anticipated events (Davison et al., 2001). According to Mayo Clinic (2018), anxiety disorders (Generalized anxiety disorder) are a repetition of sudden anxiety and fear within minutes. People with anxiety disorders experience long-term anxiety and fear about daily situations (American Psychological Association, 2013). Based on one of Mayo Clinic's researches (2017), anxiety disorders have a long-term effect on people's mental health, causing anxiety, fear, restlessness, stress, discomfort, difficulty to concentrate, etc. Moreover, people with anxiety disorders often feel tired, have trouble sleeping, muscle tension and body aches, tremors, and are easily startled (McDowell et al., 2018).

2.4. Stress

Stress is a feeling of pressure and mental tension (The American Institute of Stress, 2019). Low-intensity stress is considered to be helpful and even beneficial in work and health. Positive stress helps to adapt and respond to surroundings. However, too much stress can contribute to mental problems and physical problems to the human body, which is extremely harmful. Long-term stress can affect the body, thoughts, emotions, and behaviors (Mayo Clinic, 2021). The physical effects of stress include physiological reactions such as increasing cholesterol level (French and Caplan, 1972; Friedman et al., 1958), increasing catecholamine secretions, mainly adrenaline (Dimsdale and Moss, 1980; Karasek et al., 1982; Lundberg and Frankenhaeuser, 1980), increasing systolic and diastolic blood pressure (Shapiro, 1961). Lovibond (1998) suggested that stress was a good diagnosis of depression and anxiety.

2.5. Insomnia

American Psychiatric Association (2020) defined that sleeping disorders (Sleep-wake disorders) involve problems with the quality, duration, and quantity of sleep, resulting in daytime stress and impaired function of various organs that can interfere with normal physical, mental, social and emotional functioning of humans. Sleep disturbances normally co-occur with other mental health disorders, such as depression, anxiety, or cognitive disturbances, etc. Common symptoms of insomnia include: difficulty falling asleep, waking up in the middle of the night, not being able to go back to sleep, having struggles concentrating on daily tasks, memory loss, fatigue, lack of vitality, irritation and short-temper (Carr, 2018).

2.6. Eating disorders

According to the American Psychological Association (2021), an eating disorder is a mental disorder defined by abnormal eating behaviors that negatively affect a person's physical or mental health. People with an eating disorder have a strong obsession with food, body weight, or body shape (Healthline Medical Magazines, 2017). As claimed by the Health Services UK (2021), mental symptoms of eating disorders include: spending lots of time worrying about weight and body shape, excessive exercising, having strict habits with regard to food, changes in mood, withdrawal symptoms, anxiety or depression. In terms of physical conditions, people with eating disorders have physical symptoms such as: stomach cramps, acid reflux and other digestive symptoms, dizziness, fatigue or weakness, difficulty concentrating, trouble sleeping, fainting (Medical News Today, 2019).

2.7. Procrastination

Procrastination (working procrastination) is the voluntary tendency to prolong a course of action even though this delay will negatively affect the working progress (Steel, 2007). Procrastinators frequently have poor mental health and a tendency to overlook important health behaviors due to the stress of work delays (Sirois et al., 2003). Ferrari and Pychyl (2007) stated that there was a correlation between procrastination and the inability to control negative emotions such as sadness, anger, self-pity, etc. Moreover, procrastination affects sleep quality and human circadian clock and increases the incidence of physical symptoms of sleep disorders (Kroese et al., 2016).

From these above studies and theoretical discussions, COVID-19 could severely affect Vietnamese's mental health. Based on the analysis on the internal factors of mental health, the author proposes the following model of intrinsic factors of mental health:

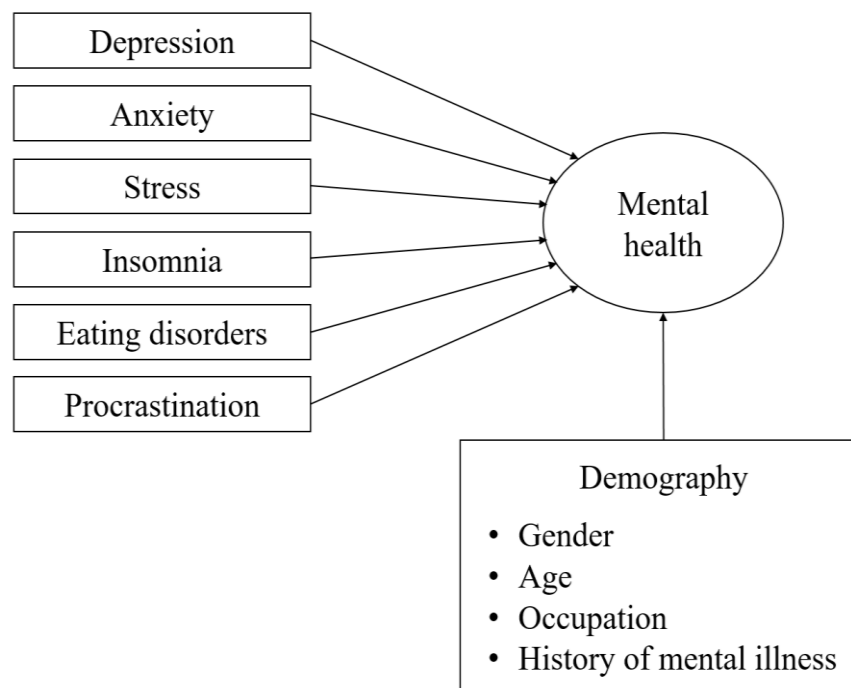


Figure 1. The proposed research model of intrinsic factors of mental health

3. Method

In order to assess the impact on Vietnamese mental health during the social distancing duration due to the COVID-19 pandemic, the study's research design included both qualitative and quantitative research methodologies, which were used as part of the research process to assess the impact of various factors on mental health based on the proposed research model.

Qualitative research with expert consultation and interview with individuals who have been or are experiencing social distancing periods in Vietnam was used to explore different aspects of mental health and adjust the scale to suit epidemic events in the Vietnamese context.

Quantitative research was conducted in two phases: preliminary research and official research. Preliminary quantitative research evaluated the reliability of the scales and removed unsuitable observed variables to build a complete questionnaire. In both stages, an online questionnaire survey method was used to collect opinions of Vietnamese people who had been or were going through a lockdown period due to the COVID-19 pandemic.

3.1. Measurement Scales

The authors conducted overall quantitative research using altered scales from foreign studies to measure survey subjects' level of agreement with the given statements. The scale included 45 observed variables (questions) divided into different mental health intrinsic factors as indicated in the proposed model. The questions were designed in the form of Likert scale to assess the mental health status of the community.

The construct of depression including 8 observed variables was built according to the adjusted PHQ-8 scale provided by Kroenke et al. (2009), based on the PHQ-9 scale by Spitzer et al. (1999). The anxiety disorder used the scale taken from Spitzer et al. (2006) with seven observed variables. Stress was measured using the concept and scale PSS-10 (1988) with ten observed variables adjusted from the PSS-14 scale of Cohen et al. (1983). The severity of sleeping disorder was assessed by seven questions of the ISI scale taken from Morin (1993). The eating disorder was scored by four observed variables inherited from the adjusted EDEQ-4 of Phillipou et al. (2020) which is developed based on the EDE-Q scale taken from Fairburn và Beglin (1994). Finally, the IPS-9 scale, developed by Steel (2010), is used to assess the impact of procrastination.

3.2. Sample and Sampling method

The preliminary quantitative study was conducted with a research sample of 100 elements. However, the obtained results were 80 valid responses (N = 80). In order to test the reliability of the scale, the research used Cronbach's Alpha reliability coefficient method using SPSS software version 22.0. The complete research questionnaire was then included in the official quantitative survey from September 1 to September 25, 2021, during the social distancing period in Vietnam. The study sample is people who are living and working in Vietnam.

The research questionnaire consisted of 45 observed variables used in factor analysis according to the minimum principle of at least 5 elements for 1 observed variable (Bentler and Chou, 1987). Therefore, the initial sample count was $45 \times 5 = 225$ elements. However, in order to increase the reliability of the study, the authors intended to collect a sample size of 1500 elements ($N=1500$) and the obtained results were 1222 elements (questionnaires). After screening and removing invalid data, the total valid responses collected were 1150 to be used in formal analytical processing. Respondents were recruited through online questionnaire submission, using convenience sampling method. Among the respondents, 710 (61.7%) were female, 440 (38.3%) were male. The number of respondents, who were students, salaried workers, self-employed, and others, were 601 (52.3%), 311 (27.0%), 118 (10.3%), 120 (10.4%), respectively.

Table 1. Sampling structure (N = 1150)

Variable	Description	Frequency	Percent (%)
Gender	Male	440	38.3%
	Female	710	61.7%
Age	15 - under 18 years old	29	2.5%
	18 - 24 years old	608	52.9%
	25 - 34 years old	184	16.0%
	35 - 44 years old	190	16.5%
	≥ 45 years old	139	12.1%
Occupation	Student	601	52.3%
	Salaried employee	311	27.0%
	Freelancer	118	10.3%
	Others	120	10.4%
History of mental illness	Yes	112	9.7%
	No	1038	90.3%

4. Results

The scales were checked for reliability and validity using Cronbach's Alpha analysis. The results of Cronbach's Alpha analysis in table 2 showed that Cronbach's Alpha reliability coefficient of the scales are all greater than 0.6, meeting the requirements. This result is aggregated from the execution of Reliability Analysis measuring the Cronbach Alpha.

Table 2. Summary on reliability of the scales

	Scale	Number of observed variables	Cronbac's Alpha reliability coefficient	Conclusion
1	Depression (PHQ)	8	0.884	All scales are reliable
2	Generalized Anxiety Disorder (GAD)	7	0.907	
3	Stress (PSS)	10	0.935	
4	Insomnia (ISI)	7	0.880	
5	Eating disorder (EDEQ)	4	0.737	
6	Procrastination (IPS)	9	0.956	

Results for mean scores and standard deviation of the PHQ-8, GAD-7, PSS-10, ISI-7, along with IPS-9, and number of participants below/above the cut-off score for moderate depression/anxiety/insomnia are presented in Table 3.

Table 3. Mean scores and standard deviation of the aforementioned scales

		Number of participants	Mean	Standard deviation
PHQ-8 score	<10	619 (54%)	9.32	5.890
	≥10	531 (46%)		
GAD-7 score	<10	803 (70%)	6.81	5.204
	≥10	347 (30%)		
PSS-10 score	<14	457 (40%)	17.28	8.036
	≥14	693 (60%)		
ISI-7 score	<15	804 (70%)	10.83	6.262
	≥15	346 (30%)		
EDEQ1		1150 (100%)	3.07	1.227
EDEQ2		1150 (100%)	3.18	1.231
EDEQ3		1150 (100%)	3.53	1.379
EDEQ4		1150 (100%)	3.10	1.253
IPS-9 score	<24	560 (49%)	25.76	9.046
	≥24	590 (51%)		

The authors calculated the total score of the scales before determining the average using the descriptive statistics analysis on SPSS to generalize the opinion of the survey subjects with these scales. Besides, the authors also tested the data fluctuation to see if the value points would be scattered far away or would be concentrated around the mean line through the coefficient of variation calculated by dividing the standard deviation by the mean (Brown, 1998).

The mean PHQ-8 score was 9.32, while the coefficient of variation of the PHQ scale was equal to $5,890/9.32 \approx 0.632$. Almost half of the respondents were above the threshold of $\text{PHQ-9} \geq 10$, indicating moderate to severe symptoms of depression. In terms of anxiety disorder, people reported a mild mean level of GAD-7, which was 6.81. The value of the coefficient of variation for GAD was less than 1, showing that the data variability was small, or in other words, the mean GAD score could be representative of the low anxiety level of the community. Anxiety levels were not seriously affected by the COVID-19 epidemic nor the time of social distancing. Regarding the perceived stress, a mean PSS-10 score of 17.28, greater than the cut-off point for PSS, was observed. Moreover, 60% of the participants assessed their stress at moderate to high level. It could be seen that stress was a common concern among many people during the period of social isolation. Concerning sleep quality, based on GAD-7 scoring and results, as well as the cutoff point for ISI mentioned in Table 3, just under a third (30%) of surveyees had moderate to severe clinical insomnia symptoms. Meanwhile, 804 (70%) cases had scoring for ISI-7 less than 10, with a low mean of 10.83. This indicated that the sleep disturbance of the community during the lockdown was insignificant. As for procrastination, the mean score for IPS scale was 25.76, higher than the cutoff point of 24. IPS scale's coefficient of variation was also less than 1, concluding that a relatively large number of people delayed their work due to social distancing measures.

For the EDEQ scale, the authors used a shortened version of 4 questions adapted from the Eating Disorders Examination Questionnaire of Fairburn and Beglin (1994). Therefore, it was not possible to calculate the total score of the entire scale. Instead, the authors conducted an average analysis for each item to show the changes in eating and exercise behaviors of the community. Variables EDEQ1, EDEQ2, and EDEQ4 corresponding to food restriction, bulimia, and exercising had mean values of 3.07, 3.18, and 3.10, respectively. Thus, the findings revealed that there was no considerable change in food intake restriction, binge eating, and exercise behavior. Meanwhile, the variable EDEQ3 had a mean level of 3.53, ranging from 3.50 to 4.49, showing that the practice of vomiting or using laxatives to control body shape and weight, in general, had a small, positive change when respondents reported this behavior happens less often than before the COVID-19 pandemic.

5. Discussion and Conclusion

The interpretation of One-way ANOVA and the cut-off points show that there is a difference in the impact of the COVID-19 epidemic on different aspect of mental health, in

which, depressive disorders (PHQ), emotional stress (PSS) and procrastination (IPS) are heavily affected. Results have shown that there are differences in mental health between groups of gender, age, occupation and anamnesis. To be more specific, women, young people from 15 - under 18 years old and from 18 to 24 years old, young workers and people who have a history of mental disorders had higher scores for six mental health aspects, compared to other groups. Therefore, these are the groups whose mental health are negatively affected in the context of social distancing due to the COVID-19 pandemic in Vietnam. From the findings above, the authors make some recommendations for government agencies, the Ministry of Health and related organizations as follows:

First, the encouragement of socio-economic recovery and development activities will stabilize people's lives. In order to improve people's mental health and the risk of mental disorders, the government needs to restore economic and social development, implement drastic and synchronous solutions to restore production and business activities, solve employment problems, and take advantage of new opportunities. Accelerating the disbursement of the public investment capital plan in an attempt to contribute to the construction and completion of socio-economic infrastructure, is necessary to improve competitiveness, support production and business activities of the people and businesses, and attract other sources of social investment capital. The economic stimulus and support packages will create favorable conditions for businesses to gradually restore production and business activities, resume supply chains, and improve employment and income opportunities for employees, which will improve work motivation and reduce procrastination along with depression and stress, relating to the negative impacts that the epidemic has caused such as health deterioration, jobs loss, reduced income, etc.

Second, the government and health agencies need to provide quickly and accurately information related to the epidemic. According to Wang et al. (2020), a higher level of community satisfaction with health information received has a lower level of psychological influence. Experts need to provide complete and accurate information on the epidemic situation, COVID-19 prevention and control in the mass media. In addition, the content of medical information provided needs to be based on evidence to avoid negative psychological reactions to meet the needs of the community to access information quickly and in a timely manner.

Third, the government, health authorities and non-profit organizations need to establish multidisciplinary mental health services for the community, especially for the vulnerable ones. Currently, the Ministry of Health of Vietnam has not had a focal point to develop policies, plans, and regulations, guide the implementation, and supervise the deployment of mental health care. Meanwhile, the COVID-19 pandemic has highlighted the growing need for mental health support and has disrupted the delivery of medical services and treatment for mental disorders. Therefore, programs and activities to support physical health, mental health and social health for the community should be urgently integrated and

parallel with economic recovery plans in both public and private sectors. Besides mental health services, mental health budgets and resources need to be used more effectively to meet the growing treatment needs of the community. In addition, the government and health authorities should provide online psychological counseling services for workers to avoid the possibility of infection and improve service access. Developing mental health counseling services through electronic platforms or smartphone applications is essential to understand counseling needs and provide support.

Fourth, the Ministry of Labor, Invalids and Social Affairs should expand policies to support workers. Some practical support packages for employees are the reduction of compulsory social insurance contributions, health insurance, and unemployment insurance. In addition, the level and duration of support also need to be adjusted to ensure flexibility and timeliness in meeting people's minimum living standards in the context of a prolonged and complicated epidemic. The ease of terms for receiving subsidies should also be considered in order to facilitate the deployment of support packages promptly, timely and appropriately. The coordination between ministries and sectors (especially the Ministry of Health, the Ministry of Labor - Invalids and Social Affairs, the Ministry of Finance, the Vietnam Social Security agency) is extremely necessary for the rational use of the surplus social security fund, to identify and support those in need. Moreover, the application of technology and the use of personal identification numbers should be enhanced to avoid mistaken identification or omission of subjects. According to the research report "Gender and the Labor Market in Vietnam: An Analysis based on Labor Force Survey" (2021), female workers are overrepresented in vulnerable employment, particularly in contributing to family work. Despite being highly economically active, women also discharge a disproportionate amount of family responsibilities. Therefore, supportive policies for female workers need to be supplemented and applied flexibly to help reduce family pressure, solve the problem of reduced income and expenditure, thereby contributing to improve the mental health of the female group.

Finally, special efforts should be made to young people, especially from 15 years old to under 18 years old, as they are not only under financial pressure but also academic pressure. The government and the Ministry of Education and Training should ensure the feasibility of online education platforms, develop online information gates and web-based applications to deliver lectures or other teaching activities. Educational institutions should raise awareness, play a vital role in identifying mental health risks posed by COVID-19, and implement actionable plans to reduce risks of mental disorders among students. In addition, it is necessary to quickly and widely conduct financial support, renewal and scholarship policies to reduce the financial burden on the learners. The implementation of supportive policies will contribute to mitigating the feeling of stress and anxiety caused by financial pressures, which will create favorable conditions for learning to develop professional and technical qualifications to become highly qualified workers in the future.

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FROM THE “TRAVEL BUBBLE” TO FLEXIBLY AND SAFELY ADAPTIVE TOURISM TO COVID-19: INITIAL DISCOVERIES FROM THE PERSPECTIVES OF YOUNG VIETNAMESE PEOPLE

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Abstract

This study aims to determine the factors affecting the intention and decision to participate in tourism activities, specifically to participate in the "travel bubble" tours of young people and the changes in awareness and participating behavior in tourism activities in the context of flexibly and safely adapting to the Covid-19 epidemic; thereby recommending solutions to promote visitor participation and restore activities in the tourism industry in the context of the "new normal". The study uses survey data collected through qualitative research with questionnaires, which were answered by 404 young Vietnamese people. The research results show that the majority of young Vietnamese have a great intention to participate in tourism even during the stressful time of the epidemic, in which the "travel bubble" is considered as an appropriate option with social context. In the new context of flexibly and safely adapting to the pandemic, young people's perceptions and behaviors about tourism activities tend to change in a more positive direction. Young people are sensitive to social changes and quickly catch up with tourism trends in the new era. In addition, based on the empirical analysis of the study, some recommendations are made to help the government, tourism enterprises, travel agencies, airlines and related organizations take timely measures to improve service quality, diversify forms of tourism organization to attract tourists and create a premise for restoring this important economic sector.

Keywords: *adaptation, flexible, new normal, safe, Travel Bubble*

1. Introduction

Tourism is a key economic sector of Vietnam in recent years, having a great impact on the country's socio-economic development. From 2018 to early 2020 is a period of great success for Vietnam's tourism with many unprecedented achievements. In 2019, this economic sector directly contributed 9.2% to the Gross Domestic Product (GDP), an increase of 2.9 percentage points compared to 2015 (World Bank, 2019). The tourism industry is expected to become a lever to bring Vietnam's economy closer to developed countries in the world.

However, the sudden outbreak of the Covid-19 pandemic destroyed all previous hopes of this potential economic area. WHO (2020) assesses Covid-19 as a global pandemic with the most severe severity in nearly 100 years. The Covid-19 pandemic has caused a global crisis and affected politics, economic situation, social security, foreign affairs and international relations. From March 2020, Vietnam temporarily stopped welcoming international tourists and only operated domestic tourism. But this market is also seriously affected, as evidenced by the continuous decline in revenue from our country's tourism industry, the General Statistics Office estimated that tourism revenue in May 2021 will reach VND 387 billion, down 53.5 billion VND. (17.8%) over the same period last year. For tourism to be restored effectively, Vietnam's tourism industry needs to build a more flexible and sustainable development model, especially for tourism businesses. According to an expert from the Tourism Advisory Board (TAB), the Government should consider opening the door in the direction of a "safe tourism corridor". The form of "travel bubble" tour is a solution to respond and promote safe tourism activities in the context of complicated epidemic developments. The two pioneering countries, Australia and New Zealand, set a goal of economic recovery after establishing a "tourist corridor" to support businesses and people. The chain of "bubbles" is increasingly spreading to countries in Asia such as Korea, Japan, and China. "The "travel bubble" is seen as an effective compromise in the prevention strategy." (International travel during the Covid-19 pandemic: impacts and risks associated with the 'travel bubble' - Khan Sharun, Ruchi Tiwari, et al., 2020).

On March 15, 2022, the Vietnamese government officially approved the complete opening of the tourism industry. Vietnam has entered a new post-pandemic phase: a period of flexible and safe adaptation to Covid-19. Many factors affecting young people's intention to travel no longer have great significance compared to the previous period, instead, they are comfortable psychology, more open awareness in their intention to participate in tourism activities. The public tends to be willing to take part in tourism to meet the need for relief after a long period of limited movement, as well as to join tourism activities.

Faced with the impact of the Covid-19 pandemic, has the intention and decision to participate in tourism activities, typically to join "travel bubble" tours, changed? What does the trend of changing young people's perception of tourism behavior in the context of a fully open country pose to society? This research paper aims to answer those questions.

2. Literature Review

Deeply examining the motivations and trends of young people's perception and participation in tourism activities, they discovered that tourism behavior is affected by many different subjective factors and customers. Below are some factors that are considered to influence the behavioral decision in general and the decision to participate in tourism in particular:

2.1. Psychological factors

Psychology is all mental phenomena arising in the human mind, associated with and governing all human actions and activities. Postponing gratification is very difficult, the phenomenon that we believe to be true, people will make decisions to satisfy themselves (Stanford University, USA (1960). Robert Plutchik (1980) visualizes aspects of gratification. This psychological aspect is simpler, which he calls the psychomotor wheel, the mechanism that allows individuals to explore the key emotions they are feeling. Emotions are triggered by specific stimuli, from there setting out certain behavioral models, psychology is one of the determinants of human behavior.

2.2. Health risk

The health risk is defined as the probability that exposure to a hazard will result in a negative health outcome. Anxiety and risk attitudes hurt travel intention (Jian Ming Luo and Chi Fung Lam, 2020). The health belief model shows people's beliefs about health issues, perceived benefits of action, and barriers to action (Champion, VL & Skinner, CS, 2008). D. Bernoulli states that even if the expected value of a bet is infinite, no one spends large sums of money on it (1730), i.e. as long as the health risks are still there. and is perceived as serious by the audience, the ability to decide to participate in tourism is low.

2.3. Social interaction

Social interaction is used to refer to the process of contact and interaction between two or more individuals. During interactions, individuals react to the actions of others, read and interpret them (Georg Herbert Mead, 1967), then discover individuals who have much in common with themselves. When the parties involved tend to make a good impression, trust, and sympathy (Baul, the 1960s), individuals make behavioral decisions if they perceive that the decision makes a good impression on social relations. other associations, even if that exchange is disadvantageous in terms of benefits.

2.4. Personal values

Thesaurus defines egoism/the selfness as a person's self-perception of one's dignity, worth, or worth, especially to distinguish oneself from the outside world. outside and other individuals. "Values" are used in a wide variety of ways, in many contexts, to refer to many different trends and nuances (Williams, 1979). Besides, each attitude or behavior implies more than one value, so choosing a certain attitude or behavior means a trade-off between values (Schwartz, 1992), a person feels A stimulating new travel experience is an important value to them, they are willing to make decisions even when they know the decision is high risk.

2.5. Service quality

There are many ways to understand service quality in general and tourism services in particular. Lewis and Mitchell (1990) argue that service quality is the degree to which a service meets the needs or expectations of customers; Parasuraman et al. (1985) consider it to be the result of a comparison between the actual service that customers perceive when consuming the service with their expectations. In tourism, considering the experiences of previous customers, referring to the diversity of tour booking forms of travel agencies, the ability to understand visitors' psychology, etc. are factors that are of great interest.

2.6. Price

Willingness to Pay (WTP) measures the intensity of an individual or society's preference for that good, thus measuring the degree of satisfaction from performing a certain behavior as expressed by the available price. their willingness to pay (WTP) for the costs of that behavioral decision (Turner, Pearce, and Bateman, 1995). The amount an individual is willing to pay for travel services is an expression of the value that travel brings to that person. On the other hand, as mobile searches for the term "compare prices..." have grown by more than 60% in the last two years alone (Administrative Control Report, 2019), people realize that they can easily find a similar option with a more "affordable" price, visitors before deciding to participate in tourism will have to consider the price of many units.

2.7. Media and advertising activities

Viewers are passive and directly influenced by the media, they implicitly accept the messages they receive from the media without needing to reconsider (Laswell, 1927, Hovland et al., 1953). Bernard Cohen (1963) discovered that the press may not always be successful at telling people what to think, but it is extremely successful at telling people what to think. about what. Therefore, the influence of the media has the ability to trigger behavioral decisions, including tourism behavior - an economic sector that values communication and advertising strategies.

2.8. Reference group

Hyman (1942) introduced the term "reference groups" as groups of people that influence an individual's attitudes and behavior. This influence is divided into 3 components: Information influence – when the individual accepts information and recommendations from the reference group if the source of information is reliable, in order to make the right decision, optimize the choice (Bearden and Etzel, 1982), utilitarian influence - when individuals are willing to meet the expectations of a given reference group in order to gain praise or avoid punishment from groups and value influence symbolic – when people are willing to better express themselves in society by aligning themselves with the group to which they want to belong (Kelman, 1961).

3. Method

In order to evaluate the intention to participate in "travel bubble" tours and the changes in the perception and behavior of participating in tourism activities in the context of

flexible and safe adaptation to Covid-19, the research issue This scientific formulation includes research methods. qualitative and quantitative, used as part of the research process.

Qualitative online open-ended questionnaires with individuals between the ages of 16 and 30 who experienced social distancing prior to the effects of the COVID-19 pandemic were used to explore dimensions, motivations, goals, and solutions proposed by individuals.

Quantitative research is officially put into use as soon as a complete questionnaire is developed to collect accurate and complete information. In this process, an online questionnaire survey method was used to collect opinions of young Vietnamese about their intention to participate in tourism in the social context of the "new normal".

3.1. Measuring scales

The authors have carried out quantitative research using variable scales from foreign studies to measure the degree of agreement of survey subjects with the given statements. The scale includes 43 observed variables (questions) divided into different subjective and objective factors affecting the intention to participate in tourism of young Vietnamese between the ages of 16 and 30 as indicated in the proposed model. The questions are designed in the form of a Likert scale to assess the trends and motivations for choosing to participate in tourism in general and the "travel bubble" in particular.

The structure of the questionnaire consists of 9 observed variables divided into 2 large arrays: subjective factors and objective factors. Subjective factors include psychological factors, health risks, social interactions and personal values. Objective factors include service quality, advertising communication activities, reference groups and random factors.

3.2. Samples and sampling methods

The study was carried out by quantitative method through detailed questionnaires. The sample for quantitative research has size $n = 404$ and is selected by random sampling method from young people living, studying and working mainly in Hanoi.

The data collected from this quantitative study will be used to evaluate the measure and test the model and hypotheses using SPSS 20.0 software.

With the criterion of selecting a representative and efficient sample, this study chooses to calculate the sample size when the population is unknown. The number of samples to be surveyed is calculated by the formula: , where $p = 0.5$ is the proportion of female tourists 50%, so $q = 1 - p = 0.5$ is the proportion of tourists. 50% male gender; $z = 1.96$ for 95% confidence level; $e = 0.05$ corresponds to the allowed error of 5%. From there, we have the minimum number of samples to be investigated, which is 385.

Among 404 survey participants, the number of female respondents is the majority (76.5%), male is 22.8%. In terms of profession, most of the respondents are students, accounting for 87.6%, followed by working people (8.4%), students (3.2%) and finally the group unemployed people (0.7%).

Table 1. Sampling Structure

Variable	Description	Frequency	Percent (%)
Gender	Male	92	22,8
	Female	309	76,5
	Others	3	0,7
Age	16 - 22 years old	349	86,4
	23 - 30 years old	55	13,6
Job	Student	13	3,2
	College student	354	87,6
	Working	34	8,4
	Unemployed	3	0,7
Income/ Benefits	Under 3 million dong	258	63,9
	3 - 6 million dong	95	23,5
	6 -10 million dong	32	7,9
	> 10 million dong	19	4,7
Travel frequency	Never been before	66	16,3
	less than 2 times/year	263	65,1
	2-3 times/year	64	15,8
	4 times/year or more	11	2,7
Number of vaccine administered	Not yet	1	0,2
	1 injection	8	2,0
	2 injections	113	28,0
	3 injections or more	282	69,8

The sample of the study was selected based on the stated research objectives and subjects.

4. Results

The research topic aims to clarify the intention of young people to participate in tourism activities in two phases, the first is the complicated development of the Covid-19 epidemic and the appearance of the "travel bubble" tour model; The second is the period when Vietnam adapts flexibly and safely to Covid-19. Accompanying the change of social context is a change in the perception of young people.

4.1. Motivation to participate in "travel bubble" tours of young tourists

On the basis of the development of the theory of consumer behavior in tourism by Solomon (2006) and reference to previous studies related to the topic, the author uses quantitative research methods to conduct research. assist.

After collecting online surveys, the author has obtained 404 meaningful surveys for the research, the collected data is processed through SPSS 20 software through descriptive statistical techniques, testing the reliability of the scale, factor analysis, correlation analysis, regression analysis. The results of the study are presented as follows:

STT	Scale	Number of observed variables	Cronbach's Alpha reliability statistics	Conclusion
1	TL	4	0,821	All scales are reliable
2	SK	3	0,774	
3	TT	3	0,762	
4	GT	3	0,783	
5	CL	6	0,849	
6	GC	6	0,830	
7	QC	5	0,824	
8	TK	5	0,825	
9	NN	3	0,773	

The results of testing the hypotheses are as follows:

(1) The direction of the impact of the research factors on the intention to join the tour, except for the random factor, is all positive because the β coefficients of the independent variables in the regression equation have values > 0 . Thus, when these factors increase, the intention to join the tour of young people increases.

The degree of impact of each factor is different. In which, the availability and quality of the tour has the largest impact on the intention to join the tour ($\beta = 0.218$), followed by

the reference group ($\beta = 0.211$) and communication and advertising activities have a small impact. ($\beta = 0.143$).

(2) When comparing the intention to join the tour of different groups in the same control variable by group test, the study gives the following results: Anova test between the control variables and the dependent variable intention participating in the tour showed that there was no difference between the groups of objects of the observed variable. Regardless of gender, age, income level or vaccination coverage, young people have the intention to participate in tourism, namely a strong "travel bubble tour". The restriction of regulations in the context of the epidemic cannot prevent young people's travel intentions and motivations.

4.2. Trends of change in perception and decision to participate in tourism activities in the new context

The social context has changed in the direction of adapting to the Covid-19 pandemic, leading to a change in the perception of young Vietnamese people about tourism behavior in a more positive direction. The intention to participate in tourism activities of 404 respondents is approached from both subjective and objective factors.

The perception of young people depends greatly on subjective factors. Most survey respondents feel optimistic about the epidemic situation as well as believe in the policies of the Government of Vietnam. After a long time fighting the epidemic, people have accumulated a certain amount of knowledge and experience to protect their health against the epidemic wave. In particular, in the context of the "new normal", the state conducts widespread vaccination coverage to create a resistance layer for the community, people tend to be more confident in their health when participating in activities. travel. In addition, two factors of social interaction and personal values are increasingly strongly revealed in this period of context change. Young people are inherently dynamic, passionate about experiencing new things and eager to affirm their leading position, so when society "opens up" completely, they are even more eager to participate in tourism activities. ever. However, the analysis results of the health variable also show that, although young people have a great intention to participate in tourism, they tend to focus on safe tourism activities. This is an opportunity, as well as a challenge for the state, local authorities as well as travel businesses. Many new forms of tourism have been born such as resort tourism (participating in meditation, yoga...), touchless tourism (taking advantage of the development of digital technology to convert all in-person operations into online). , local tourism (travel at home)... These types are more developments of the "travel bubble" tour at the time, demonstrating the spirit of flexible adaptation to the pandemic. Covid-19. Young people in the new context quickly approach these trends in the near future.

In terms of objective factors, young people's perception of the intention to participate in tourism has also changed in the new context. The quality of tours is the top concern of young people when participating in tourism regardless of social context. In the context of the "new normal", the quality of the tour depends on whether the quality of transportation, dining and living services is safe, and whether necessary medical measures are taken when there is an unusual epidemic situation. suspect or not. This is completely consistent with the

analysis above that young people tend to participate in safe tourism in the "new normal" society. The second concern is price, which tends to support people in the new context. Because, in order to build an environment that "flexibly and safely adapts to Covid-19", the state needs to stimulate tourism demand, so it tends to subsidize prices and open many preferential packages for people. The other two factors, advertising and reference, will grow stronger and stronger in the near future. After the period of social distancing, activities tend to return more vigorously than in the previous period, so young people have more opportunities to approach and arouse the intention to participate in tourism.

It can be seen that the trend of changing young people's perception of tourism in the context of "flexibly and safely adapting to Covid-19" is towards safe tourism. They care more about service quality than anything else.

With advantages compared to traditional forms of tourism, the tour model "travel bubble" has many opportunities for strong development.

(1) The form of "travel bubble" meets the requirements of the new stage of society. While traditional types of tourism are struggling to solve the problem of crowding and congestion at tourist sites, causing insecurity and order in the region, and potentially bringing the Covid-19 wave back. ; The form of "travel bubble" can both control the number of people participating in the tour and ensure the health and safety of tourists as well as for local authorities.

(2) The form of "travel bubble" tour is trusted by many countries to build. Many countries today are still facing many consequences of Covid-19, so they are not ready to put their faith in traditional forms of tourism. As a result, the "travel bubble" can become a travel bridge and at the same time create trust with international friends.

(3) The form of "travel bubble" tour perfectly adapts to the regulations of the State and enterprises. This new tourism model not only ensures disease safety for the country but also supports businesses to escape from stagnation before the Covid-19 wave.

(4) The welcome of visitors is a big door for all forms of travel, especially the "travel bubble". People both want to satisfy their passion for travel and also want their health to be guaranteed.

With such open opportunities, is the "travel bubble" no challenge? This is not true at all, because:

(1) The epidemic situation in Vietnam in particular and the world in general changes day by day. That means that the "travel bubble" must stand before the rules of society's elimination. The "travel bubble" needs to compete for a foothold with the back-to-back traditional forms.

(2) The form of "travel bubble" needs creative investment, synchronous coordination of people, businesses and authorities at all levels. Developing tourism while not allowing massive epidemics and cross-contamination is a difficult problem to solve.

(3) The cost of participating in a "travel bubble" tour is relatively high compared to traditional forms of tourism. Meanwhile, people's income decreased due to the impact of the pandemic, so there was a fear of spending.

"Travel bubble" is a new tourism trend with many potential opportunities but also faces great challenges in the context of the times.

5. Discussion and Conclusion

From the above results, the authors make some recommendations and solutions for the State and enterprises in Vietnam as follows:

5.1. Recommendations

Recommendation 1: The Government needs to approve and issue-specific policies and documents for tourism in the context of the "new normal", so that ministries, departments, branches, and units operating in the tourism industry can have a specific legal framework for flexible application.

Recommendation 2: The Ministry of Culture, Sports and Tourism needs to strengthen the establishment of action programs, linking regions to create unique tourism products based on regional and local strengths.

Recommendation 3: Local tourism management agencies coordinate with relevant departments, as well as local businesses in conducting tourism business activities to ensure safe and attractive post-pandemic tourism.

Recommendation 4: Tourism associations should coordinate with the Vietnam National Administration of Tourism to organize communication events to promote tourism at home and abroad; call for socialization among businesses

Recommendation 5: Research and develop new tourism products and services in line with the psychology and preferences of tourists in the open context of the post-pandemic tourism industry, promotion to attract domestic and foreign tourists; Interested in recruiting, fostering, training, high-quality tourism human resources.

5.2. Solutions

5.2.1. For administrators/tourists

Proposal 1: Timely solve human resource problems in the tourism industry

It can be seen that in the past 2 years, due to the impact of the Covid-19 epidemic, a large number of workers in the tourism industry had to quit or switch to another job to temporarily stabilize their lives. Travel and tourism businesses need to come up with policies to support improving human resources to prepare for a return to the service quality race.

Proposal 2: Focus on improving the quality of tours, accommodation, and tourism services

The results of the study showed that the quality of the tour is the most important factor leading to the decision of young people to participate in tourism or not. This shows that the enhancement of the destination's competitiveness is not in the price but in the quality of services and products, which is the decisive factor in the post-Covid-19 context.

Proposal 3: Increase piloting of "travel bubble" in popular tourist destinations

At present, the "travel bubble" is still a safe choice in a time when tourism needs to flexibly adapt to the new era. When businesses increase piloting of this type, dangerous scenarios can be foreseen, reducing the confusion of all levels in the process of organizing tourism activities.

Proposal 4: Build a new flexible pricing model to meet the needs of tourists (combo, stratified price)

Flexible pricing with subsidies, and stratification, will give tourists more choices, make tourists feel they have to pay less for travel needs, and when they feel the benefits, decide to travel. The calendar will be launched more easily, thereby increasing tourism revenue.

Proposal 5: Diversify advertising media, targeting the needs of visitors

At present, the trend of finding out different types of tourism through the internet, booking tours online is very popular, any business that takes advantage of the information development, that business will achieve effective results. communication to many visitors. If tourism can also be promoted in this form with a moderate amount of brief information, it is believed that tourist information will come to young people more easily.

Proposal 6: Have a medical team on duty 24/24 to monitor visitors

Creating a medical team for tourism is an act of anticipating bad scenarios in the future, and creating peace of mind for visitors. When being assured of safety, security, and health, tourism activities provide a comprehensive view for visitors when all aspects of problems occurring when participating in tourism are covered by businesses. This is a measure to promote the tourism industry in the long run.

5.2.2. For the State

Proposal 1: Gradually erase people's fear

The Ministry of Culture, Sports and Tourism has issued a document to restore domestic tourism, and at the same time, coordinate with businesses and localities to promote communication to gradually remove people's anxiety. Take the first step to return to tourism.

Proposal 2: Re-establish tourism cooperation with potential foreign partners

The "new normal" time to open up the country, including the tourism industry, is a trend that should be placed on top of cooperation with foreign partners.

Proposal 3: Support tourism businesses, transport businesses, airlines, tax

The State's policies to support transport and aviation businesses such as corporate tax reductions and subsidies in difficult circumstances when businesses make losses are the driving force for businesses to maintain and stabilize their operations. thereby stabilizing the tourism industry for sustainable development.

Proposal 4: Establish "travel bubbles" projects in various forms such as experience tourism, cultural tourism, and resort tourism.

This proposal also diversifies types of tourism, enriching the potential application of the "travel bubble" into practice.

5.3. Conclusion

The interpretation of One-way ANOVA and the cut-off points shows that there is no difference in the intention to participate in tourism activities of the respondent groups in terms of gender, age, occupation, and income. Regardless of the customer segment, in the context of society flexibly and safely adapting to the Covid-19 pandemic, all have

motivations and trends to participate in tourism. The results show that there is no difference in the impact of objective and subjective factors on the intention of young Vietnamese to participate in tourism, especially the choice of the form of the tour "travel bubble". Specifically, the results of hypothesis testing have shown that service quality plays the most important role in young people's decision to participate in tourism. In addition, internal factors such as psychology and personal values also have a significant influence on personal decisions. Besides, the price or communication activities also have a certain influence on the intention of tourists. All of them reflect the results that young Vietnamese people have a large intention to participate in tourism after the period of isolation because of the Covid-19 pandemic.

As the social context changes in the direction of "flexibly and safely adapting to the Covid-19 pandemic", the public gradually changes the perception that Covid-19 has become an endemic disease. At that time, young people's awareness has changed more positively about their intention to participate in tourism activities. The analysis results show that young people tend to participate in tourism in large numbers, but it must be a safe form of tourism that can both satisfy individual needs and ensure health in the face of the Covid-19 wave. 19. That sets the stage for travel businesses, local authorities and the whole state to take quick and practical actions to recover our country's tourism industry.

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COMMUNITY RADIO STATIONS AND COMMUNITY COVID TEAMS COMMUNICATION DURING THE COVID-19 PANDEMIC IN VIETNAM

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Abstract

The COVID-19 pandemic that occurred and rapidly spread globally has led to an overload of information about the disease for the public. The study was conducted with the aim of understanding the operation and role of commune radio stations and community COVID-19 teams in Vietnam during the COVID-19 pandemic. From there, draw lessons from experience and new knowledge in communication. Especially communication during the COVID-19 epidemic and communication on COVID-19 disease prevention and control. To conduct the research, the author used the method of observation and in-depth interview. By observation method, researchers directly observe the commune radio stations and their operation. At the same time, observe the activities of the community COVID teams in communication about the COVID-19 epidemic. Then, the researcher conducted in-depth interviews with a number of people, in different residential areas, in many different provinces to further clarify the observations and increase the generalizability of the study. Observational results show that, with regular and continuous activities of the commune radio stations and community COVID teams, people feel that the community is always with them, no one is left behind, contributing to people's peace of mind and trust in the victory in the COVID-19 pandemic.

Keyword: *community, radio station, COVID team, communication, Vietnam*

1. Introduction

Radio is a popular mass communication medium in the world. In the UK, there is a national radio system, local radio, BBC local radio, commercial local radio, digital radio, cable and satellite, internet radio, restricted service licenses, access radio, pirate radio (Paul Chantler and Peter Stewart, 2013). In Vietnam, the national radio system has five levels: national radio stations, radio stations of provinces and cities, radio stations at the district level, radio stations at the commune level, and residential areas (Nguyen, D.D., 2014). The most numerous are the community radio stations (CRS). Mainly in Hanoi, there are 579 radio stations in communes, wards, and townships, providing essential information to the people (Viet, A., 2021). But not only Vietnam but many countries worldwide also have community radio stations (CRS) very massive. Examples of CRS are from countries like Bangladesh (Pavarala & Jena, 2020), Nigeria (Ephraim, 2020), and the UK (Coleman, 2020). In India, there are 316 licensed CRS (“Number of operational Community Radio Stations”, 2020).

In Vietnam, the CRS is part of the national radio system. It was once the most popular mass media until social networks appeared on television, electronic newspapers, and the internet (Nguyen, D.D., 2014). Although it does not maintain a leading position in the media, radio broadcasting and CRS operations still retain their work and audience. During the COVID-19 pandemic, the advantages of grassroots radio stations once again promoted and made an essential contribution to epidemic prevention and control in Vietnam (Viet, A., 2021).

Along with modern technology development, CRS has undergone drastic changes in the production and broadcasting process. For example, in the current Bac Ninh province, CRS uses the internet with 4G technology to broadcast wirelessly (Minh, L., 2021). This 4G innovative radio system was used for both district, commune, and residential. This system has a high level of availability can operate at any time, in any location with any internet-connected device. The CRS brings information directly to people in residential areas. Urban residential areas where primary radio stations are not installed, as in Hanoi, have mobile radio crews (Viet, A., 2021).

Also, during the COVID-19 pandemic, in Vietnam, along with CRS, group communication activities, and personal communications in residential areas, especially isolation and blockade areas, there was new creative development. The birth of the community COVID-19 team (CCT) is an example.

CCT was established in residential areas. The number of members of the team depends on the epidemic situation and the number of people in the area. The CCT was born as a combination of community health authorities and socio-political organizations, social organizations, and people of residential areas. “The task of the CCT is to go every day, knocking from door to door to: Communication, mobilize and remind people of measures to prevent and control the epidemic; Request and guide people to self-monitor their health, proactively make medical declarations when themselves or their family members show signs of illness (Ministry of Health Portal, 2021)”. Members of CCT participate voluntarily.

The media has contributed to the achievements in preventing and controlling COVID-19 in Vietnam in the past two years (Information And Communication Emagazine, 2021). Including the active activities of CRS and CCT (Ministry of Health Portal, 2021). Realizing that, the author has conducted a study to find out and clarify the role and method that CRS and CCT have coordinated with other media in communicating about the COVID pandemic -19 in Vietnam.

2. Method

The study was carried out by observation, in-depth interviews, and data collected from electronic portals and online newspapers. Direct observation helps researchers collect intuitive and vivid data about the activities of CRS and CCT. On the basis of those primary data, to ensure the generalizability of the study, the author conducted in-depth interviews with people in different areas throughout Vietnam. Simultaneously, with the observation and implementation of in-depth interviews, the author observes the provision of information by

the State on mass media such as electronic newspapers, electronic portals and social networks to with reasonable conclusions and recommendations.

Observation

In the observation, the author implemented the sampling technique to group by locality and group by epidemic area. First, the researcher made a list of provincial administrative units in Vietnam. The list includes 63 provinces and centrally run cities. After that, the author continued to select the localities that were and are the epidemic centers to made direct observations. The selected localities include Bac Giang, Bac Ninh, Hanoi and Ho Chi Minh City. However, due to the epidemic, travel was limited, so the author's main observations were mainly in Bac Ninh and Bac Giang.

The observation period was made from April 2020 to October 2021.

During that time, the researcher directly observed information activities about the COVID-19 epidemic in 03 residential areas in Yen Phong and Thuan Thanh districts of Bac Ninh province. The focus is on observing the operation of CRS and CCT. Thereby, the researcher can make statistics about the frequency of activities, information contents and make an assessment of the usefulness of information from CRS and CCT provided to people in those areas. At the same time, the observation helped researchers make initial assessments of the role of CRSs and CCTs in the prevention and control of COVID-19 in localities. With that researcher also collected data on CRS and CCT from official sources to had a basis to reinforce research results.

In that process, the researcher compares the information from CRS and CCT with information on other media such as television, online newspapers, and social networks, and compares CRS with CCT to make conclusions about the ability to support each other in the process of communicating about the epidemic to the people.

In-depth interview

To ensure the generalizability of the study, in addition to making observations, the researcher conducted in-depth interviews with the people. The sampling technique is similar to that in observational sampling. In the final step of sampling, selecting people to interview, the researcher used convenient randomization method, and at the same time uses stratified sampling technique. Accordingly, the selected people are from many different provinces, living in both urban and rural areas, diverse ages and occupations, including both men and women. Finally, the author compiled a list of 20 people to conduct interviews.

Interviews were conducted from December 22 to December 29, 2021. Due to epidemic conditions and travel restrictions, interviews were conducted by phone and each interview lasted about 15 minutes.

The in-depth interview questionnaire consists of two parts with 11 questions:

- The first part consists of 5 questions on sociological characteristics such as gender, age, education level, place of residence and occupation.

- The second part consists of 6 questions: one question about when people know about COVID-19 and how often they follow information related to the disease, two questions

about the role of CRS and CCT , two questions about the difficulties without CRS and CCT, and finally the question of whether it is possible to omit either CRS and CCT.

3. Results

Observation

CRS systems and their operation

Observational results show that each residential area was installed with 6 -15 speaker clusters. Each cluster has 1-2 speakers, including 4G wireless and wired speakers. The number of speaker clusters depends on each region's conditions, geography, and population. CRS were installed in high positions and could spread the sound to many households in a residential area. In Yen Phong district, Bac Ninh province, the researcher found 476 4G speaker clusters in 11/14 communes.

CRS was used for broadcasting activities at three levels, including district, commune, and residential. The district-level has a fixed distribution time frame and 6:30, 11:30, and 17:00. In the commune, there was a schedule to distribute at 6:00 and 18:00. In residential areas, depending on the actual conditions, it is possible to choose a time suitable for the content to be communicated. In case of emergency, they could improve communication at any time. For example, communication frequency can be up to 20 - 30 messages during peak times. The earliest news can be broadcast at 05h00, and the latest can be until 23h00.

CRS uses outdoor loudspeakers for broadcasting, which was affected by outdoor and weather conditions. There were locations where people could not hear or hear the sounds from the CRS. CRS works based on the primary device's internet connection and depends on a 4G signal at the installation site. If the 4G mobile signal is not stable, it will affect the radio quality.

CRS provides information on the COVID-19 epidemic situation directly related to people in residential areas, including information on disease prevention and control, 5K, 5T messages, epidemic levels, government policy, number of cases, medical isolation cases, locked areas, information on registration and vaccination. These are all specific and practical information aimed at serving the people of each residential area. This information is absent from other media such as television, online newspapers, or social networks.

In some emergency cases, the responsible people of the government directly broadcast and inform the people to correct the untruthful information spread among the people and on social networks.

Ordinary, the target audience of CRS is mainly older adults. They cannot access or have little access to other information sources such as online newspapers, television, and social networks. However, in the peak epidemic areas, CRS is the primary means of mass communication to update the information of the whole community.

Operation of CCT

According to a report from an unnamed source, Yen Phong district, Bac Ninh province was counted 816 CCTs in 14 communes with 1940 participants.

According to the collected data, Vinh Phuc province, where the CCT models started, had 1,496 groups with 11,314 members (Tran, Q.V., 2021). Da Nang city had more than 2,200 CCTs in residential groups and residential areas. As for Ho Chi Minh City, there were 19,000 CCT with 52,000 members, operating voluntarily, under the organization and management of local authorities and professional guidance from the health sector (Diep, C., 2021).

Each CCT is organized with 3-5 members; they go to people's houses, especially families with people with COVID-19, have F1, F2 cases or families in isolation, blockade, etc. to communicate, mobilize and remind people of epidemic prevention and control measures in each household as a stay at home, limit going out when not necessary; wear the mask; wash hands with soap; keep distance; limit contact with outsiders...

Communication messages from CCT have the advantages of personal communication and directly impact people's thoughts and feelings, making them feel secure and confident in preventing and controlling the epidemic. At the same time, information from CCTs contributes to correcting false information about the epidemic that people have approached. In addition, information from CCT contributes to supplement the activities of CRSs and other media because the information needs of individuals are uneven, and not all people can hear the news from CRS as analyzed above or access other sources.

CCT activities have promoted awareness of individuals, households, and communities in disease prevention and control. CCT also conveys that no one is left behind during the epidemic.

In-depth interview

The researcher interviewed 20 people, including: 13 people in Bac Ninh, 05 people in Hanoi, 01 person in Thai Nguyen and 01 person in Thanh Hoa. In which, there are 07 men (35%) and 13 women (65%); the average age of survey participants is 31.1 years old; 02 (10%) people have college degrees, 09 (45%) people have university degrees and 09 (45%) people have graduate degrees; occupations include students, office workers, reporters, journalists, civil servants, public employees and social activists. According to sociological studies, the maximum natural size of chat groups can be up to 150 people (Yuval Noah Harari, 2015). We can infer that interviewing 20 people actively socializing can equate to data obtained from up to date 3000 people.

Accordingly, 75% (15/20 people) answered that they knew about the epidemic from the end of 2019 and 25% (05/20 people) said they knew at the beginning of 2020. Of which, 90% (18/20 people) said that they regularly monitor information about the COVID-19 epidemic.

When asked about the role of CRS, 20% (4/20 people) said it was to quickly provide information in emergencies, 35% (7/20 people) said CRS had a role in providing information timely information on the epidemic, 65% (13/20 people) said that CRS has a role in providing necessary information such as information on regulations and guidelines in the prevention of COVID-19, information about the epidemic situation is closest to the actual situation including infections, anti-epidemic checkpoints, informing people about information about vaccines and registering for COVID-19 vaccination. In

which, 15% (3/20 people) rated CRS as the most effective in information on COVID-19 prevention and control.

When asked if there are any difficulties without CRS, 60% (12/20) said that there would be difficulties in accessing information and difficult to grasp the epidemic situation in the locality people live, people will be deprived of information about measures to prevent and control the epidemic, not know the cases, and importantly, public awareness will not be enhanced.

When asked about the role of CCT, 95% (19/20) of the respondents said that CCT was very close to the people, closely follows the epidemic situation to each household and was an important bridge between the people and the community local authorities in the prevention and control of COVID-19.

On the one hand, CCT regularly monitors, supervises, and reminds people to prevent and control the epidemic, such as implementing 5K, cleaning, and not gathering in crowds. Through CCT, authorities can detect cases requiring isolation, medical care, or needing help. On the other hand, CCT also absorbs people's feedback to convey to the authorities. Thereby helping people always feel secure to comply with the policies and measures of the leaders in the prevention and control of the epidemic.

When asked if there are any difficulties without CCT, 100% answered yes. Without the CCT, the authorities would not be able to get close to each person in detecting cases and suspicious cases, and could not timely capture people's thoughts and aspirations during the epidemic. And most importantly, there will not be enough forces to carry out epidemic prevention and control work. The reality of anti-epidemic work in Vietnam has also confirmed that if there had no CCT, it would definitely fail.

The interview data also shows that, out of who answered the question whether CRS and CCT were support each other and, if possible, which one should be omitted 40% (8/20 people) of respondents believe that CRS and CCT have a mutually supportive effect in communicating about the COVID-19 epidemic and cannot miss any communication activity in those two activities. The messages from CRS and CCT bring people a feeling of closeness, affection, and reliable information. Statements from CRS were public, while those from CCT were deeply personalized and clearly showed society's humanity.

4. Discussion and Conclusion

4.1. Discussion

CRS is a mass media that has appeared since the 70s of the twentieth century (Duc, D., 2003); so far, it is no longer the primary means of communication in modern society. But through the collected data, we can see that in the context of the COVID-19 epidemic in Vietnam, CRS, thanks to its advantages, still has its place and position (Viet, 2021).

Modern media such as online newspapers, social networks, and television can spread messages about the epidemic on a vast scale. Still, they cannot provide detailed information on the situation of each residential area. Meanwhile, with a limited scope of impact, CRS is arranged in an enormous enough number to inform the majority of residents in residential

areas in a timely and accurate manner about the local epidemic situation, along with other helpful information.

The limitation of CRS is fixed installation. But there is also an advantage of CRS. When there is information about the epidemic, people can actively go to CRS installation locations to update information or at least focus on the direction of CRS to listen to reports.

The sound from the CRS is susceptible to weather and ambient noise. But it has one advantage that is the power of direct speech. The direct of the broadcaster can affect the listener's emotions, making them ready to express their attitudes and respond behaviorally to the received messages positive. At the same time, the broadcaster can also adjust the intonation to suit the audience who are the elderly and do not depend on strict standards. However, the limitations of CRS are a big flaw and need a solution.

CCT is a breakthrough and innovative solution in epidemic prevention and control in Vietnam. CCT has responded to information and communication needs about the COVID-19 epidemic in residential areas more quickly, proactively, and drastically while helping to control the source of infection, trace the disease and take care of people in residential areas. The birth of CCT had created a decisive turning point in the fight against COVID-19 in Vietnam (Tran, Q.V., 2021).

Data from surveys show that Vietnamese people were very concerned about the disease, most of them had grasped information about the condition from the early days of the outbreak, around the end of 2019 to the beginning of 2020, and always followed the disease. Especially in the first time, everyone watched several times a day. When information about the epidemic became too much, many people were overloaded with the illness on social networks and online newspapers. They turned to monitor mainstream media such as television and radio. In epidemic areas, people are only interested in CRS and CCT without paying attention to other sources.

Thus, when an issue is communicated to the public long enough and quantity enough, the recipient is overloaded with information. They will no longer be interested in that information unless it is relevant directly to their lives. At that time, the public will look to reliable sources and only follow information from that source.

Since Vietnam transitioned to a safe coexistence with the epidemic, when the Government issued Resolution 128, marking a new turning point in epidemic prevention and control in Vietnam (Vietnam Government Portal, October 2021), information from CRS and CCT is more and more interested. Accordingly, the epidemic situation of each locality is continuously updated and has flexible adaptation changes according to the epidemic level to ensure both epidemic prevention and economic development. Therefore, information about the local epidemic situation is essential, and such information is only available on SRC and CCT.

In addition, we must also affirm that building a picture of information about the epidemic to form an objective and comprehensive view for the public requires the involvement of the entire media. The mass media provide broad details covering the whole society. Individual and group media provide in-depth, local information. That coordination has been very evident in Vietnam in past times.

On the social side, the mass media has intensely involved online newspapers, television, and radio on social networking platforms. Information about the epidemic is continuously provided by authorities, along with measures to prevent and control the outbreak. Information about attacks worldwide and throughout the provinces and cities in the country is continuously updated (Zalo of the Ministry of Health).

4.2. Conclusion

On a local level, information channels are also vibrant and diverse. But the most prominent at the commune are CRS and CCT. The combination of CRS and CCT had created in-depth and comprehensive information covered in each residential area, and at the same time, is a reliable information channel trusted. During the epidemic, when people have to distance themselves and not gather in large numbers, it can affect their daily activities and spiritual lives. Therefore, CCT is not only a personal communication channel it is also profoundly human during the COVID-19 pandemic.

Thus, along with inheriting results from previous studies, through observations, in-depth interviews, and analysis of data from official sources, the author concludes that:

Firstly, in the prevention and control of the COVID-19 epidemic, along with the communication on the mass media, the authorities and the government need to conduct group communication and individual communication. In particular, attach importance to personal contact in epidemic areas, isolation, and block down sites, thereby spreading the spirit of community, love for people, and spreading the nature of humanity and humanity so that no one is left behind.

Second, continue to promote the role of CRS and CCT in reflecting the local situation to help people promptly grasp information about the epidemic and the policies of the government and authorities.

Thirdly, the coordination between CRS and CCT is one of the critical, decisive factors in epidemic prevention and control in Vietnam. This cooperation model is a valuable and very creative experience that can become a model for other countries to refer to and learn. However, we must not forget that to have a typical result in success in Vietnam, the total involvement of the media is required to convey the messages of the government and authorities promptly, strictly.

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A STUDY ON THE LOW TOUCH ECONOMY AMONG CONSUMERS IN HANOI DURING THE COVID-19 PANDEMIC

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Abstract

This study proposes a research model and factors affecting the decision to use Low Touch Economy's solutions. The study evaluates the risk perception, related legal issues and consumer readiness. The study's results indicate the safety, prevention of the COVID-19 pandemic and the replacement of the economy in the traditional form before and during the pandemic. Based on the study's results, some recommendations are made to improve and develop the Low Touch Economy in Vietnam.

Keywords: *E-commerce, e-logistics, e-payment, Low Touch Economy.*

1. Introduction

Definition of Low Touch Economy

Low Touch Economy is an economic solution in which transactions in economics, commerce, and services (shopping, education, health, restaurants, hotels, leisure, travel) are conducted without direct interaction, meeting face to face at the place where the transaction between the seller and the buyer; service users and providers takes place. Through the Internet of Things (IoT), 5G network, cloud computing, blockchain technology, 4.0, AI, robotics, virtual reality (VR), augmented reality (AR), Low Touch Economy's solutions have switched to marketing activities; buying and selling on e-commerce, paying online; providing and distributing services, online software remotely to reduce face-to-face contact and interactions, focus on health, follow government safety measures, and create significant shifts across industries.

Roles of Low Touch Economy:

- Protecting the health and safety of people, workers, economic organizations and businesses against the COVID-19 pandemic.

- Accelerating and promoting management, production and business activities of enterprises effectively.
- Developing a remarkable, innovative and creative economy in all fields.
- Helping Vietnam integrate into the world and participate in the globalization process.

Review of the Literature:

Research "Innovation in the 'New Normal' Interactions, the Urban Space, and the Low Touch Economy: The Case of Rio de Janeiro in the Context of the COVID-19 Pandemic" by Diego Santos Vieira de Jesus, Daniel Kamlot & Veranise Jacobowski Correia Dubeux (2020) to examine how a new change in the economic process influence the city of Rio de Janeiro, in the context of the COVID-19 pandemic, in relation to "new normal" interactions ", urban space and Low Touch Economy. The argument shows that the new use of information and communication technologies by Low Touch Economy to interact with others has allowed people to develop social and emotional relationships in different ways following health measures.

Authors Anamaria Bucaciuc, Gabriela Prelicean, Carmen Chasovschi (2020) focus on the concept of Low Touch Economy in the heritage of rural areas. Pointing out the difficulties and challenges people face due to the COVID-19 crisis by reducing close contact interactions and limiting travel distance through the solutions of Low Touch Economy. The challenges and opportunities of tourism in Low Touch Economy are also presented in the study by Cynthia Maria Montaudon- Tomas, Ingrid N. Pinto-López & Anna Amsler (2021). Research shows negative consumer sentiments during the pandemic and how they are adapting to Low Touch Economy.

Theoretical basis

Technology Acceptance Model – TAM

According to Davis' research, perceived usefulness is the determining factor for people to use computers, and perceived ease of use is the second specific determinant of people using computers.

TAM is considered as a typical model for application in studying the use of a system because TAM is a model for measuring and predicting the use of an information system (IS). Thus, e-commerce is also a product of information technology development, therefore, the survey model of factors affecting IT acceptance is also applied appropriately for the study of similar issues in e-commerce.

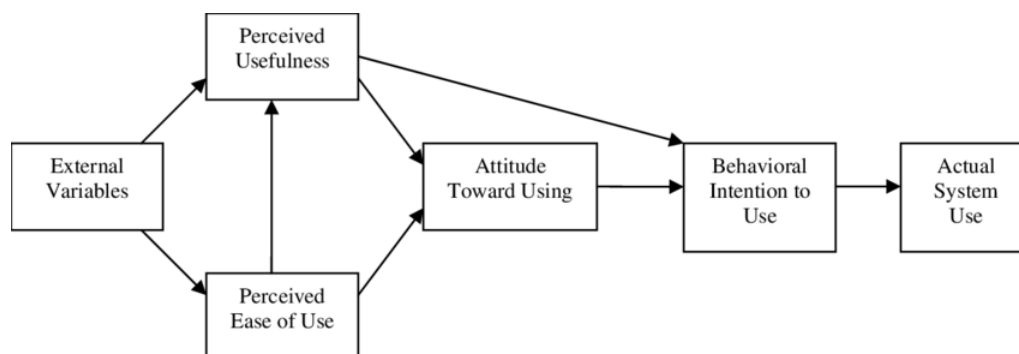


Figure 1. Technology Acceptance Model – TAM

Source: Research by Davis, Bagozzi & Warshaw (1989)

Model description: TAM shown in the figure above is the model first introduced by Davis (1989). TAM acknowledges that two factors perceived usefulness and perceived ease of use are the cornerstones of user acceptance of the system. The importance of these two factors is based on analysis from many aspects, such as: expectations theory, and behavioral determinism.

Theory of Perceived Risk – TPR

In the Theory of Perceived Risk (TPR), Bauer (1960) argues that the behavior of using technology always involves risks, including two factors: (1) Perceived risk related to products/services (perceived risk types: loss of functionality, loss of finance, loss of time, loss of opportunity, and overall risk perception with the product/service), (2) Perceived risk associated related to online transactions (risks that may occur when consumers conduct e-commerce transactions on electronic means - devices related to: confidentiality, safety - authentication, no waiver, and overall risk perception of online transactions). Bauer's (1960) risk theory is widely used in online purchase decision studies, in which two case studies show that this theory is also used in research on ticket purchase decisions, book tickets (events, trains, planes, hotel reservations) online in general, and buy airline tickets online in particular as studied by Kim, Kim & Shin (2009); Kim, Kim & Leung (2005).

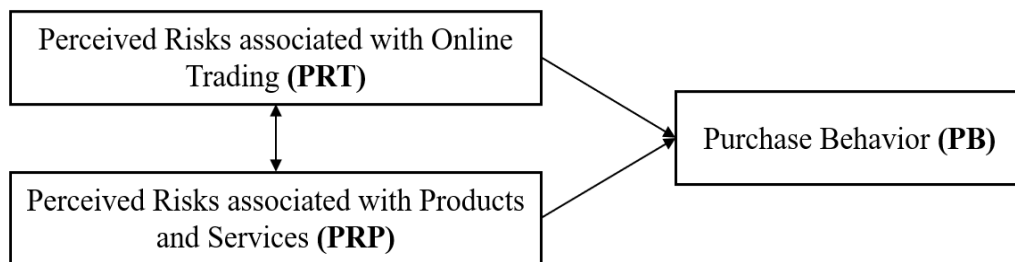


Figure 2. Theory of Perceived Risk – TPR

Source: Research by Bauer, R.A. (1960)

Objectives of the study:

- Systematizing the research on the trend of Low Touch economy. Clarifying customer segments, dynamics and the roles of Low Touch Economy.
- Researching and surveying for the purpose of providing information, testing the direction and level of impact of factors on consumers' decision to join the trend of Low Touch economy.
- Identifying the current status, position and importance of the current trend of Low Touch Economy. Anticipating the replacement of the trend of Low Touch Economy with Traditional Economy. Opportunity and challenge.
- Making recommendations in the development orientation.

Research questions:

- Question 1:* Does the current trend of Low Touch Economy take a more important position and can replace the traditional economy?

• *Question 2:* Consumers' perception of risks and legal issues related to the Low Touch Economy. How willing are they to participate in the Low Touch Economy?

• *Question 3:* For consumers in Hanoi City, what is the proportion, market share, and interest in the trend of Low Touch Economy? And are there any differences between types of participants using the Low Touch Economy's solutions?

Proposed model:

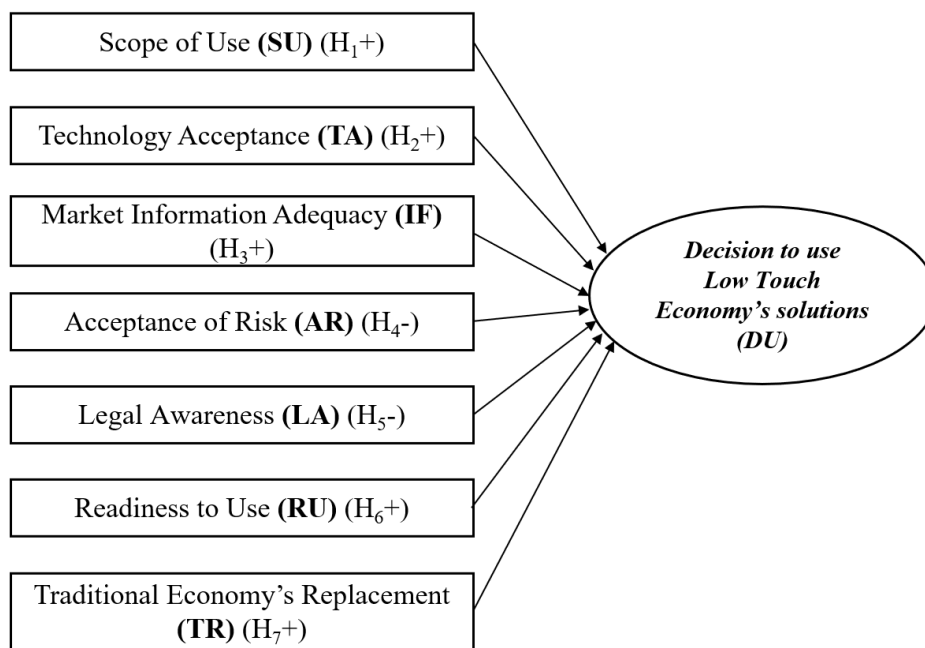


Figure 3. Proposed model

Source: Research team's proposal

2. Method

Data collection

Collected data used for this study include: (1) Secondary data of the research thesis are collected through theoretical systems and data related to Low Touch Economy; (2) The primary data of the qualitative research is collected through pre-built data tables, interviews and expert opinions; (3) Primary data of quantitative research is collected through survey method by pre-structured questionnaire.

- Methods of collecting and processing secondary data: Collecting, systematizing and analyzing secondary information from documents available at domestically and internationally on the contents related to the research topic.

- Methods of collecting and processing primary data:

+ Qualitative research includes overview research, theoretical basis, group discussion and expert interviews to develop the model and complete the scale.

+ Quantitative research with survey method: using pre-structured surveys and questionnaires to collect information on the influence of factors on intention to participate in the trend of Low Touch Economy in Hanoi City.

Data analysis

Implementing research model by using Cronbach's Alpha reliability coefficient test, EFA exploratory factor analysis, linear regression model and One-Way ANOVA to determine relationships related to consumers' decision to use Low Touch Economy's solutions? The whole process of processing and using SPSS 20.0 software to perform data processing and analysis. The data analysis process includes the following basic steps:

- Descriptive statistical analysis of surveyed object data.
- Univariate descriptive statistical analysis.
- Check regression model assumptions.
- Check the regression model.
- Test the research hypothesis.
- Analyze One-Way ANOVA

The entire process of performing data analysis and results is published in the form of statistics, charts, and model results of tests are published in PDF form of SPSS 20.0 software, attached in the Appendix.

3. Results

Description of the study sample:

The research team distributed 504 survey questionnaires to consumers in Hanoi City by way of an online survey. As a result, 463 valid votes were obtained and 41 invalid votes (mainly in online questionnaires that answered the same questions). Therefore, the research team conducted an analysis of 463 valid questionnaires. The results of the sample survey are as follows:

For gender group

The survey was conducted with 176 male consumers, accounting for 38% and 287 female consumers, accounting for 62%. With this result, the percentage of women is nearly 1.63 times higher than the rate of men surveyed.

For age group

The number of consumers under 18 years old is 64 (13.8%); The age group from 18 to 60 is 377 people (81.4%) and the group from 60 years old and above is 22 people (4.8%). The results show that the surveyed age group is mainly between 18-60 years old.

For the educational level group

The survey results show that there are 6 people with below high school qualifications (1.3%); 84 people have upper secondary education (18.1%); 318 people have a university/college degree (68.7%) and 55 people have a graduate degree (11.9%). The results show that the majority of surveyed individuals have a university/college degree.

For the group approaching the concept of Low Touch Economy

The number of consumers who have approached is 370 people (79.9%) and the group that has never approached the concept of Low Touch Economy is 93 (20.1%). The survey results show that the majority of consumers have approached the concept of Low Touch Economy (nearly 4 times more than the group that has never approached it).

The percentage of group that has never approached the concept of the Low Touch Economy is small, but it also reflects that the solutions of the Low Touch Economy need to be improved to be fully applied in various fields used by consumers.

Cronbach's Alpha coefficient analysis:

Cronbach's Alpha coefficient of the scales: Scope of Use (0.755), Technology Acceptance (0.633), Market Information Adequacy (0.693), Acceptance of Risk (0.742), Legal Awareness (0.603), Readiness to Use (0.604), Traditional Economy's Replacement (0.827), and Decision to use Low Touch Economy's solutions (0.601) are all greater than 0.6. The correlation coefficient of the sum of the observed variables in each scale is greater than 0.3. Therefore, 39 observed variables of 07 scales are accepted and included in EFA analysis.

Exploratory Factor analysis (EFA):


 *EFA factor analysis results for independent variables*

Table 1. KMO and Bartlett tests of independent variables

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.887
Sig.	0.000
Cumulative (%)	55.567
Eigenvalue	3.522

Source: Compiled from SPSS, 2022

Table 1 shows that: The value of KMO coefficient is 0.887, eligible for analysis, the factor analysis is suitable with the data; Bartlett test results for Sig. coefficient = 0.000 < 0.05. Thus, the observed variables in the EFA factor analysis are correlated with each other in the overall population. Therefore, hypothesis H₀ is rejected, accepting hypothesis H₁. The first extracted variance results showed that all factors had Eigenvalues > 1. The total value of variance extracted in this EFA analysis was 55.567% > 50%, meeting the set requirements. With Principal components extraction method and Varimax rotation, 7 factors were extracted from 39 observed variables. Factor Loading coefficient of observed variables is greater than 0.3. This means that 07 extracted factors explain 55.567% of the variation of the data, the extracted scales are accepted.


 *EFA factor analysis results for dependent variables*

Table 2. KMO and Bartlett tests of dependent variables

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.628
Barlett's Test of Sphericity	Approx. Chi-Square	148.648
	df	3
	Sig.	0.000

Source: Compiled from SPSS, 2022

Table 2 shows that: KMO coefficient = 0.628, eligible for analysis, factor analysis is appropriate with the data. Bartlett test: Sig = 0.000 < 0.05 shows that observed variables are correlated with each other in the population. Factor loading factor loading observed variables > 0.3. The breakpoint when extracting factors in factor 1 has Eigenvalues > 1. The total value of variance extracted is 55.983% > 50%, meeting the set requirements.

After analyzing EFA, the scales of the factors reach the convergent value and the observed variables represent the concepts to be measured. The remaining observable variables that meet the requirements after analysis are grouped, multiply the representative numbers of the factors (take the average value) to conduct the following analysis step.

✚ *Regression analysis*

The regression model has the following form:

$$DU = \beta_0 + \beta_1 SU + \beta_2 TA + \beta_3 IF + \beta_4 AR + \beta_5 LA + \beta_6 RU + \beta_7 TR$$

(β_0 : regression constant, β_i : regression weight)

Testing the fit of the regression model: The test results show that the Sig (F) value is very small and less than the significance level of 0.05. Therefore, hypothesis H_0 is rejected. This means that the independent variables in the model are linearly correlated with the dependent variable, the combination of the independent variables included in the model can explain the variation of the dependent variable. A linear regression model was built to fit the data set.

Table 3. Evaluation of the fit of the regression model

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.802 ^a	0.642	0.637	0.19865	1.78

Source: Compiled from SPSS, 2022

Table 3 shows that the research model has an adjusted R_2 of 0.637. Thus, 63.7% variation of consumers' decision to use Low Touch Economy's solutions is explained by factors, such as: Scope of Use, Technology Acceptance, Market Information Adequacy, Acceptance of Risk, Legal Awareness, Readiness to Use and Traditional Economy's Replacement. The Durbin-Watson coefficient of 1,780 is within the specified range. Therefore, there is no autocorrelation between the residuals.

In Table 4, the Beta coefficients of the independent variables all have Sig values. < 0.05. Therefore, the independent variables have their own partial regression coefficients that are statistically significant at the significance level of 0.05 (5% significance level). The variance exaggeration coefficients (VIF) are all less than 2, so it is concluded that there is no multicollinearity phenomenon, the relationship between the independent variables does not affect the explanatory results of the model.

Table 4. Regression analysis

Model		Coefficients ^a						
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.172	.155		7.571	.000		
	SU	.176	.036	.184	4.859	.000	.550	1.820
	TA	.081	.026	.113	3.123	.002	.598	1.673
	IF	.086	.028	.110	3.101	.002	.627	1.594
	AR	-.028	.014	-.057	-2.003	.046	.968	1.033
	LA	-.139	.016	-.252	-8.877	.000	.973	1.028
	RU	.140	.027	.181	5.142	.000	.637	1.571
	TR	.266	.024	.406	10.886	.000	.564	1.772

Source: Compiled from SPSS, 2022

Table 4 shows consumers' decision to use Low Touch Economy's solutions in Hanoi city is affected by 7 factors, namely: Scope of Use ($\beta_1 = 0.184$), Technology Acceptance ($\beta_2 = 0.113$), Market Information Adequacy ($\beta_3 = 0.110$), Acceptance of Risk ($\beta_4 = -0.057$), Legal Awareness ($\beta_5 = -0.252$), Readiness to Use ($\beta_6 = 0.181$) and Traditional Economy's Replacement ($\beta_7 = 0.406$). Therefore, the multiple linear regression method is written according to the normalized Beta coefficient as follows:

$$DU = 0,406*TR + (-0,252)*LA + 0,184*SU + 0,181*RU + 0,113*TA + 0,110*IF + (-0,057)*RU$$

✚ Hypothesis testing:

The standardized regression coefficients of the hypotheses are all greater than 0 and the Sig coefficients are equal to $0.000 < 0.05$, so all hypotheses are accepted.

This means that when the factors of Scope of Use, Technology Acceptance, Market Information Adequacy, Acceptance of Risk, Legal Awareness, Readiness to Use and Traditional Economy's Replacement increase or decrease will make the decision to use Low Touch Economy's solutions of consumers in Hanoi City change.

4. Discussion and Conclusion

4.1. Recommendations

✚ Recommendations on personal data protection

- Raising awareness about network security and safe Internet usage skills of Vietnamese consumers
- Increasing administrative fines for violations of the right to protection of personal data
- Supplementing provisions on criminal liability for acts of infringing upon the right to protection of personal data in the Penal Code

- ✚ Recommendations on electronic identification and authentication
 - Raising awareness of people in the digital environment
 - Developing legal documents to specify the relevant contents of electronic identification and authentication
- ✚ Recommendations on product and goods quality
 - Raising consumers' awareness and responsibility when buying goods
 - Strengthening coordination, inspection, examination and handling of violations, improving law enforcement capacity on e-commerce; promoting propaganda and dissemination of legal policies to businesses and consumers
- ✚ Recommend shipping and service rates
 - Actively reducing taxes and fees to restrain the increase of gasoline, strictly managing the petroleum distribution system
 - Deploying and expanding the project of using electric delivery vehicles
- ✚ Recommendations on the quality of logistics supply chains and the Internet
 - Improving and developing logistics infrastructure
 - Scaling up testing and accelerating the commercialization of 5G.

4.2. Conclusion

Descriptive statistical analysis results from the survey sample show that the number of women is more than that of men. The age of the survey sample is concentrated in the range of 18-60 years old and the education level is mainly University/College. After performing descriptive statistical analysis, evaluating reliability by Cronbach's Alpha coefficient and exploratory factor analysis EFA, the method of coefficient extraction with Varimax rotation gave the results of a research model consisting of 7 independent variables established, 1 dependent variable with 39 observed variables.

The results of multiple linear regression analysis show that all 5 factors have positive impacts and 2 factors have negative impacts on consumers' decision to use Low Touch Economy's solutions in Hanoi City. In addition, participants with different levels of education also influence the decision to use Low Touch Economy's solutions.

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IMPACT OF THE COVID-19 PANDEMIC ON TOURISM ACTIVITIES IN LY SON DISTRICT, QUANG NGAI PROVINCE

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Abstract

Ly Son has a long history of formation, a rich and diverse ecosystem with many scenic spots, and valuable historical - cultural relics. Over the years, the Party committees and authorities of Quang Ngai province and Ly Son island district have enacted many policies to exploit the potential and advantages of the locality to serve tourism development well. As a result, tourism activities have progressed in the Ly Son island district from 2015- to 2020. Infrastructure and tourism services are getting better and better, the number of tourists is growing, and tourism revenue is increasing. There are significantly contributing to increasing state budget revenue, creating jobs, and improving people's living standards.

In 2021, a large outbreak of the Covid-19 pandemic halted tourism service activities, causing heavy losses and damage to the tourism industry throughout the country, Quang Ngai, including the Ly Son district. Within the framework of the article, the author focuses on clarifying: The advantages of tourism development in Ly Son district Impact of the Covid-19 epidemic on tourism activities in Ly Son district, Quang Ngai province. From there, proposing some solutions to restore and develop tourism activities in Ly Son district in the coming time.

Keywords: *Impact, Covid-19 pandemic, tourism, Ly Son district, Quang Ngai province.*

1. Introduction

The complicated developments of the "Covid-19 pandemic in 2020 and early 2021" have strongly affected tourism activities in the world, Vietnam in general, and Quang Ngai province in particular, including the Ly Son district. The fear of tourists due to fear of the impact of the pandemic has made many hotels, restaurants and retail chains at tourist destinations become empty in Ly Son, and tourists and tourism revenue seriously reduced. In this article, in addition to introducing the advantages of tourism development in Ly Son district, and tourism activities in Ly Son island district before the Covid-19 pandemic, the author focuses on clarifying the impact of the Covid-19 pandemic on tourism activities in Ly Son district, Quang Ngai province in 2021.

2. Methods

In this article, the author is to clarify the content Impact of the Covid-19 pandemic on tourism activities in Ly Son district, Quang Ngai province. Besides, collects many

valuable sources such as Yearbook statistics of Ly Son district in 2017 and 2020; a Report of the People's Committee of Ly Son district on the results of the implementation of the guidelines of the Central and the province on tourism development in Ly Son district from 2017 to present and the summary report on implementation of resolutions on epidemic development, services and tourism in Quang Ngai province to 2020; Political report of the District Party Committee, term V, submitted to the 6th Congress of the District Party Committee, term 2015 - 2020; Statistics of historical-cultural relics and scenic spots of Ly Son district have been decided by the People's Committee of Quang Ngai province, the Ministry of Culture, Sports and Tourism to recognize as a provincial and national relic; Decision of the People's Committee of Ly Son district promulgating the Code of Conduct in tourism activities in the district,... thereby using historical, statistical, analytical, and comparative methods to clarify the issues, favorable conditions for tourism development in Ly Son district, Quang Ngai province. The current situation of tourism development in Ly Son District from 2015 to now, especially in the context of the outbreak of the Covid-19 pandemic affecting local tourism activities

3. Results

3.1. Advantages of tourism development in Ly Son district, Quang Ngai province

3.1.1. Tourism concept

Tourism has appeared for a long time in the history of human development. According to archaeologists, they have found the remains of people like Homo Erectus (China) and Java (Indonesia), according to human history originated in eastern and southern Africa about approx 1 million years ago. Scientists believe that to travel such a great distance, human took about 15,000 years at that time [6; p. 8]. Many theories have been put forward to explain the motivation to create such long-term journeys. For example, it is hypothesized that ancient people were nomadic to find food and escape danger. Another theory is that people observe the movement of birds, and want to know where they come from and where they fly, so they move along to find out despite being not deprived of food in their place. With those hypotheses, we know that since ancient times, people have been inherently curious to learn about the world around them, outside the place where they live. People want to know what view of other places, peoples, cultures, animals, plants, and topography of regions or countries.

In this era, with the development of the economy, material wealth is created, and living standard is improved day by day. That is the driving force to promote tourism development, making tourism a phenomenon socio-economic status is popular. Therefore, the International Travel Association believes that tourism is the largest economic sector in the world, surpassing the automobile industry, electronic steel industry, and agriculture [6; p. 8]. For some countries, tourism is now the most important source of foreign exchange earnings in foreign trade, and many countries even take the population's travel index as a criterion to evaluate the quality of life.

Currently, a history of research, there have been many different concepts of tourism.

In 1811, for the first time in England, scientists introduced the concept of tourism, saying that: Tourism is a harmonious combination between theory and practice of journeys with entertainment purposes.

At the United Nations Conference on Tourism, held in Rome, Italy (August 21 - September 5, 1963), tourism experts were the synthesis of relationships, phenomena, and economic activities originating in from the journeys and stays of individuals or groups outside their usual place of residence or abroad for peaceful purposes. The place they go to stay is not their place of work.

In 1930, Mr. Glusman - The Swiss, when researching tourism, said that tourism is the conquest of space by people to a place where they have no permanent residence. Another Swiss researcher named Kuns said that Tourism is the phenomenon where person travel places outside their usual environment get by transportation.

In Vietnam, the concept of tourism was approved by the National Assembly of the Socialist Republic of Vietnam in 2017. Tourism is "activities related to people's trips outside of the country" reside regularly for a period not exceeding 01 consecutive years to meet the demand for sightseeing, relaxation, entertainment, research, and discovery of tourism resources or to combine with other lawful purposes.

From the above tourism concepts, we can see that tourism activities have a long origin in history, develop at a fast rate in the present life, and many organizations, individuals, and scientists are interested in research. Up to now, the term of tourism has many different concepts, but we can see that scientists have a common opinion and think that tourism is a form of temporary movement of tourists from one place to another, from one region to another, from one country to another, without changing the place of residence or place of employment. This is an economic and service sector with the task of serving the needs of sightseeing, entertainment, and rest, whether or not combined with medical treatment, sports, scientific research, and other needs.

3.1.2. Advantages of tourism development in Ly Son district, Quang Ngai province

Ly Son is the island district located on the northeast coast of Quang Ngai province, at coordinates 1500.23'14" to 1500.38'14" North latitude and 1090,05'04" to 1090.14'12" ' East longitude, including the islands: Hon Lon, Hon Be, Hon Mu Cu. The distance from the mainland is 15 nautical miles, the natural area is about 10.32 km², and the current administrative unit consists of 03 communes: An Vinh, An Hai and An Binh; the population is 18,731 people [1; p. 11], so this place has a lot of potential for tourism development

For a long time, Ly Son is likened to a "fairy island" in the middle of the East Sea. Thanks to the lava eruption of the volcano about 25 to 30 million years ago, Ly Son has many beautiful and unique landscapes such as cliffs, caves, stone gates, rocky beaches, etc. That landscape, not to mention the crater ruins in the shape of a funnel, gently sloping with stone steps like rows of seats in the Olympic stadium of the brilliant Greco-Roman civilization. Along with its many beautiful and unique landscapes is that To Vo Gate - a natural masterpiece from a volcano or terraced garlic fields lined with volcanic rocks that

have created the charming landscape of a Dong Van place in Ha Noi. Giang is a miniature in the middle of a remote island.

Historically, Ly Son is a place of convergence and interference of cultures such as Champa, Sa Huynh, and Dai Viet. More than five centuries ago, a class of Vietnamese residents came to Ly Son island to make a living. They and the Cham people lived together to do business, build, and decorate their homeland, where it is more and more abundant. Experiencing many ups and downs of history, along with the process of living together and fighting against invaders, the Vietnamese - Cham residents have left on Ly Son island many valuable historical - cultural relics.

According to statistics, there are more than 50 historical-cultural relics, including large and small on Ly Son island. Of which six relics are ranked national level (An Vinh village communal house, An Hai village communal house, Hang pagoda relic, relics of Hang pagoda, etc. Gieng Tien mountain ruins, Thoi Loi mountain relic, Am Linh pagoda relic, and Hoang Sa soldier's tomb) and 19 provincial-ranked relics (Temple of Ong Fish, Church of Pham Quang Anh, Temple of Heaven Y-A-Na in the village) Tay An Hai, Tam Toa Palace, Lan Chanh, Vo Van Khec grave and temple, Thien Y-A-Na temple in Tay An Vinh village, Vinh Loc town, Pha dynasty relics, Tan mausoleum, Dun palace, Xó La well, the Vo Van family church, Xom Oc archaeological relic, Suoi Chinh archaeological site, Be island scenic relic, Vinh Hoa town, Long Thuy's palace and Yang's palace) [5; pp 1-2]. Historical and cultural relics on Ly Son island are diverse and rich with many different types, such as pagodas (Hang pagoda, Duc Pagoda,...), communal houses (An Hai village communal house, An Vinh village), church Temples of Pham Quang Anh, Vo Van Khiet), unicorns, palaces, mausoleums, etc. The artistic architecture of the monuments on Ly Son island is unique, often symmetrical and important components, which is arranged on the divine axis, the religion of monuments. Normally, the frontage has an open form to create ventilation, the structure avoids columns. The main hall usually has a wooden system in the form of a house. Decorative patterns and sculptures here are quite beautiful, with many themes such as flowers, leaves, four spirits, two dragons adorning the moon, song dragons of the day dynasty [4], and so on.

Annually, many special cultural festivals take place at the historical-cultural sites in Ly Son district, attracting a large number of tourists to visit. For example, ceremony remembers Hoang Sa soldiers, according to the Hoang Sa Squadron dating from the Nguyen Dynasty; the Thien Y-A-Na sacrifice ceremony, the Cau Ngu festival, the ceremony of Cua Van, the launching ceremony to catch seafood,... Cultural festivals on Ly Son island usually take place in the spring. Each festival has its rituals, but the meaning of the festivals has the same thing in common: they all show the principle "When you eat a fruit, think of the man who planted the tree", grateful for the merits of the forefathers who openly set up villages, built jobs, and prayed for favorable weather, calm weather, and favorable conditions for the people to do business.

In addition to traditional cultural relics, there are also revolutionary relics in Ly Son, which is Nha Pha (prison), now a lighthouse - this is the place where the French used to imprison local people because their rebellion against colonial oppression. In addition, there are quite a few ruins of ancient ships that were sunk. This island was once a stop for merchant

ships on the East-West route that world trade researchers dubbed the "sea ceramic road", and "sea silk road" through decades of trade and commerce. Such ruins have been discovered. However, they will be discovered more in the future. These are interesting undersea attractions for domestic and international visitors in the future.

Ly Son Island is surrounded by the sea. Addition, the geological tectonics in history has made the foothills of the island sink deep into the seabed, creating coral reefs stretching in the North and East of the island. Currently, there are more than 100 different species of coral on Ly Son island. The coral reefs are diverse in color, creating an interesting tourist highlight to attract tourists to Ly Son to visit.

Thus, Ly Son island - which keeps a huge amount of scenic spots, landscapes, and historical-cultural relics of great value, is a rare and precious cultural property deposited in the time flow of culture. Sa Huynh - Ancient Champa, which is mainly of Vietnamese culture associated with the process of island-building and island protection, exploitation, and protection of Hoang Sa and Truong Sa by Vietnamese people. Although the number of scenic spots and historical-cultural relics on Ly Son island is not much more than 50 large and small relics, they are still almost original, arranged evenly in localities on the island such as communal houses and pagodas. Ancient palace with unique architectural styles. Attached to many historical - cultural relics is a traditional system of intangible cultural heritage - it is a place to keep the customs, habits, and beliefs of residents. Ly Son is also home to a rich and diverse marine ecosystem with many beautiful colorful coral reefs that have made Ly Son an attractive tourist island for many unique types of tourism. and special

3.2. Impact of the Covid-19 pandemic on tourism activities in Ly Son district, Quang Ngai province

3.2.1. Tourism activities in Ly Son district before the Covid-19 pandemic

In the 19th session, term 2015-2020, the Party Committee of Quang Ngai province had the policy: It is necessary to plan and build Ly Son into a tourist island, strong in the economy, solid in defense and security, is outward to protect marine and island. Rapidly shifting the economic structure of the island district in the direction of increasing the proportion of tourism, fishing, and aquaculture. Rapidly increase the forest area, promote environmental protection, save freshwater, improve the quality of services, and develop community-based tourism. Implement the project of a marine nature reserve, build Ben Dinh Port, and compile a dossier to submit to the Government for recognition of Ly Son island as a special national cultural heritage. There are effective solutions, especially propaganda to raise awareness of the community for sustainable development to gradually change burial customs and practices, relocate and re-burial graves, and ensure the environment. save land fund for tourism development. [2].

The policy of building Ly Son into a tourist island of the Party Committee of Quang Ngai province, outlined in the 19th Provincial Party Congress, has profound and specific content, which is a guideline for the operation of the tourism industry in Ly district. Paint in the future. Implementing the policy of the Quang Ngai Provincial Party Committee on tourism development, between 2015 and 2020, the Party committees and authorities of Ly

Son district have issued many policies to mobilize all resources, and encourage participation. actively of the business community and people to promote tourism development in the district. Notably, from July 13-15, 2015, Ly Son Party Committee held the 6th Congress, clearly stating that the local tourism development goals in the coming time are: Developing tourism commensurate with the potentials and advantages of the district, identifying this as a breakthrough economic sector of the district. Focus on doing well in the planning of tourism development and organizing the implementation according to the planning. Planning to develop spiritual and ecological tourism of sea and islands in the direction of preserving historical values, exploiting spiritual-cultural relics, and exploiting marine resources sustainably. Improve the effectiveness and efficiency of the state management of tourism and the quality of tourist services. [3; p. 21].

In the context that many localities across the country consider tourism as a key economic sector, clearly stating the goal of local tourism development in the coming time of the Ly Son district Party Committee at the 6th Party Committee meeting is essential. This is a specific and clear tourism development orientation for all levels of the Party committees and authorities of Ly Son district to implement synchronously specific plans to mobilize all domestic and foreign resources and encourage participation in the tourism industry. Active participation of the business community and people invests in embellishing historical-cultural relics, building infrastructure, and propagating and promoting tourism to promote tourism activities in the locality. develop.

Between 2015 and 2017, Ly Son district directed the Department of Culture and Information to coordinate with functional units to compile a relic profile, requesting competent authorities to recognize Ba Thien Y-A-Na palace, Ba Thuy Long palace, Princess Yang's palace in An Hai commune, Dun palace, Tan mausoleum, Vinh Loc mausoleum in An Vinh commune, Vo Van family church, Pha house, Xo La well in Dong village, An Vinh commune, Vinh Hoa neighborhood are relics history - culture at the provincial level and Gieng Tien mountain in An Hai commune, Thoi Loi mountain are national monuments. Investing to renovate the Am Linh Tu national monument and the Hoang Sa soldier's grave, upgrading the national flagpole on Thoi Loi mountain, upgrading the roads from the border post to Am Linh Tu and the Hoang Sa soldier's grave, investing in upgrading provide lighting lines to monuments, scenic spots, etc. As a result, many historical and cultural relics on Ly Son island have been restored, embellished, and recognized as provincial and national relics, and many tourist attractions have convenient infrastructure systems. serve the sightseeing needs of tourists. Along with investing in embellishing and upgrading relics and infrastructure for tourism, the Ly Son district directs the construction and development of the Ly Son geopark and takes steps to plan, preserve, develop and submit documents to UNESCO for recognition as a global geopark, encourage the development of a community-based tourism model, and build new tourism products based on exploiting the district's potential, such as the longing oath ceremony Hoang Sa soldiers, Tu Linh traditional boat racing festival, coral reef viewing service, a cruise to visit Be island, Bich Hoa village, Be island, Bich Hoa street overpass to create many tourist products to serve the needs of tourists

To contribute to improving the quality of services and serving tourists, Ly Son district has also encouraged and mobilized domestic and foreign organizations and individuals to invest in high-quality tourist zones and destinations. As a result, infrastructure for tourism in Ly Son district has developed, and the quality of service for tourists has been improved. According to statistics by 2020, Ly Son island has 127 accommodation businesses put into use to serve tourists with a total of more than 800 rooms, including 11 hotels (with 2 hotels of equivalent standard). 4 stars are Muong Thanh and Ngoc Ly Son Island), 51 motels, 04 inns, and 61 service business households. Cultural tours (Am Linh Pagoda and Hoang Sa soldier's tomb, Hoang Sa exhibitor and Bac Hai manager, Tien well, Thoi Loi mountain, Cau cave, Lighthouse, Mu Cu island...), history of mind Linh (the relic of Hang pagoda, Duc Pagoda, the cluster of relics of An Hai village communal house, An Vinh village communal house, the relic of Mr. Lang Chanh fish temple,...) and marine eco-tourism suitable to Ly Son's strengths were opened. wide, service quality is increasingly professional. There are 12 high-speed trains, more than 100 taxis, trams, passenger cars, and many food and beverage establishments to meet the needs of visitors. [9; p. 4].

Ly Son Island is separate from the mainland in the middle of the sea, to develop the economy in general and tourism in particular, the problem is that it is necessary to open the sky to connect with localities in the country and the world economic. Along with the improvement of the local transport system, over the past time, Quang Ngai province has submitted a document to the Government, the Ministry of Transport, and the Civil Aviation Administration for approval of the policy of supplementing and updating the Department of Civil Aviation. Ly Son international airport is in the master plan of the system of airports and airports nationwide between 2021 and 2025 with a vision for 2030. The proposal to build the airport is derived from the practical needs of the locality. to perfect the transport infrastructure system, and create leverage to both promote socio-economic development and promote tourism development.

In order to bring the image of Ly Son tourism to a large number of domestic and foreign tourists, the Ly Son district conducts many activities, such as building a video clip to promote the image of "Ly Son tourism, things you need to know" online. social networks Facebook, Youtube, and slideshows on high-speed trains, LED screens at Sa Ky port station, building Ly Son tourism Website - Currently, the Website is officially operating at www.vanhoadulichlyson. Organized many unique cultural and sports activities, such as a cultural week in 2018 and 2019, in collaboration with the Department of Culture, Sports and Tourism to organize the Paragliding and Marathon national championships and the 61st Tien Phong newspaper [8; p. 3].

It is noticed that Ly Son district coordinated with the Department of Culture, Sports and Tourism of Quang Ngai province to organize a workshop on "Developing Ly Son tourism" in 2017. This is an important activity to concretize viewpoints, guidelines, directions, goals, tasks, and solutions following the specific characteristics and conditions of Ly Son tourism activities. The research results in the workshop will help Ly Son district properly assess the

current situation of local tourism activities in the past time to develop orientations and solutions for tourism development in the coming time. This is also an opportunity to connect cultural - tourism products, contributing to promoting tourism development linkages between Ly Son-Quang Ngai with the whole country and international. Besides, to promote potential, strengths, attract investors, build unique tourism products, and create a new development step for the tourism industry of Ly Son in particular and Quang Ngai in general.

In order to improve the quality of the tourism industry and make tourism activities of Ly Son island district "civilized - friendly and responsible", in 2017, Ly Son district issued a code of conduct in activities. travel. The Code of Conduct consists of 5 chapters and 14 articles, notably Article 4 - stating that the subject of the Code is: "Civilized, friendly and responsible tourism in Ly Son", Article 5 - stating the things to do for the local community, Article 6 - states what to do for tourists, Article 7 - states what to do for guides and tour narrators, Article 8 - states Clearly define what to do for organizations and individuals doing business in tourism and Article 9 - specifying 25 propaganda contents to organizations and individuals operating in the field of tourism, people living and working in the tourism sector. in the district, domestic and international tourists come to visit and stay in Ly Son district. [7] The introduction of the Code of Conduct in tourism is of great significance, contributing to changing the perception of tourist culture of tourists and people doing tourism on Ly Son island in a positive direction, towards the goal of tourism. soon to make Ly Son a national tourist destination in the future.

Thus, implementing the policy of the Party Committee of Quang Ngai province over the past time, the Party committees and authorities of Ly Son district have synchronously deployed many solutions to mobilize all local resources for tourism development. Awareness of tourism development benefits all levels, sectors, and people have been gradually raised, tourism infrastructure has been invested and developed with better quality. Many cultural and tourist activities were organized, especially the successful organization of Ly Son cultural and tourism week in 2018, 2019 with many unique and special activities; coordinated with the Department of Culture, Sports and Tourism to organize many national and international sports activities on the island district that have attracted a large number of domestic and foreign tourists. The model of community tourism and the development of new tourism products based on exploiting the district's potential is encouraged to develop; Organizations and individuals at home and abroad are given favorable conditions to invest in building quality accommodation facilities to meet the needs of tourists. As a result, tourism activities in the Ly Son district have prospered.

The number of tourists visiting is increasing day by day.

Table 1. Tourists to Ly Son, period 2015 – 2020

(Unit: Hits)

	2015	2016	2017	2018	2019	2020
Total visitor	95.000	164.900	206.000	230.320	265.000	290.000

Source: Report of the Department of Culture and Information on tourism development in Ly Son district from 2017 to 2022

The statistics in Table 1 show that the average increase rate of tourists to Ly Son is 25.0%/year with the total number of visitors in 2020 estimated at 290,000 people, increasing 3.05 times compared to 2015. It is noteworthy that at this stage in 2016 there was a strong breakthrough in the tourism industry in Ly Son district, welcoming 164,900 visitors, an increase of 1.74 times compared to 2015.

Tourism revenue is more and more increasing.

Table 2. Total tourism revenue in Ly Son district, period 2015 - 2020

Unit: billion

	2015	2016	2017	2018	2019	2020
Total visitor	114,00	179,82	323,15	276,13	317,00	435,00

Source: Statistical report of the Department of Culture and Information of Ly Son district

The statistics in Table 2, showed that the average growth rate of tourism revenue in the Ly Son district is 30.7%/year the total revenue in 2020 is estimated at 435.00 billion VND, 3.81 times higher than compared the previous year to 2015. It is noteworthy that 2017 saw a strong breakthrough in the revenue of the tourism industry in Ly Son district, with VND 323.15.82 billion, an increase of 2.83 times compared to 2015.

The continuous increase in total tourism revenue in Ly Son over the years is a clear demonstration of the logic of the increase in the number of visitors to visit and travel. On the one hand, this is creating conditions for Ly Son district to continue affirming its tourism brand with domestic and international tourists. On the other hand, making an important contribution to promoting growth and economic restructuring towards quality and sustainability.

3.2.2. Impact of the Covid-19 pandemic on tourism activities in Ly Son district, Quang Ngai province

As a paradise in the middle of the sea, Ly Son, where is many historical - cultural relics and valuable landscapes, has long been chosen by many domestic and international tourists to visit and experience.

At the beginning of 2021, the Covid-19 pandemic broke out again, causing the tourism market and tourism service activities in many localities throughout the country to be stalled, and broken, the whole industry did not meet the target and deviated from the development trajectory. However, during this time, in the Ly Son district, the Covid-19 pandemic has not yet appeared, taking advantage of that, Quang Ngai province has a document allowing domestic tourists to visit Ly Son to visit and experience. Due to the complicated development of the epidemic situation, plus the fear of tourists when leaving the residence, the number of visitors to Ly Son during this time did not meet expectations.

As of October 30, 2021, although Ly Son district has not had any cases of Covid-19 infection in the community, the situation of the Covid-19 epidemic across the country in general and Quang Ngai province in particular is complicated and has many positive cases of Covid - 19 in the community continuously. Facing the complicated development of the pandemic, Quang Ngai province requested branches and localities throughout the province to step up the implementation of measures to prevent and control epidemics and diseases; at

the same time seriously implement the guiding documents and instructions of the Government, the Ministry of Health and the Central Steering Committee for Covid-19 Prevention and Control. Implementing the island's directive of the province, on August 9, 2021, to protect and prevent the Covid-19 pandemic from entering the island, Ly Son district proposed the People's Committee of Quang Ngai province allow the locality to temporarily stop welcoming guests. Travel until further notice. Accordingly, many tourism service activities such as hotels, restaurants, and eateries have to close; Sports activities to stimulate tourism such as the National Paragliding Tournament in 2021 - the tourism event positioning the Ly Son tourism brand cannot be held (these are the expected events that can attract a large number of tourists). tourist island, stimulating domestic and foreign tourism); motels, homestays stopped working,... most of the tourism workers fell into unemployment, life became difficult, Ly Son tourism was crippled and state budget revenue plummeted. Implementing the island's directive of the province, on August 9, 2021, to protect and prevent the Covid-19 pandemic from entering the island, Ly Son district proposed the People's Committee of Quang Ngai province allow the locality to temporarily stop welcoming guests. Travel until further notice. Accordingly, many tourism service activities such as hotels, restaurants, and eateries have to close; Sports activities to stimulate tourism such as the National Paragliding Tournament in 2021 - the tourism event positioning the Ly Son tourism brand cannot be held (these are the expected events that can attract a large number of tourists). tourist island, stimulating domestic and foreign tourism); motels, homestays stopped working,... most of the tourism workers fell into unemployment, life became difficult, Ly Son tourism was crippled and state budget revenue plummeted.

According to a report by the People's Committee of Ly Son district, in the first nine months of 2021, tourists to Ly Son for sightseeing and tourism decreased by nearly 34% compared to the same period in 2020 and by nearly 83% compared to 2019. From January 2021 to now, the Ly Son district has only welcomed nearly 39,000 visitors. This is the lowest number of visitors in the past 5 years. Revenue from the district's tourism, trade, and service industries in the first nine months of 2021 decreased by more than 60% compared to the same period in 2020. This has had a significant impact on the budget revenue of the Ly Son district.

4. Discussion and Conclusion

The Covid-19 pandemic has caused heavy damage to the tourism economy sector of the country in general and Quang Ngai province in particular, including the Ly Son district. In 2021, the number of visitors to Ly Son district decreased sharply compared to the same period last year. Moreover, revenue from the accommodation, food, and travel services also did not reach the plan. Units and businesses operating in the tourism sector were the most affected, leading to a halt in other fields.

However, the Ly Son district is considered a place with great potential for tourism development. The strategic objective of tourism development Ly Son island is to become one of the focal points of tourism in Quang Ngai, community-oriented. Need to promote the potential and advantages of tourism such as island, natural attractions, and historical and cultural relics. Therefore, for Ly Son district tourism to recover and develop after the Covid-19 pandemic soon, in my opinion, it is necessary to focus on implementing the following solutions:

Firstly, Quang Ngai Province and Ly Son district need to have breakthrough policies to promote tourism. Cooperating with event organizers, and travel agencies to promote the organization of festivals, seminars, and fam trip groups (travel to learn, get acquainted, and market) to a large number of domestic and international tourists

Secondly, Quang Ngai Province and Ly Son district soon plan to support tourism businesses and units to retrain human resources in the direction of ensuring standards and conditions to serve local tourism in new situation. Supporting service businesses to promote images, brands, and services,... to tourists in many forms on the mass media; link localities and businesses to build and develop new tourism products and services, tours, and tourist routes.

Thirdly, tourism businesses need to plan to adjust their operations and study the market needs to have suitable and quality tourism products.

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THE IMPACT OF THE COVID-19 PANDEMIC ON THE INCOME OF INFORMAL WORKERS IN HA NOI

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Abstract

The main content of the study is to quantitatively measure the impact of the Covid-19 pandemic on the income of informal workers in Ha Noi. The research results show that after 2 years of being affected by the Covid-19 pandemic, the income of informal workers decreased by 48.56 million VND/year, which means each month the employee's income decreased from 1 to 2 million. In addition, the study found that seniority (working experience) has a negative effect on the income of informal workers in Ha Noi. From studying the current situation and influencing factors, the research team finds out the cause of the problem and proposes recommendations for each group of stakeholders.

Keywords: *Covid - 19, informal workers, income, Ha Noi.*

1. Introduction

The Covid-19 pandemic has a heavy impact on workers, especially in terms of income. According to the General Statistics Office, in the third quarter of 2021, the average income of employees decreased by 0.3 million VND compared to the second quarter of 2020. Meanwhile, the second quarter of 2020 recorded the average income of employees as the lowest level in the past 10 years. The sharp decline in economic activities is expected to have serious consequences for a large part of the population, workers, especially informal workers. Currently, in Ha Noi, about 30% of jobs in the informal sector are precarious jobs, more than 60% of jobs do not have labor contracts and nearly 95% are not entitled to social

insurance (Cling, 2009). Although the Ha Noi government has proposed solutions to comprehensively support difficult workers in the context of Covid-19 in the city, informal workers do not have legal protections and labor contracts, so they can hardly access supportive policies from local authorities. Therefore, the authors believe that at present, a research topic is urgently needed to further study the impact of the Pandemic on informal labor income; from there, propose recommendations to limit the impact of the Covid-19 pandemic to improve income as well as develop the life of informal workers in Ha Noi.

2. Literature Review

Topics on the Covid-19 pandemic, income and the impact of Covid-19 on the income of informal workers have been interesting to scientists in recent years. The studies are approached according to the following problem groups:

Studies on the effects of the Pandemic in general on the economy such as Susilawati & partners (2020), Akbulaev & partners (2020), AKM Mohsin & partners (2021),... According to the authors, most economic sectors All economies have been negatively affected by the Pandemic, especially from the Government's orders to close, restrict movement and social distance. However, in some research articles, Vietnam has shown that a few economic sectors or indicators are affected with little or no impact from this pandemic (Hoang Tuan Dung (2020), Dr. Nguyen. Hoai Nam (2021)).

Studies in 2020 on the impact of the Covid-19 pandemic on the income of the labor force such as Gregory Acs & Michael Karpman, Tobin Hanspal & c.s, Nguyen Thi Nham Tuat & c.s... all show that: employees may lose their jobs and experience a significant reduction in income amid the Pandemic. Besides, the research paper of Dong Thanh Mai & partners in 2021 gives the opposite conclusion: some employees do not have a decrease in income due to policies from the company and employment position; even their income increased due to the rapid response to the Pandemic.

Studies on the impact of the Covid-19 pandemic on the income of informal workers both at home and abroad have reached a relatively uniform conclusion: the income of the informal force has decreased significantly due to the pandemic. Covid-19 lasts for a long time (Martínez & partners (2020), Chen & partners (2021)), especially women are affected more clearly than men (M.net, 2021).

In addition, studies on methods of assessing the impact of Covid-19 such as Erik Cuevas (2020), Almeida & c.s (2021), Nguyen Trong Hien & Nguyen Quynh Mai (2021), etc. have used models and Methods are quite rich and diverse, specifically: agent-based model, linear regression model, EUROMOD micro model, etc.

The DID (Difference in Difference) method studies have been interested in and used by scientists for many years, such as Phan Thi Nu (2012), Justin B. Dimick & partners (2014), Elizabeth & partners (2014). This method is often applied when comparing and analyzing when assessing the change of new policies on different subjects.

Informal labor and influencing factors

✚ Informal Labor

In 1993, the ILO and UNSD agreed to define informal labor. Informal workers are defined as those who have informal jobs, specifically jobs without compulsory or non-compulsory social insurance, and do not own a labor contract with a term of three months or more. Agarwala (2018) defines informal workers (variously referred to as "precarious", "non-standard", "irregular" and "flexible") as outsiders standard employment relationships and are therefore not protected and not regulated by most employment laws. However, they will still be governed by the laws of the area in which they live and work such as housing, migration, crime, etc. Informal workers make up a large proportion of the labor market. However, according to the Minister of Labor (2020), informal workers are the most vulnerable, suffer the most risks, and have the most hardship, as well as the income and benefits are the fewest.

According to the General Statistics Office of Vietnam, the income of working employees is income from wages, salaries and other incomes of the same nature as salary, including overtime, bonuses, allowances, self-employment. business, etc. These incomes can be in cash or in kind.

✚ Factors affecting informal labor income

Internal factors of informal workers

Academic level

Education is seen as an investment in human capital (Sullivan and Wolla, 2017). According to human capital theory, Mincer (1958) emphasized education and training as the most significant variables affecting income. The study by Jati et al (2021) analyzed the factors affecting the income of informal sector workers, the results showed that the level of education has a positive impact on the income of the informal sector workers. Informal sector workers, the higher the education level, the higher the income.

Experience

Burki et al. (1991) show that work experience is one of the most important variables affecting the income of informal sector workers. The relationship between years of experience and income of informal sector workers is inverted U-shaped, meaning that earnings will increase when the amount of experience reaches a maximum, then income will decrease. gradually as experience increases, specifically the maximum point is 25 years. With the same survey on workers in the informal sector, Jati et al (2021) emphasize the positive impact of experience on income, the more experience, the higher the income.

Sex

According to the ILO Global Wage Report 2018/19, men are paid an average hourly wage around 16% more than women. Huyen and Ngan (2018) synthesized and analyzed the theories and reality of income disparity by gender in Vietnam. The results show that the income of women is still lower than that of men despite the same level of education, which may be due to the fact that women are not allowed to hold high positions in the business, or

they have to work in the household. family without being paid. Having the same results as the above study, Jati et al (2021) also show that gender has an impact on the income of informal sector workers, men have higher incomes than women.

Age

Most workers with relatively low income in a few jobs first, at the youngest age, have a higher income in middle age, then decrease again after good retirement. Therefore, a society with age diversity will have different income distribution (Gardiner & Hills, 1999; Taylor, 2012).

External factors

Policy

The policies to regulate wages are still weak, there is a lack of a legal framework to protect and protect income, especially informal workers, who are the target group of little attention. As a result, the income of informal workers is precarious, markedly lower than that of formal workers (ILO, 2018). Without an income security policy, no security policy is possible or meaningful (Unni, 2004).

Work environment

Lund et al. (2016) emphasized that groups of informal workers are larger and poorer than the average, have lower incomes, are more likely to work in unhealthy, toxic, unsafe environments. safety and limited access to health-related preventive knowledge. In addition, according to the ILO (2018), informal workers have a bad place to work, a large part of them have to do mobile work, so it also leads to unstable income.

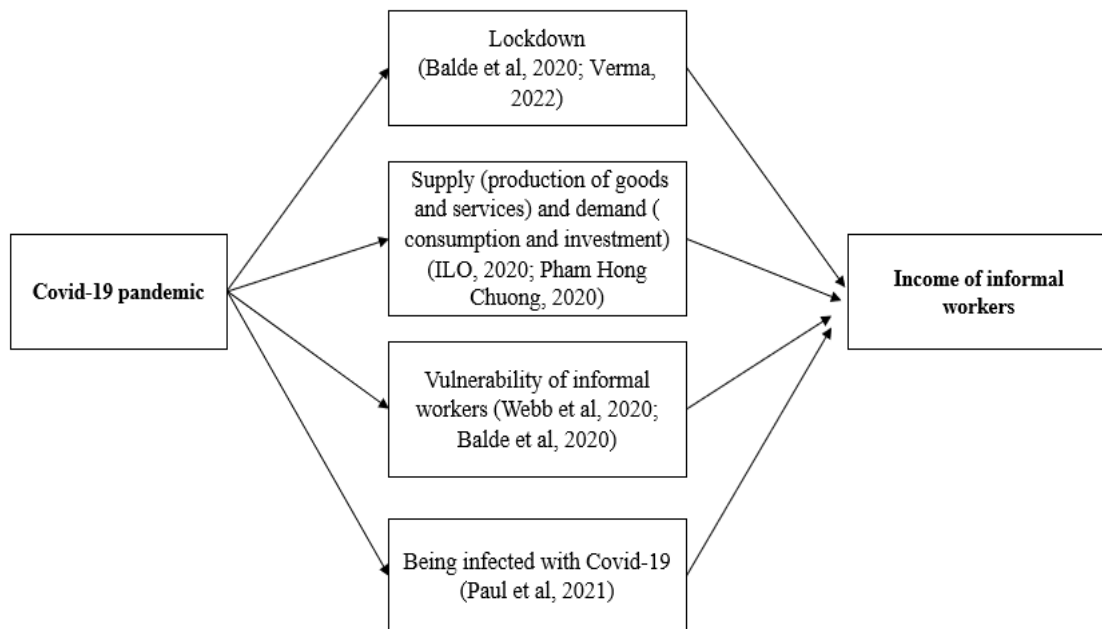


Figure 1. Model of business closures’s impact on informal workers’ incomes

Source: compiled by the research team

3. Method

3.1. Research models

3.1.1. Methods of constructing research models - DID methods

The DID method "difference in difference" is used in research to assess the impact of an economic policy, a new business strategy, etc.

This method is implemented by dividing the analyzed subjects into groups that apply the policy (participating group) and the group that does not apply the policy (comparison group - control group). These two groups must have similar characteristics at the time before the policy implementation. Apply the policy to the participating group and not the comparison group. If there is a difference in the degree of variation in output between these two groups, it is the effect of policy. This result reflects both the difference in time before and after the policy, as well as the cross-sectional difference between the participating and non-participating groups.

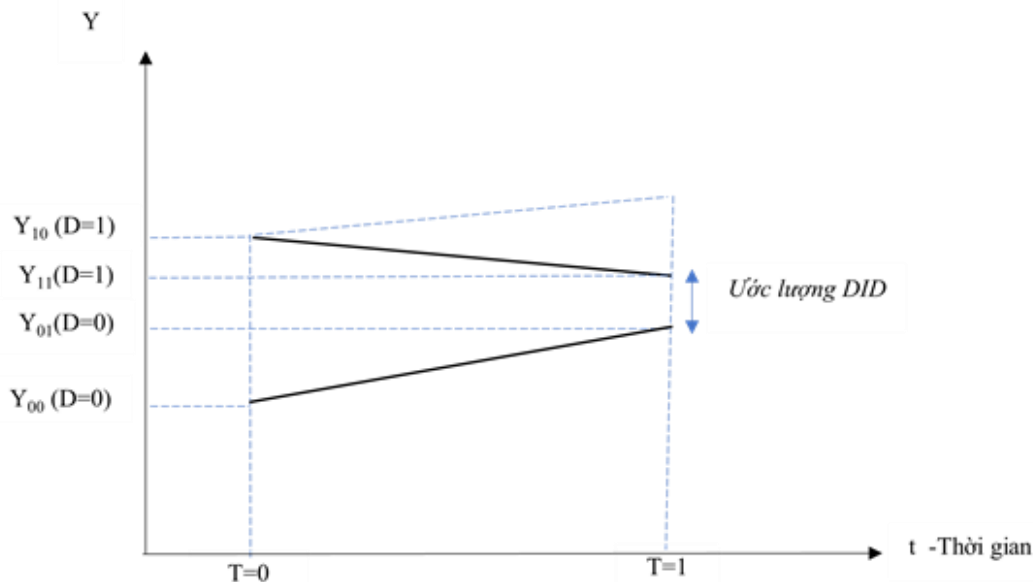


Figure 2. Graph depicting the DID method

Source: Suggested by the author team

3.1.2. Constructing research models

In the context and objective of this study, note the following three points:

The first, consider the impact of the Covid-19 pandemic as the impact of a policy.

The second, in order to deal with the problem of identifying groups not affected by the Covid-19 pandemic, the research technique applies econometric techniques - Forecasting (Approximate inference), based on data on income of employees in 2017, 2018, 2019 to forecast the scenario without the Covid-19 pandemic, take the income of the previous year plus the average amount of income change over each year to forecast for the next year.

The third, to ensure the research hypotheses, the study has selected control variables (playing the role of influence factors) to include in the model with the characteristics that these variables do not change under the influence of disease factor.

Therefore, determining the research model is the model that combines the DID method with array data regression.

The proposed research model is:

Includes:

+ D=1: Labor is affected by the pandemic; D=0: Labor is not affected.

+ T=1: Surveyed in 2021; T=0: Surveyed in 2019.

+ Z_{it} : Control variables include: Education level, seniority of work, time worked in the year, residence, type of employment, origin of workers, economic role of workers in the household family, family economic situation.

Table 1. Summary of the difference-in-difference method

	Average annual income of informal workers (Y_{it})		
	2019	2021	Different
Comparison group (Unaffected)	$\beta_0 + \beta_4 \times Z_{it}$	$\beta_0 + \beta_1 + \beta_4 \times Z_{it}$	β_1
Participating group (affected)	$\beta_0 + \beta_2 + \beta_4 \times Z_{it}$	$\beta_0 + \beta_1 + \beta_2 + \beta_3 + \beta_4 \times Z_{it}$	$\beta_1 + \beta_3$
Difference in difference			β_3

Source: compiled by the research team

3.2. Research methods

3.2.1. Data collection methods

Research data was collected through 2 sources:

+ *Primary data source*: Direct survey with survey respondents who are informal workers working in Ha Noi.

+ *Secondary data sources*: Information collected through books, informational websites, official data and related research articles, etc.

3.2.2. Sample selection methods

The subjects of the survey are informal workers such as street vendors, sidewalk car repairers, motorbike taxi drivers, freight forwarders, sidewalk barbers, etc., who are working in Ha Noi.

In the study, the selected sites are 13 districts of Ha Noi city, including Ba Dinh, Cau Giay, Dong Anh, Ha Dong, Gia Lam, Hai Ba Trung, Hoai Duc, Hoan Kiem, Hoang Mai, Long Bien, Thanh Xuan, Tay Ho, Tu Liem. Time to collect and enter data: 11/1/2021-

7/3/2022. The number of valid survey sheet collected was 223, which were included in the data analysis and reached 100% of the total number of survey sheet collected.

3.2.3. Data analysis methods

Research and analyze data using STATA software combined with data processing on Microsoft Excel 2017.

Data encryption and Data cleaning

The study was carried out through re-selection of necessary data and coding to facilitate data processing. Qualitative variables will be set according to dummy variables to apply to the model.

OLS Model (Pool OLS)

The regression model is:

After having the estimation results, it is necessary to perform a number of tests such as Multicollinearity test, Heteroscedasticity tests. If the model has heteroscedasticity, it should be estimated according to the fixed effects model FEM and random effects model REM.

Fixed effects model (FEM)

The fixed effects model is an extension of the traditional linear regression model. In which, the residual is separated into 2 parts: The regression model is:

Random effects model (REM)

The REM model is an extension of the FEM model. The residual is separated into 2 parts: So the residual is now rewritten as: The regression model is:

Hausman Test

To consider the more suitable FEM or REM model, we use Hausman test.

If the P Value < 0.05 , we reject H_0 , then ϵ_i and the independent variable are correlated and we use the fixed effects model (FEM) and vice versa.

Breusch-Pagan Test [HY1]

Continue to test the model's heteroscedasticity through the Breusch-Pagan test.

If the P_value > 0.05 , we accept H_0 , then the model has a defect that is heteroscedasticity and vice versa.

If the model has heteroscedasticity, continue to use the GLS estimation method.

FGLS Model

Then check the fit of the FGLS model and compare it with the above 3 models.

4. Results

Through the comparison table of the tested models, it is found that the FGLS model is the best and ensures the estimation requirements, without heteroscedasticity. Therefore, this study will use this model for analysis.

Regression results for the coefficient of the variable TD is -48.52, indicating that the impact of the Covid-19 Pandemic in 2 years (representing the "difference in difference" of the model) has reduced the average annual income of employees by 48.52 million VND,

provided that other factors remain unchanged. Thus, it can be seen that the impact of the Covid-19 Pandemic is not small on the income of informal workers.

After performing the necessary tests, the results of the regression analysis gave the following results: with the significance level $\alpha=5\%$, there are 9 factors affecting the dependent variable is the 1-year income of informal workers in the context of the Covid-19 pandemic, including: (1) Covid pandemic; (2) Education level; (3) Working years; (4) Place of residence; (5) Labor role; (6) Economic circumstances; (7) Working time; (8) Age; (9) Gender. Accordingly, the variable representing the impact of the pandemic (TxD) is the variable that has the strongest impact on the income of informal workers (Beta=48.52), and among the control variables, the variable representing the level of education reaching the upper secondary level (LEARN3) has the strongest impact on income (Beta=30.31).

Table 2. Hypothesis test results

Hypothesis	Test results	Regression coefficients
H1: The Covid pandemic has had a <i>negative impact</i> on the income of informal workers in Ha Noi.	Accepted	- 48,56 (TD)
H2: Working seniority has a <i>positive impact</i> on the income of informal workers in Ha Noi.	Rejected	-7,71 (EX3)
H3: Men who are informal workers have <i>higher incomes</i> than women who are informal workers in Ha Noi.	Accepted	4,04 (SEX)
H4: High level of education has a <i>positive impact</i> on the income of informal workers in Ha Noi.	Accepted	23,36 (LEARN1) 30,31 (LEARN2) 18,50 (LEARN3)
H5: Age has a <i>negative impact</i> on the income of informal workers in Ha Noi.	Accepted	-4,68 (AGE1)
H6: Informal workers from Hanoi have <i>higher incomes</i> than informal workers from other provinces in Ha Noi.	Rejected	No statistical significance
H7: Working time has a <i>positive impact</i> on the income of informal workers in Ha Noi.	Accepted	34,09 (TIME)
H8: Difficult circumstance has a <i>negative impact</i> on the income of informal workers in Ha Noi.	Accepted	12,59 (CIRCUM)
H9: The role of family labor has a <i>positive impact</i> on the income of informal workers in Ha Noi.	Accepted	28,22 (MAIN)

Source: Results of data analysis

With the proven hypothesis H1, the Covid-19 pandemic has a negative impact on the income of informal workers in Ha Noi. The explanation for this comes from two main groups of reasons: unskilled workers, contracts as well as protection commitments leading to easy dismissal, and other important factors such as social distancing orders, employees. unable to go to work normally, the change in people's consumption habits makes it difficult for workers in the production and trade groups.

The hypothesis H2 shows that people with less than 15 years of service life have no difference in their income, while informal workers with more than 15 years of seniority have a different income. lower than the group under 15 years. This can be explained by the fact that informal workers have low skill levels and the jobs they do often do not require too many qualifications, many years of experience does not mean improving skills, even is even backward due to not keeping up with the changes of the economy.

Hypothesis H3 means that men who are informal workers have higher income than women who are informal workers. This may be due to the nature of the employment of the majority of female workers, which is usually lighter than that of men, so there is a difference in the remuneration of men and women.

The accepted hypothesis H4 shows that the higher the education level, the higher the income level, especially for informal workers, the access to high school level brings them higher income. 30.31 million VND/person compared to primary level, higher than the other 2 levels

Hypothesis H5 shows that the group of people from 36 to 54 years old usually have a lower income than the group of people under 35 years old and over 55 years old. This is because between the ages of 36 and 54, workers are often no longer in good health as when they were 18 to 35 years old when they were young, and they also tend to look for formal jobs to stabilize the economy. family, stabilize life, but not everyone has the ability to enter the official labor market due to many reasons such as skills, qualifications, health, and age.

Hypothesis H6 was rejected. As the results show, the coefficient of the FROM measure representing the origin of the workers is not significant, so it can be seen that whether the workers are from Ha Noi or from other provinces and cities. they all face the same difficulties and barriers when participating in this informal labor market, which makes the incomes of the two groups not different.

Hypothesis H7 shows that the length of time employees work in a year has a positive effect on their average 1-year income. This can be easily understood because time is also one of the factors to determine the remuneration that an employee can receive. And this positive relationship is also the reason why during the pandemic period, when workers can't go to work, the income of informal workers decreases.

Hypothesis H8 shows that people with difficult circumstances have an average annual income of 12.12 million VND lower than those with good average economic circumstances.

This is because households with difficult circumstances still lack opportunities to access vocational training programs, in addition, disadvantaged families are accompanied by many things such as sick relatives, illness, making employees' time even more narrow.

Hypothesis H9 shows that informal workers who act as the main breadwinner in the family have a higher income of 16.15 million/year than the other group. The reason is also because the financial burden of the whole family rests on the shoulders of workers, making them work harder and harder with a desire to help their families have a more stable life.

5. Discussion and Conclusion

5.1. Discussion

The income of informal workers in the context of Covid - 19 has been heavily affected by many subjective and objective factors. From the research results, the research team has some recommendations to the Government in general, Ha Noi city in particular and to informal workers.

In the short term, the government needs to streamline the process of supporting informal workers, avoiding cumbersome procedures that make it difficult for those in need. Quickly conduct surveys to collect data on the status of informal workers, from which there are evaluation criteria for support as well as appropriate levels of support for each affected object. Informal workers also need to have savings, participate in insurance programs to receive support when there is an event in the most complete and fastest way.

In the medium and long term, the Government needs to establish a database on informal workers that is updated regularly at each level of government, helping to understand information about this subject. Accelerating completion of digital transformation, building e-government to help the coordination between levels become smoothest and fastest. It is necessary to create scenarios to deal with major events, to avoid unexpected situations. And above all, improving the quality of education, improving the qualifications of workers helps them increase their income and suffer less negative impacts.

5.2. Conclusion

The Covid-19 pandemic has brought many negative effects to the world economy in general and Vietnam in particular. One of the subjects most affected by this pandemic is the group of informal workers. They account for most of the labor force in Vietnam, but they have not yet received the necessary and timely attention and support from the government. This happens due to many objective and subjective factors coming from the government and informal workers. Realizing that there are still not many studies targeting this object in Vietnam and especially in Ha Noi as well as previous studies that are not really comprehensive, the research team decided to carry out the topic "The impact of the Covid-19 pandemic on the income of informal workers in Ha Noi" and achieved the following results:

The first, Unify the concept of informal labor, clarify the current context as well as related factors affecting the income of this group in the context of the Pandemic.

The second, properly assess the role of the target group in the Vietnamese economy as well as the measures that have been and are being applied by the Governments of other countries to help overcome the impact of the Covid-19 pandemic on the target group. .

The third, objectively analyze the effectiveness of the Government's policies, thereby giving appropriate solutions and recommendations to overcome the inadequacies in them.

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FDI IN VIETNAM IN THE CORONA AND POST CORONA PERIODS: TRENDS AND OPPORTUNITIES

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Abstract

The Covid 19 pandemic has entered its third year, the effects of the pandemic on the global socio-economic have also been recognized more and more clearly. For international investment activities, the covid 19 pandemic can be said to be a "shock" causing global FDI flows to drop sharply in 2020, when the pandemic broke out. Entering 2021, global FDI inflows have witnessed a strong recovery, with an increase of 77% compared to 2020 and an increase of 11.3% compared to before the pandemic (in 2019). With a highly open economy like Vietnam, FDI inflows have become one of the main growth drivers of the economy. The article will evaluate the current situation of global FDI inflows in the period of 2020-2021 as well as the status of Vietnam's FDI attraction in the same period. On that basis, the authors propose some recommendations to increase the FDI inflows in Vietnam in the upcoming time.

Keywords: *FDI, covid 19, Vietnam, FDI, new normal*

1. Introduction

In the context of integration, FDI inflows have increasingly affirmed their role as the main growth engine for the Vietnamese economy. With a strategic geopolitical position in ASEAN - one of the dynamic regions with the fastest economic growth in the world, Vietnam has become a bright spot in the region in terms of attracting FDI. According to UNCTAD (2021), Vietnam ranks 6th in Asia in terms of FDI attraction. However, with the emergence and outbreak of the COVID-19 pandemic from the end of 2019 until now, global FDI inflows have witnessed a sharp decline. For Vietnam, the COVID-19 pandemic also negatively affects the supply chain and workforce in FDI enterprises. However, entering 2022, the amount of FDI attracted has shown signs of recovery and improvement. This article assesses the current situation of FDI in Vietnam and the global FDI during the 2020-2021 period. Based on these assessments, the authors propose a number of policy recommendations to "turn risks into opportunities" and anticipate a new wave of FDI into Vietnam.

2. Method

Based on the data collected from UNCTAD and Foreign Investment Agency (Ministry of Planning and Investment, Vietnam), the authors use qualitative analysis to evaluate the current situation of global FDI and FDI in Vietnam during the corona period.

The assessments show a significant impact of covid 19 on the global FDI as well as FDI in Vietnam.

3. Results

Regarding the global FDI trends, it can be said that the Covid 19 pandemic has created many big "shocks" for the global economy. Most countries had negative growth in 2020; the global supply chain has suffered an intermission, and the trend of protectionism and regionalization is returning. These adverse factors with unpredictable developments of the pandemic have caused a sharp plunge in global FDI. According to UNCTAD's 2021 investment report, global FDI collapsed in 2020, falling by 42% to about \$859 billion, from a 2019 value of \$1.54 trillion. FDI at the end of 2020 is 30% lower than the bottom after the global financial crisis in 2008. The Covid-19 pandemic is a supply, demand and policy shock for attracting FDI inflows. Policies taken by governments during the crisis, including new investment restrictions and the closure of international trade, and restrictions on labor mobility to prevent the spread of the disease, have impacted negative on global FDI flows. The disruption of the supply chain has caused some key industries of the world to fall into a state of loss, especially the auto industries (-44%), aviation (-42%), new investment activities (Greenfield), cross-border mergers and acquisitions (M&A) activities all decreased by more than 50% in the first months of 2020 compared to 2019.

Although COVID-19 has a severe worldwide impact, the size of the impact varies by region. Developing economies are projected to experience the steepest declines in FDI as these countries rely heavily on the mining, manufacturing, and global value chains (GVC) industries – sectors areas seriously affected by the covid 19 pandemic; and these countries cannot have the same strong economic support measures as developed countries.

Based on UNCTAD 2021, global FDI inflows recorded a strong and comprehensive decline in 2020. Developing countries, transition countries and especially developed countries all experienced a sharp decline in FDI attraction. Specifically, FDI inflows into developed countries fell by 69% in value, the sharpest decline since the 1997-1998 global financial crisis. Of the total \$630 billion in declines globally, nearly 80% were in developed countries. With an estimated US\$229 billion, FDI inflows into developed countries are only one-third of what they were after the 1997-1998 global financial crisis. Entering 2021, global FDI capital showed a strong growth again to an estimated 1.65 trillion, an increase of about 77% compared to 2020, 11.3% compared to 2019 – the time before the pandemic broke out. Developed economies experienced the strongest growth, with foreign direct investment (FDI) estimated to reach \$777 billion in 2021 - three times the record low in 2020. Meanwhile, FDI inflows into developing economies also increased by 30% to nearly \$870 billion, with growth rates in East and Southeast Asia of 20%. Latin America and the Caribbean, and Africa also saw a return to growth in FDI inflows, but in general, the increase was modest and did not reach the scale before the pandemic broke out.

Regarding FDI attraction in Vietnam, starting in early 2020, the Covid-19 pandemic has severely affected the world economy and Vietnam is no exception. In 2020, FDI into Vietnam only reached 28.53 billion USD, down 25% compared to the same period last year. By 2021, the total registered FDI capital increased by 9.2% compared to 2020, reaching 31.2 billion USD. This is a relatively low increase compared to the increase in global FDI inflows of 77%. In 2020, foreign direct investment projects disbursed USD 19.98 billion, equaling 98% over the same period in 2019, and the total newly and adjusted registered capital reached USD 28.53 billion, equaling 75% over the same period last year, 2019. In 2021, the total FDI registered capital in Vietnam reached 31.15 billion USD, equal to 109.2 % compared to 2020. The amount of FDI registered capital increased sharply, reaching over 9 billion USD, equal to 140.5% compared to 2020. This is considered a positive sign of recovery for attracting FDI into Vietnam after Covid-19.

Regarding FDI by sectors, in 2020, the processing and manufacturing industry was the field that attracts the most attention from foreign investors with 800 newly granted projects, 680 projects of adjusted investment capital, with a total capital of 13,601 billion USD, accounting for 47.67% of total investment capital. The field of electricity, gas, and steam production and distribution ranked the second with USD 5.1426 billion, accounting for 18.03% of total investment capital. The real estate business ranked the third with 4.18 billion USD, accounting for 14.67% of total investment capital. In general, processing and manufacturing industry, real estate business, electricity production and distribution, accommodation and food services, etc are the industries that attract the most FDI.

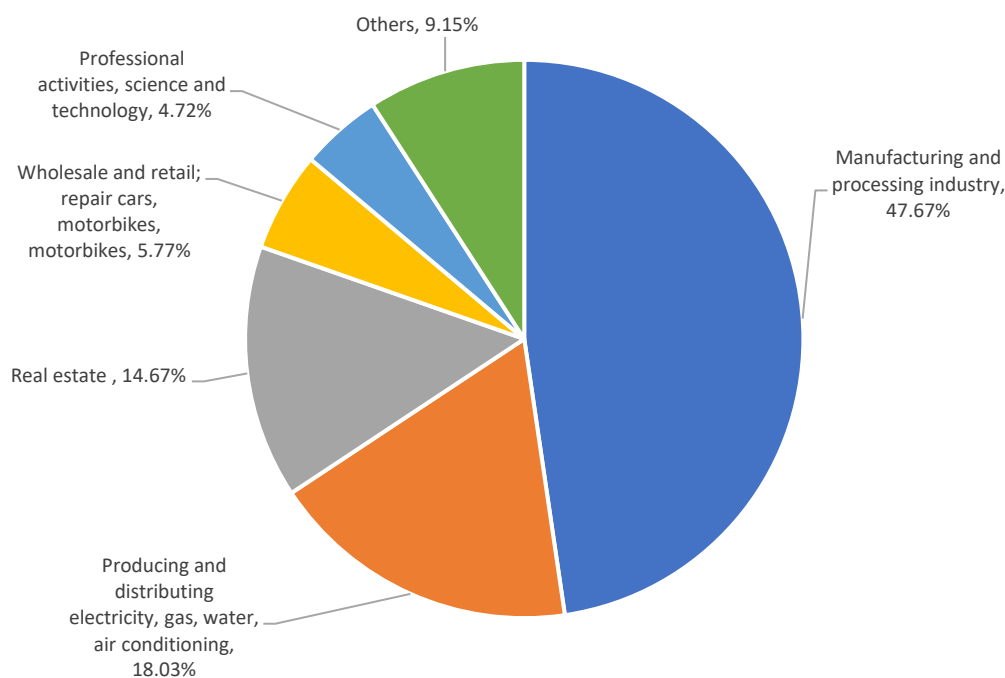


Figure 1. Structure of FDI in 2020 by sectors

Source: Foreign Investment Agency (Ministry of Planning and Investment)

In 2021, foreign investors invested in 18 out of 21 economic sectors. Which, the processing and manufacturing industry led the way with a total investment of over 18.1 billion USD, accounting for 58.2% of the total registered investment capital. Although the electricity production and distribution industry has attracted a small number of new projects, adjustments, and purchases of contributed capital, it has a large-scale project and ranked the second with a total investment of over 5.7 billion. USD, accounting for 18.3% of total registered investment capital. Followed by the real estate; wholesale and retail with a total registered capital of over 2.6 billion USD and over 1.4 billion USD respectively.

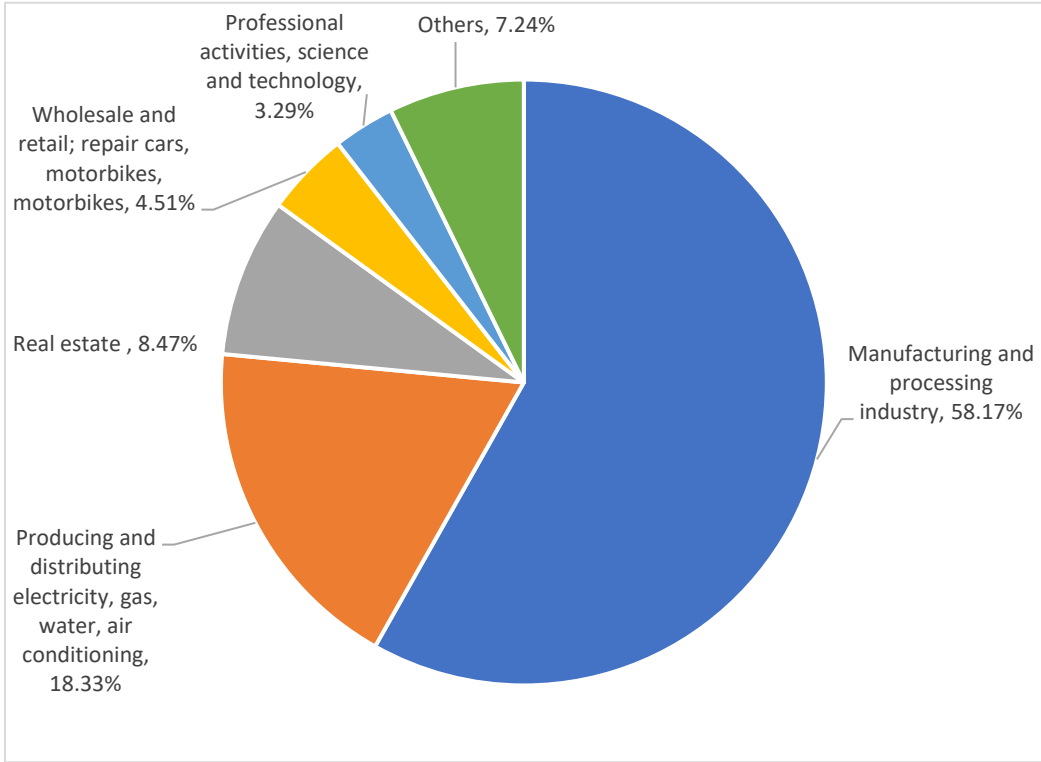


Figure 2. Structure of FDI in 2021 by sectors

Source: Foreign Investment Agency (Ministry of Planning and Investment)

Regarding FDI by regions, in 2020, foreign investors invested in 60 provinces and cities across the country. Ho Chi Minh City took the lead with a total registered capital of 4.36 billion USD, accounting for 15.3% of total investment capital. Bac Lieu ranked the second with a large project with investment capital of 4 billion USD, accounting for 14% of total registered investment capital. Hanoi ranked the third with nearly 3.6 billion USD, accounting for 12.6% of total investment capital. Following are Ba Ria - Vung Tau, Binh Duong, Hai Phong, etc. In terms of the number of new projects, Ho Chi Minh City was still the leading city (950 projects); Hanoi ranked the second (496 projects); Bac Ninh ranked the third (153 projects),....

In 2021, foreign investors invested in 59 provinces and cities across the country. Hai Phong took the lead in the whole year with a total registered investment capital of over 5.26 billion USD, accounting for 16.9% of total registered investment capital and nearly 3.5 times

higher than the same period in 2020. There are many other FDI enterprises that continued to increase capital in Hai Phong such as Regina Miracle International Vietnam Co., Ltd. in VSIP Industrial Park increased capital by 100 million USD; Flat Vietnam Co., Ltd in Dinh Vu Industrial Park increased capital by 75 million USD.

Long An ranked the second with over 3.84 billion USD registered capital, accounting for 12.3% of the total investment capital of the country. Ho Chi Minh City ranked the third with nearly 3.74 billion USD, accounting for nearly 12% of total investment capital, followed by Binh Duong, Bac Ninh, Hanoi, ...

The top 10 in terms of FDI attraction in 2021 are: Hai Phong, Long An, Ho Chi Minh City, Binh Duong, Bac Ninh, Hanoi, Dong Nai, Can Tho, Bac Giang, and Quang Ninh. Among the above, we must especially mention Bac Ninh and Bac Giang, which are the two epidemic centers of the 4th outbreak. Thanks to the efforts in disease control, overcoming difficulties and deploying many suitable solutions, these two localities have become bright spots in attracting FDI in 2021. It can be seen that in the top 10 localities attracting FDI, there are 5 localities in the North and 5 localities in the South. This is a good sign that FDI inflows have had relatively wide spillover effects throughout the country. Before 2012, FDI inflows were mainly concentrated in the southern region with leading localities such as Binh Duong, Ho Chi Minh City, etc. In Ho Chi Minh, Dong Nai, Ba Ria Vung Tau, etc. However, in recent 10 years, FDI inflows have had a spillover effect both in the southern region and the northern key economic region. However, the Central and Highlands areas are still relatively slow in attracting FDI. Typically, it can be mentioned that Da Nang, and Quang Nam, which are all localities with vibrant economic activities, but ranked in FDI attraction is quite low, not commensurate with their potential: Quang Nam ranked 17th while Da Nang only ranked 19th on the ranking of FDI attraction by location. On the other hand, the structure of FDI by regions and localities is still unbalanced. FDI projects are concentrated mainly in regions with favorable conditions such as the Southeast region, the Red River Delta, and some large provinces and cities with a high level of socio-economic development. From 2020 through 2021, several provinces and cities do not have new FDI projects, such as Gia Lai, Bac Kan, Ha Giang, Dien Bien, Lai Chau... As can be seen, these are mainly provinces and cities in Northern midlands and mountainous regions.

Regarding FDI by investment countries, 112 countries and territories invested in Vietnam in 2020. Singapore led with a total investment of nearly 9 billion USD, accounting for 31.5% of total investment capital in Vietnam; Korea ranked the second with total investment capital of over 3.9 billion USD, accounting for 13.8% of total investment capital. China ranked the third with a total registered investment capital of 2.46 billion USD, accounting for 8.6% of total investment capital. Followed by Japan, Taiwan, and Hong Kong.

In 2021, there were 106 countries and territories invested in Vietnam. Singapore leads with a total investment of over 10.7 billion USD, accounting for 34.4% of total investment capital in Vietnam, up 19.1% over the same period in 2020; Korea ranked the

second with nearly 5 billion USD, accounting for 15.9% of total investment capital, up 25.4% over the same period. Japan ranked the third with a total registered investment capital of nearly 3.9 billion USD, accounting for 12.5% of total investment capital, up 64.6% over the same period. Followed by China, Hong Kong, and Taiwan.

Thus, in recent years, Singapore, South Korea, and Japan are the three largest investors in Vietnam, with the total FDI capital from these three countries usually accounting for about 50%-65% of the total registered FDI. Notably, recently, FDI inflows of Chinese enterprises have shown signs of strong growth. If in the period 2011-2019, China's FDI inflows only accounted for about 4%-6% of total FDI inflows into Vietnam, then in 2020 and 2021, China's FDI inflows accounted for 8.6% and 9.38% of total registered investment capital in Vietnam, respectively. This is a situation that must be cautious about because FDI inflows from China are often associated with problems of environmental pollution, bad working conditions, and other negative issues.

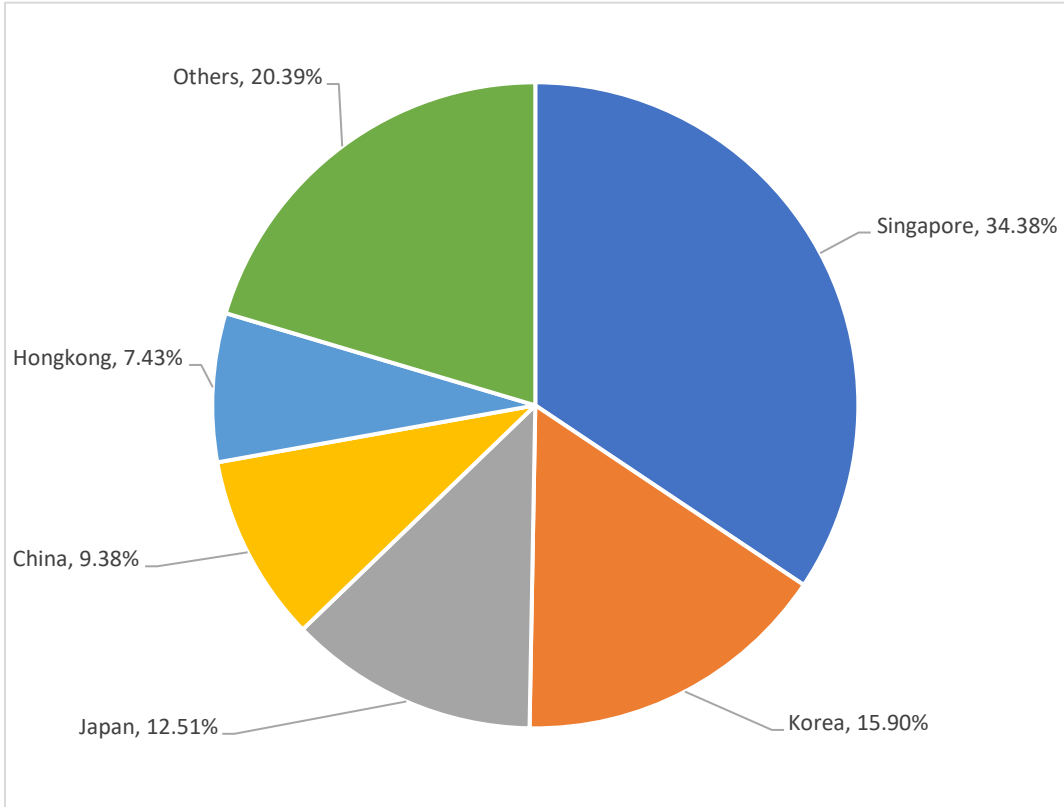


Figure 3. FDI into Vietnam in 2021 by investment countries

Source: Foreign Investment Agency (Ministry of Planning and Investment)

Regarding FDI by the forms of investment, in 2020, the number of foreign investment projects with economic concentration activities in joint ventures and transfers into our country was 350 projects with a total capital of 2,034,531,431.31 USD. Projects were mainly in joint ventures (accounting for 74.57%), and the rest is 100% foreign capital (25.43%). In 2021, the number of projects was 294 (down 15% compared to 2020) with a total capital of

7,508,152,819.52 USD (increasing more than three times compared to 2020). Joint venture projects accounted for 64.29%; 100% foreign capital accounts for 35.71%. In fact, in the period 2011-2019, FDI projects were implemented mainly in the form of enterprises with 100% foreign capital (about over 70% of projects); meanwhile, joint venture projects only accounted for about 20%-25% in the period 2011-2019. Thus, it can be seen the shift in investment form from 100% foreign-owned enterprises to joint-venture enterprises in the past ten years. This is a good sign as with the increase in the number of joint venture enterprises is the transfer of advanced technology and high-quality human resources in FDI enterprises.

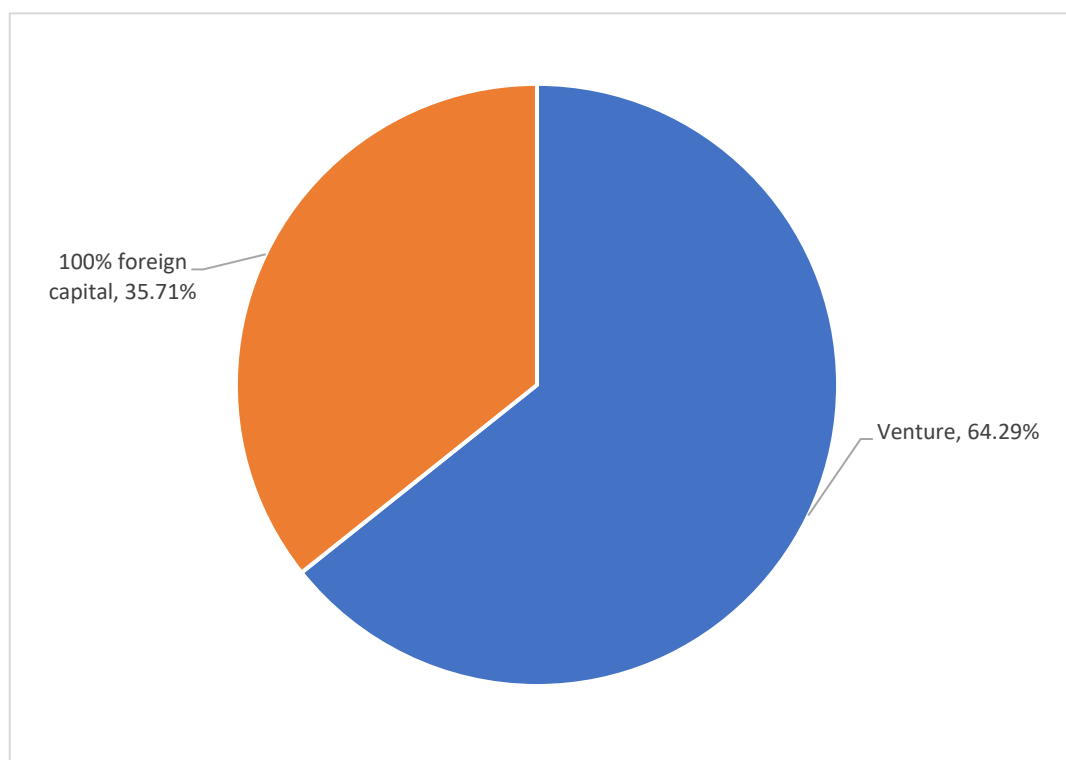


Figure 4. FDI into Vietnam in 2021 by the forms of investment

Source: Foreign Investment Agency (Ministry of Planning and Investment)

4. Discussion and Conclusion

Despite being heavily affected by the Covid-19 pandemic in the period 2020-2021, Vietnam still has optimistic signals to boost FDI attraction in the coming time. With the Government's drastic and synchronous measures such as tax exemption and reduction, timely support for businesses and employees, and ensuring the realization of the dual goals of anti-epidemic and production development, Vietnam is still a bright spot in attracting FDI of the world not only in Asia but around the world in the context of the pandemic. In addition, with the advantage of geographical location, a golden population structure with nearly 70% of the population of working age, the Government's initiative and activeness in signing a series of free trade agreements and new models such as EVFTA (2020), CPTPP (2018), RCEP (2020), and bilateral agreements like UKVFTA (2020), it can be said that Vietnam has succeeded in the strategy of "building nests to welcome eagles",

creating opportunities a solid base to continue to attract FDI in the upcoming time. With the profoundly changing of the world economic, social, and political context and the consequences brought by the COVID-19 pandemic, the attraction of FDI in Vietnam in the upcoming time requires strategic and political adjustments. Therefore, the authors propose the following recommendations:

Firstly, the world economy is operating in the context of the implementation of the fourth industrial revolution and the digital economy. Therefore, policies to attract FDI need to select and prioritize foreign investors and large multinational corporations who take the lead in applying technology from advanced countries to prevent pervasive FDI attraction as in the past. Vietnam is now in the group of middle-income countries, so in order for Vietnam's economy to develop quickly and sustainably based on selective FDI attraction, pay special attention to building and strengthening the economy, building knowledge and business cultures; training and employing a capable and responsible team to attract FDI, and at the same time building and implementing strong enough sanctions to prevent self-interest in FDI attraction implementation.

Secondly, economic recovery after the pandemic will require significant resources, and FDI inflow is one of those vital resources. Therefore, the Vietnamese government needs to review and supplement regulations and conditions to attract, maintain and screen effective investments that are more important than attracting FDI to maximize economic growth. It is necessary to have a perspective that the crisis caused by the pandemic is an opportunity for the government to re-examine its method of effectively attracting and maintaining FDI projects for the country's industrialization process and at the same time creating economic linkages between the FDI sector and the domestic economic sector. To do this, the Government need urgently come up with solutions and methods to support the domestic business sector to overcome difficulties in finding product consumption markets and importing markets for raw materials used for production and support shipping fees, warehousing... It is necessary to build a quality certification system that meets the standards of participation in the supply chain of foreign companies and improve the digital infrastructure that allows businesses to operate remotely along the global value chain and reach out to foreign markets. At the same time, amend regulations on industrial areas and processing zones so that the business community in these zones can connect economically, especially by creating a link between the FDI sector and the domestic economic sector to build and develop supporting industries in the country.

Thirdly, it is necessary to step up the propaganda and dissemination of commitments and agreements that Vietnam participates to each industry, each locality, business, and people so that relevant entities can effectively implement these commitments. Investment and trade policies need to comply with Vietnam's conditions and not conflict with commitments in FTAs to which Vietnam is a member. Promote the role of associations in providing information and advice to enterprises on business law and knowledge on international economic integration; promote the role of Vietnam's diplomatic missions

abroad, as a bridge to provide information, to organize conferences to promote investment of Vietnam in foreign markets.

Fourthly, develop and synchronize supporting industries to identify auxiliary industries in line with the Vietnam Industrial Development Strategy, ensure the effectiveness of policy implementation, and improve the competitiveness of Vietnamese industries in the context of integration. The impact of the Covid-19 epidemic on the supply for domestic manufacturing industries clearly shows one of the biggest weaknesses of the Vietnamese economy: the internal resources of the manufacturing industries are limited, depending heavily on the foreign supply chains; the supporting industry is underdeveloped, which means it is not autonomous in terms of production inputs. Therefore, it is necessary to form and develop domestic value chains by attracting effective investment and promoting business connections between Vietnamese enterprises and multinational enterprises, local and abroad manufacturing, and assembly companies.

Last but not least, it is necessary to diversify supply sources and reduce dependence on China, especially for inputs in the textile, garment, and footwear industries to ensure supply chain stability in the context of China's economy being volatile and the Chinese government implementing the Zero Covid policy. In recent years, China holds the leading position in supplying raw materials for production to Vietnam. Especially, the textile and garment industry is too dependent on imported fabrics from China. Therefore, as there is a problem with the source of raw materials on the Chinese side, it will immediately affect the production of goods and services in Vietnam. A typical example is China's Shenzhen warehouse, which was blocked at the end of January due to the COVID-19 epidemic, which has severely affected many Vietnamese businesses. Therefore, it is required that enterprises take the initiative in finding new markets, reduce dependence on China for both output and import of raw materials and auxiliary materials, to avoid long-term impacts. At the same time, the Government also needs to strengthen trade promotion activities in the direction of diversifying the import market of raw materials such as fabrics, textile raw materials, footwear, pesticide raw materials, iron, and steel as well as catalysts export goods such as vegetables, fruits, rubber, rice...

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FACTORS AFFECTING E-LEARNING OUTCOMES IN COVID-19 PANDEMIC OF ACCOUNTING AND AUDITING STUDENTS IN VIETNAM

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Abstract

Online learning has been making a huge contribution to the quality of university's education, significantly affecting student learning outcomes during the Covid-19 pandemic. The study was conducted to identify the factors affecting the learning outcomes of students majoring in Accounting & Auditing by means of online learning. Thereby providing solutions to enhance the quality of education with high efficiency, contributing positively to the decisions related to online teaching of educators and administrators. The authors used quantitative analysis, regression model analysis and other analytical tools using SPSS 23.0 software. The research sample was collected from 352 survey questionnaires conducted by students majoring in Accounting & Auditing in Vietnam. The results of the model show that the students' performance in online learning is affected by 07 factors in descending order, respectively (i) Course design, (ii) Impact of COVID-19, (iii) Competency of lecturers, (iv) Characteristics of learners, (v) Perceived Ease of Use, (vi) Perceived Usefulness and (vii) Course content.

Keywords: *Covid-19 pandemic, E-learning, Learning outcomes*

1. Introduction

The worldwide COVID-19 pandemic is spreading with extremely unpredictable developments, causing a series of great disturbances, and at the same time causing countries to face difficulties in maintaining economic, political, and social stability. One of the areas most affected in Vietnam is education when students cannot directly go to school to study.

The COVID-19 pandemic has forced universities in Vietnam to quickly apply online learning, continuing the educational process instead of face-to-face learning activities in the classroom to stabilize their learning process. As Vietnam is a low-and-middle-income country, with unequal access to technology across the country, online education, in general, is still unfamiliar and challenging for both teachers and students. Delivering content, knowledge, and assessing student learning with an online learning system are complex processes.

Up to now, the amount of information along with research topics on the current situation, advantages or disadvantages, and students' evaluations of online education is still quite limited. Moreover, the amount of available information mainly focuses on the context when the world has not had a pandemic, there is a lack of research on the direction or extent of the impact of the COVID-19 pandemic on learning outcomes, especially for training in Accounting & Auditing.

Numerous studies have demonstrated that technology plays an integral role in the Accounting curriculum. Kotb et al (2019) argue that the technology element represents an essential aspect that needs to be addressed in the Accounting curriculum to address changes in the market and promote the employability of graduates. Most Accounting & Auditing students appreciate the curriculum when it comes to using technology and online learning systems to assess learning outcomes (Helfaya, 2019). Furthermore, accounting students' perception of academic performance is improved by online exams (Aisbitt & Sangster, 2005). However, when the COVID-19 pandemic appeared, accounting and auditing training also faced certain difficulties.

Therefore, the article aims to research and identify factors affecting learning outcomes by online learning during the COVID-19 pandemic of students majoring in Accounting & Auditing. Thereby assessing the influence of each factor and making recommendations to improve the effectiveness of online learning for accounting and auditing students in Vietnam.

2. Literature Review

2.1. Theory of factors affecting student learning outcomes

Dickie's application model (1999)

In the applied model of Dickie (1999), the factors affecting learning outcomes are Family characteristics, Learner characteristics, and Learners' thinking ability. From there, it can be seen that student learning outcomes are influenced by three main groups of factors, which are family, school, and themselves. These three factors are closely related to each other and affect students' learning outcomes.

Bratti and Stapolani's application model (2002)

Learner's attitude is the main factor affecting students' learning outcomes, as determined by the applied model of Bratti and Staffolani (2002). The main reason given is that students can have complete autonomy and initiative in their learning, thereby making decisions in the most effective way to achieve the best learning results. Therefore, learning outcomes are greatly influenced by the attitudes, or characteristics of learners.

This model points out that learner characteristics are the only factor and have the strongest influence on learning outcomes, focusing on self-study as well as learners' attitudes. Therefore, the limitation of this model is that it does not focus on external factors, while those factors also have a great impact on students' learning outcomes, especially the results of online learning during the pandemic.

The research scope of the two models introduced above is very different. From these two models, it can be said that this is the premise for the author's team to select the factors that affect the results of students' online learning during the COVID-19 pandemic, specifically students majoring in Accounting and Auditing.

2.2. Literature review and research hypothesis development

Perceived ease of use and online learning outcomes

Perceived Ease of Use is a concept used to assess the extent to which an individual considers that it will not take too much effort in the process of adopting an online form of learning (Davis, 1989). Online learning platforms are designed with the purpose of sharing and learning knowledge. Today, in a globalized world, the use of technology for knowledge acquisition, information gathering and learning has become a daily necessity (Bakhuizen, 2012). These resources are easy to use and accessible, facilitating the knowledge-sharing process. Ease of use, accessibility and transfer speeds of online media and mobile devices are an integral and very important part of the learning process, which has been shown and demonstrated in experiments. The increased adaptability of online learning is due to easier access, which in turn leads to positive outcomes (Salloum et al., 2020). The link between technology adoption having a positive influence on learning outcomes by e-learning has been demonstrated in several scientific works (Mbarek & Zaddem, 2013; Pham, Q., & Huynh). , M., 2018) based on Davis' TAM technology acceptance model (Davis, 1989) where students find the ease of use helps them use more, thereby improving learning outcomes. Based on these researches, the following research hypothesis is developed:

H1: Perceived ease of use has a positive effect on students' online learning outcomes.

Perceived usefulness and online learning outcomes

Perceived Usefulness is understood as the degree to which learners believe that using e-learning will improve their job performance (Davis, 1989). The usefulness of online learning can be realized by helping learners save costs and time used for traveling and accessing many different methods. Many studies have shown that perceived usefulness has a positive impact on learners' attitudes and motivation, thereby demonstrating improved learning outcomes (Habes, 2018; Alhumaid, 2020).

Based on these reasons, the following research hypothesis is developed:

H2: Perceived usefulness has a positive effect on students' online learning outcomes.

Competency of lecturers and online learning outcomes

The approach to online learning is learner-centered, as opposed to teacher-centered like traditional education (Debattista, 2018). Instructors need to take necessary measures to improve the quality of online learning, thereby enabling students to study better during times

affected by the COVID-19 pandemic (Abbasi & et al. events, 2020). Pedagogy, professional competence, level of application of science and technology, and ability to form and combine different ideas and practices in building content for online learning programs in higher education learning are important keys to improving student learning outcomes for the better. From that, the following research hypothesis is developed:

H3: Competency of lecturers has a positive effect on students' online learning outcomes.

Online course content and online learning outcomes

Little and Knihova (2014) concluded that engaging curriculum content attracts a lot of students' participation and initiative, thereby affecting learning outcomes. In addition, Khamparia and Pandey (2017) said that the curriculum content also includes additional materials to help students better understand and deepen their knowledge. From that, the authors put forward the following research hypothesis:

H4: Online course content has a positive influence on students' online learning outcomes.

Online course design and online learning outcomes

The online course design includes structure, curriculum design interface, testing and assessment methods, and exchange forums between lecturers and learners. A good course design will attract and facilitate students to learn through online classes (Oh et al., 2020). The curriculum design interface is used to introduce the course content, designed according to the students' ability and understanding level, appropriate in time and space to promote and support the learning process. Based on these reasons, the authors develop the following research hypothesis:

H5: Course design has a positive impact on students' online learning outcomes.

Characteristics of learners and online learning outcomes

Online learning entails greater responsibility for learner engagement (Moore & Kearsley, 2011). Interaction is a mutual interaction, having a relationship to exchange information with each other. Interaction with instructors and other students is crucial, through strong interaction and consistent practice, thereby achieving the effectiveness of online learning (Jung et al., 2002). The combination of cognitive, emotional, and physiological characteristics dictates how students may learn, which is defined as learning style (Shenoy, 2013). Studies also show that learning styles also lead to different learning outcomes. Students' attitudes towards online learning are an important factor in the learning environment supported by online learning tools. Studying learners' attitudes towards online learning may reflect learners' later use of technology (Smith et al., 2000). In addition, initiative, self-learning ability, and a sense of discipline are important requirements for achieving better learning outcomes as the regulations and requirements of online learning become more and more relaxed. Compared to face-to-face instruction, students participating in online learning may face external temptations or interference at home during the pandemic. Therefore, the process is more difficult to control than with traditional methods. Accordingly, student self-discipline has a positive impact on learning outcomes for online learning.

From that, the following research hypothesis is developed:

H6: Characteristics of learners influence students' online learning outcomes.

Impact of COVID-19 pandemic on online learning outcomes

According to Thandavaraj (2021), students tend to be anxious when living in a socially distancing environment during the COVID-19 pandemic. Vitasari (2010) proves that anxiety in the learning process of students will negatively affect learning outcomes. The sudden change in learning method also makes students worry about changing the approach to the subject, and the method of assessing learning results, leading to a negative impact on learning results. Therefore, the stress caused by the impact of the COVID-19 pandemic and the rapid shift from traditional to online classrooms can negatively affect the effectiveness of online learning and learning outcomes. students during the pandemic. From there, the authors develop the following research hypothesis:

H7: Impact of COVID-19 has a negative effect on students' online learning outcomes.

3. Method

Based on literature review and hypothesis development, the authors come up with a research model as shown in Figure 1.

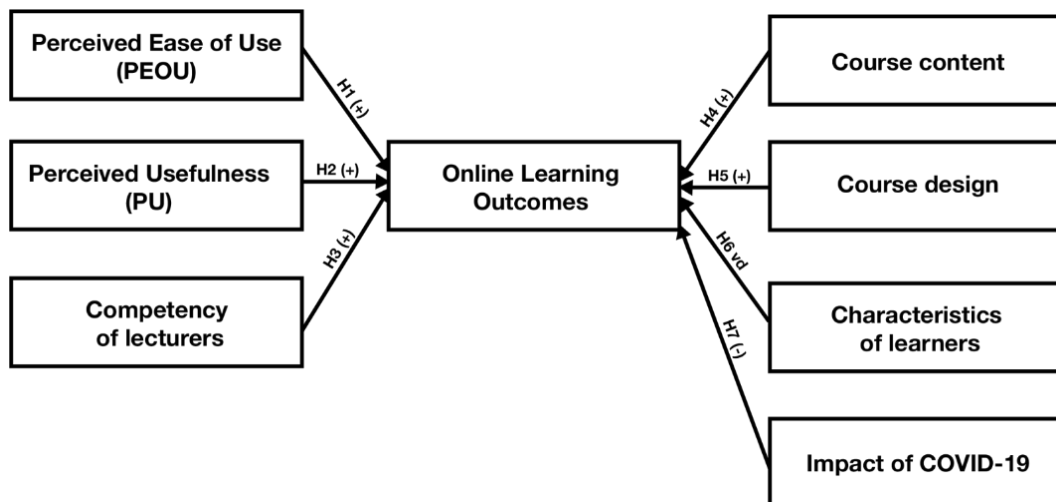


Figure 1. Research Model

Source: Results of the authors' analysis

Applying the primary data collection method through designing an online questionnaire on Google Forms, the authors carry out research on students majoring at Accounting & Auditing in Vietnamese universities.

In this study, the sample was selected according to the convenience sampling method by selecting a non-probability sample. The sample size applied in the study is based on the requirements of Exploratory Factor Analysis (EFA) and multivariate regression. For Exploratory Factor Analysis: the minimum sample size must reach 100 samples. For multivariable regression analysis: the required minimum sample size is calculated by the formula as $50 + 8 \times 7 = 106$ (7 independent variables). The authors received 352 responses with sufficient data, meeting the requirements of number of research samples.

Then, the authors used regression analysis with the dependent variable: the online learning results of Accounting and Auditing students to evaluate the influence of these variables on the online learning outcomes of students. The factors described in the exploratory analysis (EFA) above are independent variables of influence. Here is an example of a regression model:

$$\mathbf{KQ} = \beta_0 + \beta_1 \mathbf{DSD} + \beta_2 \mathbf{HI} + \beta_3 \mathbf{NLGV} + \beta_4 \mathbf{NDCTH} + \beta_5 \mathbf{TKCTH} + \beta_6 \mathbf{DD} + \beta_7 \mathbf{COVID} + \varepsilon_i$$

Where as:

- KQ: Online learning results during the Covid-19 pandemic of Accounting & Auditing students.

- DSD: Perceived ease of use

- HI: Perceived usefulness

- NLGV: Competency of lecturers

- NDCTH: Course content

- TKCTH: Course design

- DD: Learner characteristics

- COVID: Impact of the COVID-19 pandemic

$\beta = \{ \beta_0, \dots, \beta_7 \}$: Regression coefficient affects the dependent variable

- ε_i : Error of the regression equation

4. Results

4.1. Descriptive statistics

The survey has collected 352 valid and eligible answers to perform data analysis and official verification. Regarding subjects, out of a total of 352 valid survey samples, there were 194 students majoring in Accounting (accounting for 55.1%) and 158 students majoring in Auditing (44.9%). Most of the survey samples were taken by freshmen and sophomores.

The results show that the average student's average score is statistically with the majority of students reaching 3.20 - 3.59 (162 students, accounting for 46%) and 3.60 - 4.00 (158 students, accounting for 45%). The rest of the scale only accounts for 9%.

4.2. Reliability of the scale test

The results of evaluating the reliability of the scale and the Cronbach's Alpha measurement variables (Table 1) of the observed variables range from 0.676 to 0.829, ensuring the reliability of the official survey model, and there is no total correlation number is less than 0.3, the variables are suitable for inclusion in EFA exploratory factor analysis.

Table 1. Test results by Cronbach's Alpha coefficient of factors

Variables	Average of scale if variables rejected	Scale variance if variables rejected	Coefficient of correlation of total variables	Cronbach's Alpha coefficient if variables rejected
Perceived ease of use Scale (DSD): Cronbach alpha: 0.705				
DSD1	6.77	1.977	.478	.667
DSD2	6.82	1.539	.572	.548
DSD3	6.77	1.726	.523	.612
Perceived usefulness Scale (HI): Cronbach alpha: 0.722				
HI1	9.86	3.206	.521	.654
HI2	9.80	3.155	.510	.660
HI3	9.87	3.151	.530	.648
HI4	9.88	3.359	.479	.678
Perceived usefulness Scale (NLGV): Cronbach alpha: 0.744				
NLGV1	9.93	3.631	.516	.697
NLGV2	10.00	3.595	.497	.708
NLGV3	9.99	3.419	.592	.654
NLGV4	9.98	3.493	.546	.681
Perceived usefulness Scale (NDCTH): Cronbach alpha: 0.676				
NDCTH1	9.86	2.956	.461	.608
NDCTH2	9.91	2.947	.461	.608
NDCTH3	9.88	2.912	.471	.601
NDCTH4	9.89	3.006	.437	.624
Course design Scale (TKCTH): Cronbach's Alpha = 0.789				
TKCTH1	10.10	3.634	.628	.723
TKCTH2	10.16	3.845	.545	.763

Variables	Average of scale if variables rejected	Scale variance if variables rejected	Coefficient of correlation of total variables	Cronbach's Alpha coefficient if variables rejected
TKCTH3	10.15	3.443	.613	.730
TKCTH4	10.18	3.524	.607	.733
Characteristics of learners Scale (DD): Cronbach's Alpha = 0.829				
DD1	17.04	8.910	.564	.809
DD2	16.93	8.835	.606	.800
DD3	16.99	8.863	.592	.803
DD4	16.90	8.805	.619	.798
DD5	16.98	8.786	.602	.801
DD6	16.96	8.873	.612	.799
Impact of the COVID-19 Scale (COVID): Cronbach's Alpha = 0.770				
COVID1	10.16	3.232	.630	.683
COVID2	10.13	3.694	.532	.735
COVID3	10.16	3.699	.581	.712
COVID4	10.10	3.535	.548	.728
Online learning results Scale (HI): Cronbach's Alpha = 0.828				
KQ1	10.05	4.111	.643	.788
KQ2	10.09	4.081	.686	.769
KQ3	9.97	4.147	.655	.782
KQ4	9.96	4.070	.634	.793

The results of EFA data (Table 2) show that the factor loading coefficients of all the observed variables meet the requirements greater than 0.5 and the total variance extracted factors of the independent variables and the dependent variables greater than 50%. That means these factors explain for 57.980% of the independent variable and 66.023% for the dependent variable.

Table 2. Result of Exploratory Factor Analysis (EFA)

	Coefficients of loading factors						
	1	2	3	4	5	6	7
EFA analysis results with independent variables							
DD4	.743						
DD2	.709						
DD5	.695						
DD3	.671						
DD1	.666						
DD6	.662						
TKCTH1		.737					
TKCTH4		.736					
TKCTH3		.734					
TKCTH2		.588					
COVID1			.792				
COVID3			.771				
COVID4			.738				
COVID2			.711				
NLGV3				.745			
NLGV2				.706			
NLGV1				.682			
NLGV4				.645			
HI2					.791		
HI3					.686		
HI1					.683		
HI4					.562		
NDCTH3						.732	
NDCTH1						.720	
NDCTH2						.677	
NDCTH4						.666	
DSD2							.769
DSD3							.745
DSD1							.723

	Coefficients of loading factors						
	1	2	3	4	5	6	7
Extracted Variance (%)	23.104	31.323	38.083	44.315	49.625	54.119	57.980
Eigenvalues	6.700	2.384	1.961	1.807	1.540	1.303	1.120
KMO = .860				Sig. = .000			
EFA analysis results with dependent variables							
KQ2	.835						
KQ3	.813						
KQ1	.804						
KQ4	.797						
Extracted Variance	66.023						
Eigenvalues	2.641						
KMO = .812				Sig. = .000			

For the independent variables, the KMO index of 0.860 is greater than 0.5 for Sig. = 0.000 is less than 0.05, so it can be concluded that the variables are correlated with each other and satisfy the conditions for factor analysis. The value of Eigenvalues coefficients are all greater than 1 with the 7th factor having the lowest Eigenvalues of 1,120 greater than 1, so the authors divided the original 29 observed variables into 7 main groups. The total value of variance extracted is 57.980% (> 50%), so it can be concluded that these 7 factors explain 57.98% of the variation of the data. Simultaneously, the loading factors' coefficients are all greater than 0.5, showing that all variables have an influence on the factor that the variable represents.

For the dependent variable, KMO = 0.812 > 0.5 for Sig. = 0.000 is less than 0.05, so the above variables are correlated and are eligible to perform exploratory factor analysis. With the extracted variance = 66.023% > 50% and Eigenvalues = 2,641 > 1, the 4 observed variables above converged on one factor and this group of factors explained 66,023% of the variation of the data.

4.3. Pearson's correlation analysis

From the results of Pearson correlation analysis, the authors found that the independent factors were strongly correlated with the dependent factors, the correlation coefficients were statistically significant (Sig. < 0.01), specifically, the correlation relationship between the mean variable of learning outcomes (KQ) with the following variables: DSD is 0.418; HI is 0.438; NLGV is 0.553; NDCTH is 0.236; DD is 0.518 and

COVID is 0.433; TKCTH is 0.537. Thus, it is completely appropriate to use the above data to include in the linear regression analysis.

4.4. Analysis of Variance ANOVA

The results of ANOVA analysis for test values $F = 68.348$ and $\text{Sig.} = 0.000 (<0.05)$ prove that the data and model are appropriate and usable.

Table 4. Results of analysis of variance ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	88,019	7	12,574	68,348	0.000 ^b
	Residual	63,287	344	0,184		
	Total	151,306	351			

Source: Results of the authors' analysis

4.5. Regression analysis

To analyze the influence of factors on learning outcomes of Accounting & Auditing students, the authors performed linear regression analysis to determine the impact of independent variables on the dependent variable.

Table 5. Results of analysis of coefficients of regression equation

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
1	(Constant)	0,631	0,289		2,181	0,030		
	DSD	0,130	0,042	0,122	3,091	0,002	0,775	1,291
	HI	0,096	0,047	0,084	2,038	0,042	0,715	1,398
	NLGV	0,239	0,046	0,219	5,180	0,000	0,681	1,468
	NDCTH	0,101	0,044	0,083	2,276	0,023	0,906	1,104
	TKCTH	0,313	0,047	0,292	6,681	0,000	0,637	1,571
	DD	0,174	0,049	0,155	3,567	0,000	0,645	1,550
	COVID	-0,244	0,040	-0,225	-6,059	0,000	0,885	1,1

The independent variables HI, NDCTH have Sig. coefficients less than 0.05, so they have statistical significance at 5% level, in addition, the remaining independent variables DSD, NLGV, TKCTH, DD, COVID have Sig. coefficients. less than 0.01, so these independent variables have statistical significance at 1% level. Thus, it is possible to confirm the significance of all the independent variables, they all affect the learning results in the form of online learning.

We have the following regression model:

$$KQ = 0.631 + 0.130DSD + 0.096HI + 0.239NLGV + 0.101NDCTH + 0.313TKCTH + 0.174DD - 0.244COVID$$

The above equation leads to the conclusion that there are 07 factors affecting the learning outcomes by online learning during the COVID-19 pandemic of students majoring in Accounting & Auditing in decreasing level, respectively: i) Course Design, (ii) Impact of COVID-19, (iii) Competency of Lecturers, (iv) Characteristics of learners, (v) Perceived Ease of Use, (vi) Perceived Usefulness and (vii) Course Content.

5. Discussion and Conclusion

The authors' results have demonstrated that student outcomes in the online learning process are influenced by 7 factors in descending order, respectively, Course Design, Impact of COVID-19, Competency of Lecturers, Characteristics of learners, Perceived Ease of Use, Perceived Usefulness, and Course Content. This result is similar to the results of previous studies when it is shown that these independent factors have a significant influence on student learning outcomes (Pham, Q., & Huynh, M., 2018; Alhumaid, J., 2020; Sut & Amy, 2021). However, contrary to Pham's conclusion, T.T.T. et al. (2021) that the factor of course design has no great influence on the research object, the group's results show that the above factor has a great impact on students' learning outcomes because the difference, especially in the training of Accounting & Auditing, has made the above factor even more necessary to create an effective online learning environment.

The results of the study will have contributions in adding to the theoretical framework for topics related to online learning as well as education taking place during the COVID-19 pandemic. At the same time, research is the basis for educational leaders, lecturers and students to understand the importance of factors affecting student outcomes in the online learning process, thereby shaping into policies focusing on the organization, design and implementation of online training programs in particular and higher education in general.

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THE MEANS OF COMMUNICATION AND THEIR ROLE IN THE PUBLIC HEALTHY COMMUNICATION DURING COVID-19 PANDEMIC IN VIETNAM

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Abstract

Since the COVID-19 pandemic broke out in China in 2019, it has quickly become a global pandemic, which threatened health and lives of billions of people around the world. In fact, the pandemic has claimed nearly 6 million lives worldwide and left long-term health issues for those who contracted this virus. Based on the situation, the paper was conducted with the aim of clarifying the roles and the way means of communication in Vietnam contributed to bringing about positive results with limited resources during this period. To conduct the research, the author has implemented the method of observation, in-depth interview and survey by online questionnaire. Research results showed that, during the COVID-19 pandemic, the means of communication in Vietnam has played the role as a bridge to provide necessary information to the public. Moreover, they have been combined into series of topics to create a spillover effect and have a strong impact on public consciousness in preventing and combating the pandemic.

Keywords: *means of communication, health, public, the COVID-19 pandemic, Vietnam*

1. Introduction

Vietnam's current means of communication system was formed in the 30s of the 20th century. Initially, it was quite sketchy, which just contains telephones, radios and mail. There has been 816 press agencies (print and electronic newspapers), 72 licensed agencies operating in radio and television in Vietnam until at the end of November in 2021. As of June 2021, there has been 829 licensed social networks in Vietnam. Not to mention that there are hundreds of thousands of radio stations (wired and wireless), information centers in residential areas, villages, hamlets, and so on.

Means of communication systems helped to raise awareness and promote social positivity among people, especially public health issues.

Health communication is considered as an important task in public health care. Through public health communication, the government disseminated policies and knowledge on health to help raise awareness, form positive attitudes as well as promote appropriate behavior among people in the prevention and control of the disease and the improvement of individual health. It helped citizens to be proactive in protecting and improving the health of their families and the community, and simultaneously assists in treatment and management to avoid the spread of infectious diseases. In Vietnam, communication for health community is carried out on a regular basis.

Under normal condition, besides health programs on national and provincial radio, television stations, and health columns on electronic newspapers and radios, local health stations also regularly organize events to popularize knowledge related to public health such as monthly vaccinations, seasonal health care instructions, contests themed health care, ...

The COVID-19 broke out in early 2020 and soon after that, WHO had to declare it as a global pandemic in March, 2020²²⁹. It laid down new tasks for countries and territories around the world in response to the public health emergency. In this context, it is important to select the types of means of communication and the modes of communication which helps to promptly provide accurate information about the pandemic as well as medical instructions to the community.

Like many other countries, Vietnam was also seriously affected by the COVID-19 pandemic and undertook severe problems, especially regarding to public health. However, Vietnamese government has quickly responded to deal with the disease, especially in communication to protect the community. As a result, despite having limited resources, Vietnam has achieved great success in the fight against the COVID-19 pandemic, in which communication made a significant contribution.

2. Literature Review

Up to now, there have been many studies on public health communication during the pandemic since WHO declared it as a global disease.

In the paper *“Role of Mass Means of communication and Public Health Communications in the COVID-19 Pandemic”*, authors (Ayesha Anwar, Meryem Malik, Vaneeza Raees, Anjum Anwar, 2020) described the coverage of disease information in different means of communication methods including false and untruthful information. Research has mainly focused on social means of communication platforms and telehealth applications. At the same time, the authors have pointed out six roles of the mass means of communication including: Public health communication; Health education; Strategies for social distancing; Reduction of stigma, discrimination and prejudice; Telemedicine; Managing infodemics.

In another study named *“Digital technologies in the public-health response to COVID-19”* (2020), authors focused on digital means of communication and social platforms which are described as a space with the large number of regular users. The author has pointed out the role of the means of communication combined with digital technology in minimizing the impact of misinformation amid the pandemic.

In the research *“Effective Risk Communication for Public Health Emergency: Reflection on the COVID-19 (2019-nCoV) Outbreak in Wuhan, China”* (2020), authors developed a communication strategy during an emergency on health community with the focus on risk messages. Authors listed out three principles in risk communication including: Accessibility and Openness of Risk Information; Communicate Early and Often About Risk; Strategic Method for

²²⁹ <https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>

Communicating Uncertainty. Through principle development, the authors suggested “A Simplified Model of Government–Expert–Public Risk Communication”.

In the study “*Topic Analysis of Traditional and Social Means of communication News Coverage of the Early COVID-19 Pandemic and Implications for Public Health Communication*” (2021), based on research in journalism, television and social means of communication platforms (Twitter, Reddit).) in the USA , authors showed that the means of communication lack the focus on public health comparing with economics and politics, along with the widespread of misinformation, greatly influenced to the performances of disease prevention and public health protection.

In the research “*Challenges in Tackling COVID-19: Use of the Mass Means of communication versus Interpersonal Channels in Pakistan*” (Babar Hussain Shah, Zaheer Khan, Saqib Riaz, 2021), based on two-step flow of communication, authors analyzed and clarified the relationship between mass means of communication and personal communication channels in the application of COVID-19 prevention measures. After pointing out the general role of mass means of communication and the role of personal communication channels, the author proposed three research hypotheses and proves them. In which, it is confirmed that if information on the pandemic is fully accessed with great intensity through personal communication channels, it will contribute to the application of preventative measures for COVID-19.

In the study “*Public health agencies outreach through Instagram during the COVID-19 pandemic: Crisis and Emergency Risk Communication perspective*” (2021), authors focused on researching the contents of public health communication on Instagram accounts of WHO, CDC, IFRC, and NHS, thereby affirming the great potential of social networks in delivering messages about public health, especially Instagram. The role of combating fake information is once again confirmed. The study also mentioned the role of authorities and celebrities as reliable source.

In Vietnam, studies named “*The social orientation role of the press - from the actual “war” to prevent and control the Covid-19 epidemic*” (2021) and “*The Covid-19 fake news problem and the role of the press*” (2021) also pointed out the role of the press in the fight against fake news and directing the public to reliable information amid the COVID-19 pandemic. In the article “*Application of multimeans of communication communication in the current Covid-19 epidemic prevention and control*” (2021), authors proved the roles of mass means of communication and social networks in providing information related to the pandemic. In addition, they produced some lessons regarding transparency of information and the delivery of accurate information in a quick and proactive way to meet the needs of the people.

In general, current papers showed that governments have used a variety of means of communication such as social platforms, multimeans of communication, newspapers, radio and television to communicate on public health over the period of the COVID-19 pandemic. However, there has been almost no research analyzing the system of means of communication used within a country or territory serving for the common purpose of health communication in an emergency situation to protect the community and prevent diseases.

Although many studies showed the role of the means of communication in public health communication, they only focus on the role of single mean, or two or three ones combined. Moreover, aforementioned studies mainly mentioned the role of the means of communication in providing information, fighting against the influence of fake news and misinformation, but not analyzing other roles. Therefore, in this research, the author will clarify the role of the means of communication system on public health during the COVID-19 pandemic in Vietnam.

The study focuses on handling the following questions:

RQ1: Which means of communication did Vietnamese government use to communicate on public health during the COVID-19 pandemic?

RQ2: What role did the means of communication system play in preventing the COVID-19 pandemic in Vietnam?

3. Method

To answer research questions, the author conducted a survey using questionnaire, in-depth interviews and observation (direct and indirect).

Observation method helped the author to have an overview of the means of communication system's activities of providing information about COVID-19 in Vietnam. Through an online survey, the author realized the sources which the public access news and information from and the role of information sources for social groups. However, random sampling through online questionnaire may not guarantee the accuracy of the research, the author continued to conduct in-depth interviews. In the in-depth interviews, the author used stratified sampling technique and selected subgroup samples by making a sample list with different demographic characteristics such as gender, age, education level, occupation, place of residence in order to ensure the diversity and representativeness of selected samples.

Observation

The author observed by updating information about the pandemic on the means of communication such as newspapers, radio, television, social networks... In addition, the author also typed keywords to search news related to COVID-19 in Google - the most popular search engine in Vietnam²³⁰ to identify sources of information concerning the pandemic, for example, how to prevent the disease and protect health. The duration of observation took place in a year from March 2020 to March 2022.

Regarding direct observation, due to living in a COVID-19 hot spot and directly participating in communication activities in the prevention and control of the COVID-19, the author had an opportunity to directly observe such communication activities in residential areas.

In addition, the author also studied documents from official sources, compared and contrasted data to draw assessments on the operation and effectiveness of the means of communication in public health communication during the pandemic in Vietnam.

²³⁰ <https://vietnamnet.vn/cong-cu-tim-kiem-made-in-viet-nam-lieu-co-can-h-tranh-noi-voi-google-495536.html#:~:text=T%E1%BA%A1i%20Vi%E1%BB%87t%20Nam%2C%20theo%20th%E1%BB%91ng,ki%E1%BA%BFm%20Made%20in%20Vi%E1%BB%87t%20Nam.>

Online survey using questionnaire

A national online survey was conducted in November 2021. The survey was carried out by selecting a random sample through sharing a link of Google Form for users on social networks including Facebook and Zalo. These has been the two most popular social network platforms in Vietnam up to now. Participants were supposed to answer questions about information channels they accessed during the COVID-19 pandemic, rating the effectiveness of such information in protecting and taking care the health of individuals and the community, residents' response to information on the pandemic and their attitudes towards government's prevention and control work.

In-depth interviews

To examine the outcomes of the online survey and remove unreliable data, the author conducted in-depth interviews.

The author implemented the sampling technique to group by locality and group by epidemic area. First, the researcher made a list of provincial administrative units in Vietnam. The list includes 63 provinces and centrally run cities. In the final step of sampling, selecting people to interview, the researcher used convenient randomization method, and at the same time uses stratified sampling technique. Accordingly, the selected people are from many different provinces include Bac Giang, Bac Ninh, Dong Nai, Hanoi, Ho Chi Minh City and Thai Nguyen, living in both urban and rural areas, diverse ages and occupations, including both men and women. Finally, the author compiled a list of 13 people to conduct interviews.

The interviews were carried out between November and December 2021. Each interview lasted from 10 to 15 minutes.

The in-depth interview questionnaire consists of two parts with 14 questions:

- The first part consists of 6 questions on sociological characteristics such as gender, age, education level, place of residence and occupation.

- The second part consists of 8 questions: one question about when people know about COVID-19 and how often they follow information related to the disease, one question about the sources of information that people had access to during the pandemic, six questions related to fake news about COVID-19 during the pandemic, people's perceptions, attitudes and behaviors when knowing the information they had access is fake news.

4. Results

The outcomes of observation

The results from the observation process showed that, during the COVID-19 pandemic, Vietnamese government has applied a variety of means of communication to communicate information about public health, including *radio, television, press, and social and cultural institutions*:

Radio

In Vietnam, the radio system includes the Voice of Vietnam (VOA), and local radio stations²³¹ serving communication at the levels of province, district and commune are

²³¹ <https://nhandan.vn/tranghanoi-tin-chung/phat-huy-vai-tro-cua-he-thong-thong-tin-co-so-trong-tuyen-truyen-phong-chong-dich-covid-19-645042/>

installed in each residential area. During the pandemic, besides the fixed radio system, there was also a mobile radio system applied in residential areas

Television

There is a system of agencies and television stations from the national level to the provincial level in Vietnam. In addition to the existence of the national television station and 63 television stations of provinces and cities, there are also television channels of the Vietnam News Agency (VNA) and central agencies. Channels are broadcasted on many platforms such as free digital TV, paid TV, social means of communication platforms such as Facebook, Lotus, TikTok, Youtube which are the most popular social networks in Vietnam.

Press

According to a report at the end of 2021, there has been 816 press agencies in Vietnam by the end of November 30, 2021²³². However, the author mainly made observations in the most visited online newspapers in Vietnam, based on the ranking of Alexa.com website, such as VnExpress.net, Zingnews.vn, Vtv.vn, Laodong.vn, Dantri.com.vn, Vietnamnet.vn, Thanhnien.vn, Tuoitre.vn and qdnd.vn. In addition to websites, these e-newspapers are available on Facebook, TikTok and Youtube. Some also appear on such mobile applications as vtv, dantri, vnexpress, tuoitre. Full and timely information on the prevention and control of the COVID-19, and medical instructions are provided on such e-newspapers.

Social and cultural institutions

Amid the outbreak of the COVID-19, the large number of signs, panels and posters were set up at locations where community activities take place such as traditional markets, supermarkets, commercial centers, parks, cultural houses, etc., with a view to giving instructions on how to keep hygiene, and measures to prevent and control the disease. The most popular sign is “5K message” issued by the Ministry of Health.

Group communication²³³

The establishment of local medical stations, mobile medical stations, health consultation centers (1022) and Community-based COVID-19 prevention teams have created a turning point in communication on public health during the pandemic. A 3-5-person team performed many tasks concentration on communicating about the COVID-19 prevention and control, checking people with risk of infection in the community and replying to people’s questions on health issues in the area.

Social network platforms

During the pandemic, social means of communication platforms were common means of communication about public health. Not only authorities, radio, television, and electronic newspapers, but individuals also regularly shared information on health protection and COVID-19-related issues through social networks.

²³² <https://www.vietnamplus.vn/infographics-so-lieu-ve-cac-co-quan-bao-chi-viet-nam-nam-2021/764886.vnp>

²³³ https://moh.gov.vn/tin-tong-hop/-/asset_publisher/k206Q9qkZOqn/content/to-covid-cong-ong-ong-tho-sat-can-h-cung-y-te

These tools are available and used on a regular basis in Vietnam when it comes to communication policies and public health issues. During the pandemic, they were adjusted and combined to create series of messages towards protecting and taking care of public health.

The outcomes of online survey

In the online survey of 382 participants, there were 241 females (36.1%) and 141 males (36.9%), with an average age of 26.6. The results showed that, during the pandemic, the public actively looked for and accessed a variety of source, in which social networks were the most accessible channel with 83.8% (320/382 people). The detail data are presented in Table 1.

Table 1. Information sources

Information channels that people follow about the COVID-19 epidemic (N = 382)

Information sources	Frequency	Percentage
Live Chat	75	19.6%
Online Newspapers	170	44.5%
Radio	143	37.4%
Social Networks (Facebook, Gapo, Lotus, TikTok, Youtube, Zalo)	320	83.8%
Television	220	57.6%

Social networks were also rated as fast-accessed sources by 63.4% of respondents (242/382). However, only 4.2% of the respondents (16/382) said that information from social networks is reliable. In contrast, ranking third in terms of delivering information, television was considered as the most reliable source of information by 78% of participants (298/382)

Accordingly, 93.7% of the respondents (358/382) rated that information on health amid the pandemic is “useful” to “very useful”. The details are shown in Table 2.

Table 2. The usefulness of disease-related information COVID-19

Frequency of participants’ responses to the file-level Likert-scale question about the usefulness of disease-related information (N = 382)

LIKERT SCALE	Frequency	Percentage
1 Strongly disagree	0	0.0%
2 Disagree	0	0.0%
3 Neither disagree Nor agree	24	6.3%
4 Agree	147	38.5%
5 Strongly agree	211	55.2%

41.9% of people (160/382) said that they “often” and “very often” shared health information related to COVID-19 and 33.5% of people (128/382) shared it normally. What is more, up to 71.2% of respondents (272/382) said that they clearly distinguished information from main sources and from fake news. As a result, 98.2% of the respondents (372/379) said that they believed in the performance of government’s pandemic prevention and control.

It shows that the information about the epidemic is provided in a complete, timely, exactly and systematic manner in on means of communication, which had positively contributed to improved the community's awareness, attitude and behavior towarded the disease COVID-19 epidemic.

The outcomes of in-depth interviews

The researcher interviewed 13 people, including: 02 people in Bac Giang, 04 people in Bac Ninh, 01 people in Dong Nai, 02 people in Ho Chi Ming City, 02 people in Hanoi, 02 person in Thai Nguyen. In which, there are 08 men (61.54%) and 05 women (38.46%); the average age of survey participants is 38.85 years old; 04 (30.77%) people graduated from high school, 01 (7.7%) people have college degrees, 05 (38.45%) people have university degrees and 03 (23.08%) people have graduate degrees; 04 (30.77%) people in rural areas and 09 (69.23%) people in urban areas; occupations include sales, street vendors, teachers, business, civil engineers, engineering, freelance workers, office workers, farmers, pr and students.

Results from in-depth interviews with 13 people from Bac Giang, Bac Ninh, Dong Nai, Hanoi, Thai Nguyen, and Ho Chi Minh City, show that:

Firstly, the results of the online questionnaire survey were relatively accurate and reliable. People had tendency to access to multiple sources of information, and social means of communication was still most visited source of fast news but the reliability was very low. Accordingly, 100% of the respondents said that there was many fake news on the COVID-19 prevention and control measures as well as medical instructions on disease prevention and treatment that spread on social networks, mainly on the Facebook. 5/13 people (38.46%) said they had shared fake news about public health during the pandemic and it caused confusion among the community, they felt guilty and sad about it. Then, they can verify the information by accessing news from television, or radio, or from relatives.

Secondly, notably, in the COVID-19 hot spots, 100% of the respondents (13/13) agreed that local radio stations and group communication through Community-based COVID-19 prevention teams were the two fastest and trustful means for information.

Thirdly, the fact that information on public health, medical guidelines for prevention and treatment of COVID-19 was communicated by different means to help people easily access and 100% respondents (13/13) said that above mentioned information were useful information which helped them feel secure and trust in the COVID-19 prevention and control work of the government.

Fourthly, 100% of respondents (13/13) said that, besides meeting the needs of information during the pandemic, the sub-means of communication provided a lot of practical ones such as health issues, social security issues, sate's supportive policies, volunteer activities, food issues, channels to receive support... Therefore, there was almost no worry among citizens in the pandemic.

5. Discussion and Conclusion

5.1. Discussion

Through the research results, it is shown that, in response to the public health emergency during the COVID-19 pandemic, Vietnamese government has taken advantages of the means of communication system to communicate necessary information. Each mean has its own advantages and limitations, so the systematic use of a variety of means of communication is considered as an optimal option.

For example, information from national radio and television stations is comprehensive and universal, but it lacks the depth, locality, and region, which makes it difficult to access for people in rural areas with low literacy skill. Such restriction is covered by the support of local radio and television stations. Information from the mass means of communication can be very fast, but it lacks the closeness and direct interaction, which may fail to encourage people in the community. The limitation is supported by the group communication system from local health stations, mobile health stations and Community-based COVID-19 prevention teams. Social networks are considered to be a fast mean of communication, but it contains many potential risks such as fake news and misinformation. The other means such as television, radio and electronic newspapers have become channels which were trusted by the public.

Therefore, the means of communication system helped Vietnamese government approached a large number of people and simultaneously minimized the inherent limitations of each means of communication, which resulted in a significant communication effect.

Another remarkable point is that messages were delivered in a concentrated way, which has created strong impacts on the community's awareness. “5K message” has been introduced to the public by the means of communication under various forms, contributing to the positive results of the fight against COVID-19 in Vietnam. On October 11, 2021, Vietnamese government issued Resolution 128 on “Safe adaptation, flexible and effective control of the pandemic”, marking a major turning point in the fight against COVID-19 in Vietnam. Accordingly, the communication goal has also changed from preventing and removing the pandemic to living safely with the disease. Medical measures and instructions on treatment, isolation for asymptomatic patients at home and related issues were delivered to the community.

Besides the means of communication, the author found out that tools such as government policies and strict regulations helped to prevent spreading false information on public health during the pandemic have also contributed greatly to establishing credibility on social means of communication among the public and driving their interest to official and reliable sources.

In addition to the usual role of single means of communication, the results of the research proved that the system of means of communication has played important roles such as:

First of all, it is the ability to strongly influence the perception of the community. The means of communication system on public health would certainly make a profound

impact on awareness, thereby contributing to changing attitudes and behavior towards COVID-19 of each citizen. As the public had tendency to access to multiple sources of information, the use of a variety of channels and means of communication would help affirm and imprint messages about public health amid the pandemic.

Second, it is the ability to widely communicate to all people. In the context of digital age, the majority of people in Vietnam have used the internet and social networks (about 72%), but their needs to access and looking for information are not the same. Therefore, the use of a series of means in delivering a message, such as “5K message”, has played an important role in disseminating health information and medical instructions to each citizen during the epidemic so that “no one is left behind”.

Third, it helped to create an information ecosystem for the public. The fact that everywhere, from cyberspace to daily life, from Facebook, TikTok, Youtube, to Zalo, from smartphones to desktop computers, from elevators to offices, hospitals, supermarkets, from fixed locations to anywhere, the disease-related information and medical guidance on the prevention and treatment of COVID-19 are available for everyone. In addition, along with information on public health, other useful information was also provided, including government policies and legal regulations on the prevention and control of COVID-19. All of which helped to create an information ecosystem so that “no one is left behind” in the pandemic.

Fourth, it is the ability to quickly identify and prevent fake and false information. Means of communication has the ability to prevent or reduce the effects of fake news, disinformation, and misinformation. However, if such situation is quickly detected and effectively prevented, it will require the participation of a whole system. It means that means of communication were combined to form a bridge to provide information between the government, authorities and the community. In other words, it was also easy for the public to search and check for health information thereby making citizens feel secure and trust in government’s prevention measures.

Fifth, it is both a reliable fulcrum for information and an address for verifying health information. Amid the pandemic, there were a large amount of public health information. Of which, government's means of communication is the most reliable one, when needed, all problems can be answered, all information can be verified quickly and timely. Information from the government channels were not always the fastest, but it was certainly accurate and scientific. People were assured of protecting the health of themselves, their families and the community.

5.2. Conclusion

In Vietnam, the conditions of infrastructure, geography, population distribution, regions, customs and the cultural diversity with more than 54 ethnic groups set objective requirements in communicating to protect public health during the COVID-19 pandemic. In which, the use of a variety of means of communication to communicate to protect public health is a compulsory requirement.

From the research results, the author showed that if the means of communication is built into a system, or at least during the COVID-19 pandemic, they work together to communicate so as to protect public health, their roles will become much larger. That is so-called the “resonance” power. People were not only equipped with adequate information on disease prevention and health care, but also were protected in a safe and healthy “information ecosystem” contributing to the protection of physical and mental health.

In addition, the research indicated that it is necessary to build slogans in communication on public health. The author realized that slogans in the prevention and control of COVID-19 and communication on public health protection, such as “5K”, “going to every alley, knocking door to door, checking every person”, “the best vaccine for you is the one available to you right now, “Leave no one behind”..., were considered to be concise, easy to remember, easy to understand, easy to share and able to. These slogans have contributed largely to shaping public consciousness and behavior, and thereby creating a great consensus in the prevention and control of pandemic in Vietnam.

Along with that is the role and decisiveness of Vietnamese government in the prevention and control of the COVID-19 pandemic. It could be seen clearly that the government quickly detected and addressed false, misleading and untrue information in accordance with the provisions of Vietnamese law, thereby cleaning up the information space regarding the disease. Therefore, it is noted that the provisions of the law could be viewed as one of the effective tools to prevent fake news in Vietnam, contributing positively to the performances of communication to protect public health.

Last but not least, while the COVID-19 pandemic is now under control, WHO warned that we had not completely overcome it.²³⁴ Along with the process of globalization, the gap between rich and poor, and the inequality in basic human rights has increased, especially in Africa²³⁵. Another global pandemic can suddenly break out at any time. The most recent is the monkeypox outbreak and 12 countries have reported cases²³⁶. Therefore, studying the means of communication and their roles in Vietnam during the COVID-19 pandemic is not only meaningful to Vietnam but also other countries and territories as well. At the same time, it could be work for all countries and territories to join hands to repel and prevent future global pandemic so that “no one is left behind”.

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²³⁴ <https://news.un.org/en/story/2022/05/111875>

²³⁵ <https://news.un.org/en/story/2022/05/1118752>

²³⁶ <https://www.who.int/emergencies/disease-outbreak-news/item/2022-DON385>

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